Design and Assessment Tool for an Enabling Environment for Dementia Care

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ABSTRACT

According to the World Health Organisation (WHO), dementia is an umbrella term for a neurogenerative disease with irreversible and progressive symptoms, which include memory loss, mood changes, disorientation and issues with communication and reasoning. Globally, the total number of people with dementia have been increased from 41 million in 2015 to 131.5 million in 2050, where much of the increase is in developing countries, against the backdrop of deteriorating quality of care and high turnover rates among formal care staff. Dementia-friendly environment is designed to support their symptoms within a physical environment, which lead to a 'specialised' environment. An enabling environment enables the psychosocial barriers of environments and attitudes imposed by care stakeholders. Caring is the experience and feeling of a strong positive effect in defining identity in certain places and the communities, such as home, workplace, and neighbourhood. In this case, transnational dementia care produces a new perception of place and identity by introducing the emotional design of distance/place attachment in ageing. Thus, designing is not a static process but requires opening the world for people with dementia.

Case studies of transnational dementia care facilities in Thailand were selected. The primary aim of the research study is to develop design and assessment tools for an enabling environment for dementia care by negotiating attachment/sense of place for the overall quality of care. There are five main research objectives. The first is to explore designers' perceptions of an enabling environment for dementia care. The second objective is to investigate how care stakeholders use spaces and meet the observed needs of the enabling environment for dementia care. The third objective is to observe how people with dementia and care stakeholders use spaces and meet the observed needs of the enabling environment for dementia care. The fourth objective is to develop a design framework demonstrating how the designed environment and user needs are met to enhance their capabilities. The last objective is validating and contextualising the users' cultural value needs and providing sustainable health promotion settings.

The main findings include five overarching domains – creative functionality (including three themes: concept, learning environment, flexibility), organisational security (including five themes: emotional health, levels of care, person-centred care, comfort, and surveillance), embodied selfhood (including two themes: personal spaces, and social inclusion), self-esteem (including four themes: dignity, recognition, respect, and national character) and self-actualisation (including two themes: roles and the self). – which indicate how the design of an enabling environment can support the quality of dementia care. The findings expand how the needs of people with dementia are related to the care professionals, and how the capability management from care managers or designers can support the needed environment. In addition, Ainsworth's work on the quality of attachments has given rise to the suggestion that caregivers are the 'architects' of the quality of attachments, and that attachment, non-attachment or disordered attachment with the person cared for lies in the hands of caregivers. However, the context of Thailand has suggested the condition of an ambiguous society, where personal boundaries are shifting, disorienting, belonging to no place, or an unknown 'home'. The sense of uncertainty and in-betweenness experienced by people are underlined. Therefore, this raises the question of the application of the culture of unbounded form and non-attachment. The design and assessment tools attempt to contribute to knowledge by conceptualising the important issues and aspects of an enabling environment for dementia care. The overriding objective of this research is to create new insights that provide original and effective ideas, which may have important social, cultural, economic, and political consequences. The research study attempts to contribute new knowledge to design and assessment tools for an enabling environment for dementia care by contextualising and testing the tools with potential user groups.

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LIST OF ABBREVIATIONS

AD	Alzheimer's disease
ADLs	Activity of Daily Livings
BPSD	Behavioural and Psychological Symptoms of Dementia
CBP	Capability-based Planning
COVID-19	Coronavirus Disease of 2019
DDAT	Dementia Design Audit Tool
MEAP	Multiphasic Environmental Assessment Protocol
MSE	Multi-sensory environments
OHE	Optimal Healing Environment
PEAP	Professional Environment Assessment Protocol
PEOP	Person Environment Occupation Performance
POE	Post-Occupancy Evaluation
QoC	Quality of Care
QoL	Quality of Life
SCEAM	Sheffield Care Environment Assessment Matrix
PwD	People with Dementia
SCU	Special Care Unit
SOC	Sense of Coherence
SES	Socioeconomic Status
WHO	World Health Organisation

PREFACE

Through the memory of dementia, the first concept of dementia was structured when I was a child. The same image emerges during the visit, the question of what it is. The perception of people with dementia and how they perceive space, time, and orientation. What is the role of architects then?

Yanisa Niennattrakul

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1　INTRODUCTION

The chapter introduces the global population of people with dementia, which has been estimated to increase gradually from 47 million in 2018 to 131.5 million in 2050 (Prince *et al*., 2015). The increasing numbers could cause people with dementia to seek avoidable hospital services with high healthcare costs due to unmet medical, care, and social needs in the community. Through environmental design, therapeutic models have been encouraged as health promotion settings, calling for a new dementia care approach. The thesis sets to answer how the design of an enabling environment can support and enhance the quality of dementia care. This section introduces the main research questions, aims, and objectives. The research methodology is also presented in this section explaining the three main research methods, namely in-depth interviews, ethnography, and co-design workshops. Finally, the chapter outlines the structure of the thesis.

1.1　Background

As its Latin origins suggest, dementia is an umbrella term, which describes the decline of cognitive systems and represent a departure from previous mental functioning after a clinical diagnosis (Cunningham *et al*., 2015), which a person may require a functional dependence. As ageing is a risk factor (Niccoli and Partridge, 2012), the total population of people with dementia is estimated to increase from 47 million in 2018 to 131.5 million in 2050 (Prince *et al*., 2015) (shown in Figure 1). Each person will experience dementia in their own way as a progressive syndrome. Although the rate of declination notably depends on the type of dementia affecting the person, including neurodegenerative diseases, the primary causes of which are unknown (DeTure and Dickson, 2019). In addition, the COVID-19 incidence indicates that the infection may potentially increase and contribute to cognitive impairment and dementia (Ciaccio *et al*., 2021). Some broad similarities include loss of executive functions (mental skills), and these deficits occur because the brain is becoming progressively damaged by the disease or small strokes (Jenkins, 2016). As a result, short-term memory decline may become increasingly apparent in memory loss, mood changes, disorientation, problems with communication and reasoning, which may be different in each person (Duong, Patel and Chang, 2017). Without effective treatment options, a healthy lifestyle may reduce dementia risk through cardiovascular and cerebrovascular mechanisms (Pan *et al*., 2020). However, all current projections of the dementia epidemic and the assumption are doubtful, and secular trends are perfectly plausible. Hence, ageing population seems to play the most significant role, or prudent policymakers, which should plan future service provision based upon current prevalence projections (Prince *et al*., 2016).

After the diagnosis, dementia may cause a social burden on caregivers, families, communities, and societies (WHO, 2017). Globally, by 2030, the cost of dementia care will be risen to US$2 trillion, which can undermine social and economic development and may overwhelm health and social services, especially long-term care systems (Prince *et al.*, 2015) (as shown in Figure 1 and Figure 2). As a public health priority, policies, legislation, plans, frameworks, and integrated programmes of care should be developed and coordinated to support the recognition of the impact of dementia and resolve the complex needs of people with dementia within the context of each country (Sapkota, 2019). However, low- and middle-income nations still need to plan and implement programmes to tackle the rising trend, possibly due to their culture of care (Kruk *et al.,* 2018). For example, in Thailand, no community guidelines have been established for dementia care in the long-term care system (Chuakhamfoo *et al.*, 2020). The influence of culture on dementia care was noted by Burnard and Naiyapatana (2004), who observed a relationship between culture and communication, in that 'Thainess', Buddhism, the nursing profession and nurse–patient or doctor–patient relationships can define the care ritual (Swihart, Yarrarapu and Martin, 2022). In Thailand, the burden of caring for people with dementia rests on families, with an urgent need to improve and expand community services (Werner and Kim, 2021). Simultaneously, some experts in the long-term care system have suggested, and are developing, a new model of community-based dementia care (Warrick, Prorok and Seitz, 2018).

Spiritual identity in Thai culture is all-embracing and unique (Farrelly, 2016): caring can be seen as showing the good morals derived from a religious identity, conducting religious practices and preserving religious rules and customs (Knodel *et. al,* 2018). According to Aulino (2016), the way Thai people take care of their parents demonstrates a sense of detachment (Tobias, 1977) embedded in the Thai identity that eventually reflects on progressive dementia care and Thai beliefs to detach care from the person and self (Haeusermann, 2018). Culturally, the old and infirm should be cared for by family members, whose gratitude to their elders creates a pattern of informal long-term care. However, the economic burden this causes – in terms of care costs, financial debt and lost opportunities for career development – has been reviewed by Sihapark, Chuengsatiansup and Tengrang (2013).
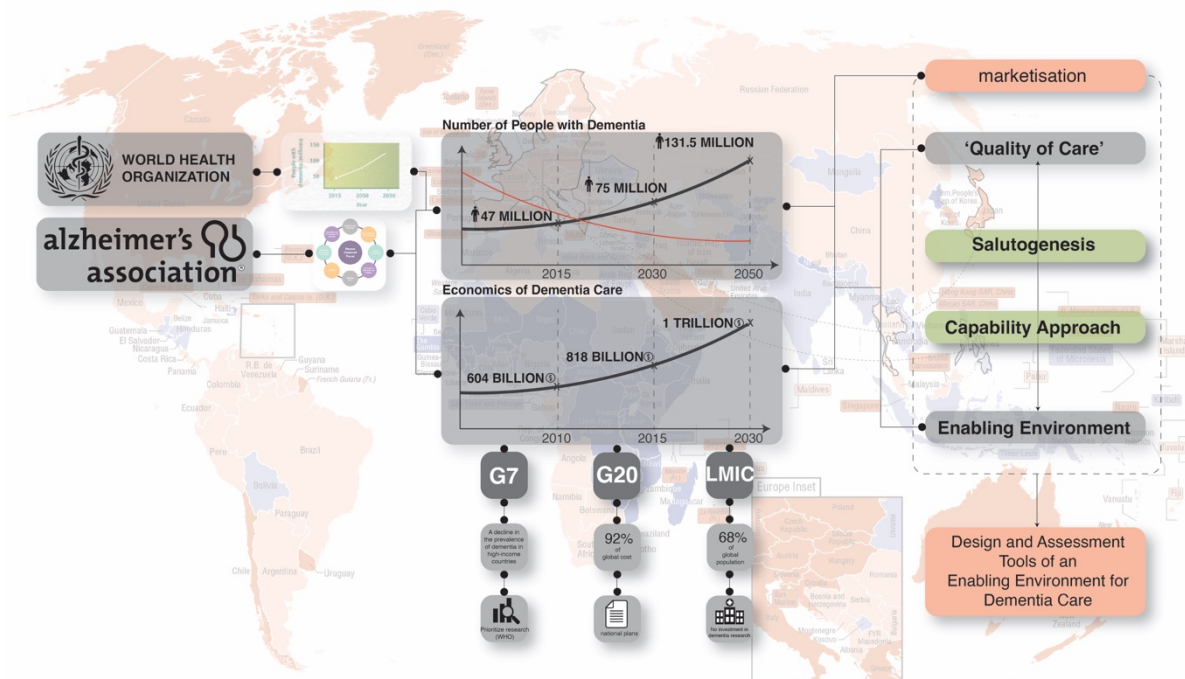
Figure 1 Global Dementia Challenges
Sources: Adapted from Wortmann (2012) and WHO (2017)

Comparable to the Eastern concept, the contemporary ways of living with dementia (e.g., dementia as a disability, equal human rights, and a sense of meaning) are reflected in dementia-friendly communities (Lin, 2017). Consequently, a growing movement reminds communities that people with dementia have the same rights as others, can be active citizens (WHO, 2015), and should be treated with dignity and respect. However, community-based support for dementia care provisions by various agencies have inconsistent funding, which is fragmented and short-timed (Morton *et al*., 2021). Therefore, older people with unmet medical, care, and social needs in the community could seek avoidable hospital services resulting in high healthcare costs (Matchar *et al*., 2018).
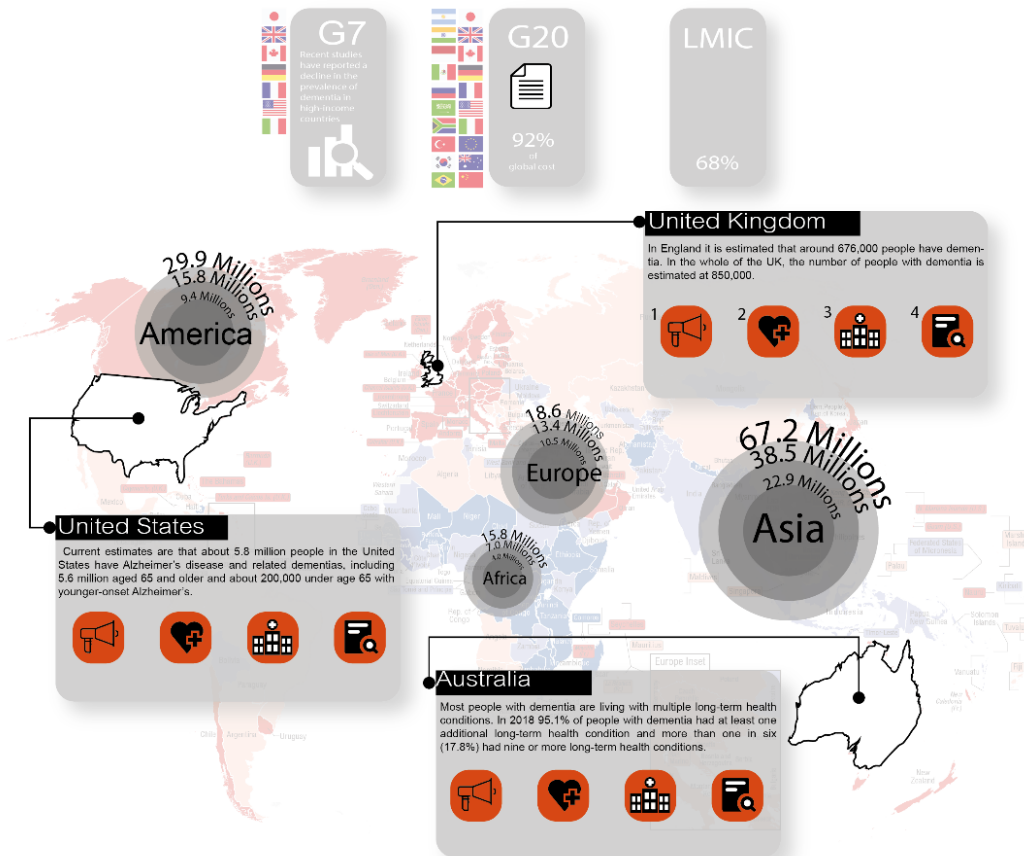
Figure 2 Global Dementia Trend and Quality of Care
Sources: Adapted from WHO (2017) and Lancet (2019)

By creating an environment to build a culture of care, people feel valued, not just customers and clients, but those within the organisation (Metz, Illies and Nistor, 2020). However, all nurses and healthcare professionals are needed to communicate with patients, with families and with other colleagues in multicultural settings (Burnard and Naiyapatana, 2004). The relationship between culture and communication can help to inform a care practice (Meddings and Haith-Cooper, 2008). In this case, the concept of 'Thainess', Buddhism, the nursing profession, and nurse-patient/doctor-patient relationships are related and the cultural aspects of nursing in various contexts can also reassure nurses internationally (Burnard and Naiyapatana, 2004). The transnational dementia care facilities in Thailand attract people with dementia, who migrate for care based and hospitality services based on their wealth and privilege (Johnston and Pratt, 2022). Hence, the state-supported programmes negatively privatised industry on the availability of healthcare professionals in public hospitals in Thailand (Pratt and Johnston, 2022).

High quality, well-integrated medical and social services to achieve better health outcomes and prevent unnecessary acute care visits are required for dementia care (Jennings et al., 2016) to reduce agitation and challenging behaviours (Livingston et al., 2020). Challenging behaviours such as wandering can increase risks of trips, falls (and associated and sustained injuries), and risk exposure to social vices, such as theft, may be the direct causes of hospitalisation (Sampson *et al*., 2015). However, some indication currently states that families are improved in their care for relatives with dementia care than before (Schulz and Eden, 2016). The transitional environment of long-term care facilities can be stressful for older people, entailing numerous challenges. Understanding the cultural factors helps nursing staff gain new insight into older people's transition to residential care facilities (Sun *et al*., 2021). Therefore, healthcare professionals need to strengthen their competencies to facilitate access to healthcare.

In 1997, Professor Tom Kitwood (1997) initiated the concept of person-centred care and emphasised on the requirement for continue prolonged intensive personal interactions with people with dementia. Person-centred care means treating 'patients' as individual and equal partners in the healing business (Coulter and Oldham, 2016). By refocusing on the loss of abilities and emphasising an individuals' unique needs, personal experiences and strengths, person-centred care model reintroduces how to measure and design care services for people with dementia (Fazio *et al*., 2018; Byrne, Baldwin and Harvey, 2020). The care philosophy respects and values people with dementia and promotes their health and well-being (Soofi, 2022). However, person-centred care approach can indicate to an emotional burden of caregivers due to the limitation of caregivers and can result in 'Malignant Social Psychology', which correlate with neuropsychiatric symptoms of people with dementia (Barbosa *et al*., 2015; Eisenmann *et al*., 2020).

A therapeutic resource, such as design can holistically promote functionality and well-being among people with dementia (Day, Carreon and Stump, 2000). Design perception has been enhanced by dementia-friendly design to empower people with dementia and their caregivers, especially in relation to spatial orientation problems (van Buuren and Mohammadi, 2022). The positive strategies for quality of life are demonstrated in physical environment interventions (Hunter et al., 2019). Moreover, Zeisel (2013) promotes eight types of design guidelines, emphasising the effects design could have on the personhood of residents and on opportunities for relationships – the link to person-centred care. According to the work of Lawton (Wahl, Iwarsson and Oswald, 2012), the physical environment serves as a framework for various changes in cognition, independent functioning, and high quality of life, which should be supportive and therapeutic (Calkins, 2018). designers and researchers had developed

distinct versions of therapeutic goals that could be used to guide the development of environments, both physical and programmatic, in environment-gerontology theory (Calkins, 2018). Additionally, the importance of activities engagement for people with dementia is the meaningfulness (Roland and Chappell, 2015). Purposeful activities are tools and media, which used by therapists to facilitate performance, or tools for bringing about change (Strandenæs, Lund and Rokstad, 2019). Hence, meaningful activities for people with dementia should be accessible, enjoyable and provide connection with others.

The concept of salutogenesis by a sociologist, Aaron Antonovsky, initiated a multi-sensory environment, which aims to balance and support the positive psychology for people to overcome illness with constructive stimulation (Antonovsky, 1979). By perceiving health as landscape, the cultural and natural construction affect well-being and health (Menatti and Casado da Rocha, 2016). Landscape architects and designers have adopted playscape terminology to define the environmental features that encourage play and social interaction for all age groups. Current concepts of therapeutic landscape combine landscape with principles of holistic health and the interaction of social, affective, and material factors. In the dementia context, the complexity of the nursing home as a therapeutic place has led to the culture change movement, which transforms and de-institutionalises care institutions. Hence, health tourism in many contexts have recently seen popularised due to the quality of therapeutic landscapes (Huang and Xu, 2017).

This PhD study introduces the relationship between actor-network perspective (Cresswell, Worth and Sheikh, 2010), which examines the co-creation of dynamism between therapeutic landscapes and health tourism (Huang and Xu, 2018). Referring to Waller *et al*. (2015), more inclusive products can reach a broader market, improve customer satisfaction, and drive business success. Beneficially, tourism and leisure activities have revealed for individuals with a disability, enhancing personal development, quality of life, recovery, and contribution to social inclusion (Kastenholz, Eusebio and Figueiredo, 2015). Consequently, the approach begins to extinguish barriers to leisure activities, thereby impacting the freedom of individuals to participate, excluding the groups from many activities they previously engaged in (Innes, Page and Cutler, 2016). Subsequently, one facet of destination development and accessibility has been framed by the destination experience for equity and inclusivity (Innes, Page and Cutler, 2016). As a result, therapeutic models have been encouraged as health promotion settings, calling for a new dementia care approach. Hence, tourism as a therapeutic community can be developed for positive user experiences.

1.2   Problem Statement

Medical tourism exists when consumers choose to travel across international borders with the intention of receiving alternative procedures of medical treatment (Khanm Chelliah and Haron, 2016), which may span the full range of medical services. However, the benefits of trade liberalisation and international tourism have been sporadic and uneven. The neoliberal model of tourism pursues profit at all costs, with scant regard for the needs of local people, communities, or the natural environment (Wearing *et al.,* 2019). Within this milieu, medical tourism is being promoted as a rational economic development strategy for some developing countries and a makeshift solution to the escalating waiting lists and exorbitant healthcare costs in developed countries. The dementia care burden is often more significant in low- and middle-income countries (LMICs), where some of these countries are projected to have the largest increases in dementia prevalence over the next few decades (Sexton *et. al*, 2021). As ageing and health has many socio-cultural determinants, availability of social support for older people are varied in different cultures based on social status (Wanchai and Phrompayak, 2019). Great respect has been accorded in both within their families and in society of many developing countries. The traditional strong social support may seem to be under strain due to the rapid social restructuring and economic changes in these countries (Shaji, 2009).

Strategies of designing hospital hotels, are compose of master planning, affordable tourism services, medical education, medical tourism websites, and health tourism policy councils, which have been articulated as principles of designing hospital hotels (Kazemha and Dehkordi, 2017). Because of different dementia laws, freedom and autonomy through mobility are possible in this context. Therefore, regulation of the medical tourism and public health sectors overlap in many instances, raising questions of how patient safety, economic growth, and health equity can be protected (Labonte *et al*., 2018). However, different cultures and contexts understand dementia differently (in different meanings). The development of medical professionals such as geriatricians, portray a change in local perception of "the elderly", which are socially constructed, locally experienced in global media and the marketisation of lifestyle interventions (Hillman and Latimer, 2017). Architects' actions have been outlined by rules, regulations, standards, and governance practices. Socio-cultural and religious codes seek to influence the formal structure of settlement patterns, to prescribe building regulations, and to specify detailed elements of building safety (Gilman, 2005). Consequently, some caregivers give preference to people with dementia's autonomy more than their safety under the responsibility of risk management and regulations (Smebye, Kirkevold and Engedal, 2016).

In the nursing home sector, the concept of de-institutionalisation becomes a trend for people with dementia to live in a small-scale and home-like care settings, instead of large nursing homes (Verbeek *et al.,* 2010; Moeke *et al.,* 2016). As a result, Daily routines are emphasised and encouraged to participate in meaningful activities in familiar domestic settings (Malta-Müller, Kirkevold and Martinsen, 2020). Downsizing care facilities and increasing home-like appearances and atmosphere (Shield *et al.,* 2014). Likewise, a cluster of residents (usually six to eight) live together in small-scale care facilities and nursing staff are part of the household (Boer *et al.,* 2018). Residents are encouraged to participate in normal daily activities and integrated rehabilitation tasks (WHO, 2019). Social interactions and segregation in the context of dementia are categorised into different social classes, occupations, and cultural backgrounds. However, class discourses may not be explicated. The concept of 'ordinariness' often reveals how inequalities and suffering are legitimised and accepted (Crompton, 2006; Skeggs, 2011; Skeggs and Loveday, 2012). Economic, social, and cultural expressions of late modernity questions how ageing and social class are enacted and where inequalities can be resolved in later life (Jones, 2017).

According to Augé (2008), the concept of 'non-place' means not relational, not historical, and not concerned with a person's identity in the space. As a non-place, an unfamiliar environment might cause agitation. Unlike the homelike design, a normalised living is emphasised by a sizable variable in the characteristics of small and domestic-style settings (Verbeek et al., 2009). Wayfinding becomes an issue for people with dementia, especially in unfamiliar spaces. Hence, similar design features of the built environment, such as signs in wayfinding, are attended (Sheehan, Burton and Mitchell, 2006; Sturge *et al.*, 2021). Limits of the person's agency need an external support in making daily life decisions (Krist et al., 2017). Design is a purposeful human activity in which cognitive processes are used to transform human needs and intent into an embodied object. However, though tourists, disenchanted by the apparent inauthenticity of their lives, are searching for more 'real' experiences, perhaps by visiting non-Western cultures they understand as 'traditional', they are doomed only to find a 'staged authenticity'. Therefore, the main research question is how the design of an enabling environment can support the quality of dementia care. According to Nussbaum (2009), the capability approach can ensure that nursing staff and caregivers can fulfil basic needs of people with dementia and other capabilities towards a dignified life (Melander *et al.*, 2018). Within the normalness of being a 'person', salutogenic design strategies of many organisations and municipalities across the world are working on design qualities of usability and aesthetically pleasing appearance.

In this case, the context of Thailand was chosen. Since 2003, the Thai government has attempted to make Thailand a global centre for medical tourism through an initiation of a centre of excellent healthcare in Asia. By assessing its credentials as an international medical hub in the late 2010s, the Thai government noted it led its Asian competitors on service and quality of care. According to a cultural approach, Thai practice of care for ageing population focuses on the exploitative relations between global north and south to fully represent the high quality of care (Pratt and Johnston, 2021). The skilled nature of dementia care offered by non-kin-based relations is developed over time (Pratt and Johnston, 2021). Especially, informal caregivers are the main human resources for dementia care services in rural areas (Asian Development Bank, 2020). As a result, policymakers should consider the dominant pattern of care in Thailand and promote these services (Chuakhamfoo *et al*., 2020). Moreover, the hospitality and care given by Thai people show the will of the international hotels that come into the country to implement a standard service level for their guests, reflecting the mentality of culture. As a result, several dementia resorts have emerged in the context.

In the context of Thailand, Alzheimer's disease was the most common cause of dementia, and the distribution of other types of dementia and other symptoms were similar to Western statistics (WHO,2021). However, the proportion of young people with dementia was higher (Dharmasaroja *et al*., 2021). Studies showed that people in the community were aware of dementia as being permanently neglected or unable to remember. Currently, dementia prevention in older people is recommended by doing fun activities and interacting with other people in the community (Piyawattanapong, 2020). Therefore, the home modification recommendations by occupational therapists are developing a regulation system, standard users' assessment tools and a national care standard to improve staff education and competence to advance a care excellence and end users' quality of life in long-term care facilities.

1.3   Research Questions, Aims, Objectives

The key research questions that emerged for this study are concerned with the capability approach. People with dementia have complications in participating in planning their lives and achieving the human capability of practical reasoning. The followings are main research questions:

1. How can designers in Thailand perceive the design of an enabling environment for dementia care?

2. How can care stakeholders, including care managers, care professionals, and caregivers, perceive the design of an enabling environment for dementia care?

3. How do people with dementia and care stakeholders use the spaces and meet the perceived needs of an enabling environment for dementia care?

4. How does the designed environment meet the users' needs to enhance their capabilities?

5. How can the design framework of an enabling environment for dementia care be validated and contextualised with cultural values for sustainable health promotion settings?

The overarching aim of the research study is to develop and disseminate a design framework for an enabling environment for dementia care. The overriding objective of the research is to create new insights that provide original and influential uses, which may have significant social, cultural, economic, and political consequences. Moreover, the concept of an enabling environment is determined and focused on specific target groups to collectively accomplish an inclusive impact on the global scale (OEDC, 2011). Finally, the research study attempts to contribute new knowledge to the design framework for an enabling environment for dementia care by contextualising and validating the tool with potential user groups.

Therefore, the study has the following objectives:

1. To explore designers' perceptions of an enabling environment for dementia care.
2. To investigate care stakeholders' perceptions of an enabling environment for dementia care.
3. To observe how people with dementia and care stakeholders use spaces and meet the observed needs of the enabling environment for dementia care.
4. To develop a design framework which demonstrates how the designed environment and user needs are met to enhance their capabilities.
5. To validate and contextualise the users' needs for cultural value and providing sustainable health promotion settings.

1.4   Research Methodology

Case study methodology were used to investigate the design of an enabling environment which enhances the quality of care. According to the case study selection, which is the researchers' elemental tasks for choosing cases and sets out of an agenda for studying these case studies (Seawright, 2008). A phenomenon of the research subject is based on the

rational selection. Four case studies were selected based on the selection criteria such as case accessibility, target of transnational people with dementia, and resort-like dementia care facilities.

As illustrated in Figure 3, three main research methods, namely in-depth interviews, ethnography, and co-design focus groups, will be applied to the case studies. The following is a brief explanation of the data collection and data analysis procedures based on the research objectives. The first objective was to develop how the capability approach could enhance transparency and inclusion in health promotion settings by conducting in-depth interviews with care managers. Moreover, objective two was to explore design pluralism and architects' perceptions by conducting interviews with designers. In this context, objective three intended to examine users' capabilities concerning the design tool. Accordingly, the gap of resources between designers and users' capabilities would be triangulated with ethnographic data. Finally, through co-design workshops, the established design tool would be tested and contextualised in focus groups to aggregate how stakeholders can be included in the design process.

Design and Assessment Tools of Enabling Environment for Dementia Care

RESEARCH METHODOLOGY

ETHICAL REVIEW

LITERATURE REVIEW

RESEARCH QUESTIONS

How can the Capability Approach be applied to the development of a design tool for an enabling environment for dementia care, which enhances transparency and inclusion in health promotion settings?

How can 'Design for Capabilities' approach be applied to the development of a design tool for an enabling environment for dementia care to promote design diversity (e.g. risk-based design) in health promotion settings?

How can design tool of an enabling environment for dementia care examine users' capabilities to control over the designed surroundings of health promotion settings?

How can design tool of an enabling environment for dementia care support users' capabilities to meet the material, social and participatory needs in health promotion settings?

How can design tool of an enabling environment for dementia care support users' capabilities to meet the material, social and participatory needs in health promotion settings?

How can design and assessment tools of an enabling environment for dementia care be developed and disseminated by using technologies to enhance sustainable health promotion settings?

DEVELOP CHECKLIST/ CRITERIA

EXPLORATORY RESEARCH

Preparation

Nightingale Care home & Beechy Knoll Care home, Sheffield, UK

Exploratory phase

Identify Issues

MAIN CASE STUDIES Pilot Study

Preparation → Pilot phase → THAILAND → Identify Issues

Data Collection

Interviews

Care Managers

(x4)

In-depth interviews will be conducted with 4-6 care managers and deputy care managers from the case studies. The interview questions will be based on intention and capabilities-based ques-

Vivo Bene, Chiangmai, Thailand

Care Resort, Chiangmai, Thailand

Architects

In-depth interviews will be conducted with 4-6 architects for the case studies. **(x4)**

Nymph

The Serene

Caregivers

In-depth interviews will be conducted with approximately 15 caregivers from the case studies to examine their perceptions **(x16)**

Ethnography

Site Analysis

Individual-centred mapping will be conducted with two caregivers and people with dementia (from each case study) to observe end users on how they use public areas.

Behavioral Mapping

Data Analysis

The interviews of care managers will be analysed by using NViVo11, using thematic analysis and discussed with the existing design tools by identifying how to what extent culture and social characteristics enabling or disabling by the design of the physical environment.

The design tool from objective one will be discussed with literature on design for capabilities approach to be analysed with findings will be analysed based on thematic analysis by using NViVo11 and further discussed with the design tools. At this stage, conceptual design framework (of design tool) will be established.

The research findings will be analysed using thematic analysis aided by NViVo11, and compared how they control over one's designed surroundings to identify 'the gaps' of users' capabilities.

The research findings will be analysed by visual data analysis. The data triangulation will endorse users' capabilities in health promotion settings, which will be strategically designed to assemble the material, social and participatory needs.

Co-design workshops

With approximately 6-8 participants, co-design workshops will be arranged to actively engage care managers, caregivers, and architects to negotiate the design tools with 'cultural values'

Two versions of the tools will be disseminated (Designers/Architects anc Care home Stakeholders).Finally, feedbacks from stakeholders will be discussed on Skype/phone.

Design and Assessment Tools of an Enabling Environment for Dementia Care

Figure 3 Research Methodology

The first research method is the semi-structured interview, which aims to conduct colloquially with one respondent at a time and uses a combination of closed- and open-ended questions accompanying with why or how questions (Adams, 2015). Semi-structured interviews are appropriate for research questions when follow-up queries are required (Adams, 2015).

The second research method is ethnography and the researcher's perception. Ethnography for designers enhances architects and designers how to listen actively to the knowledge people have about their own culture (Cranz, 2016). The third research method is the co-design workshop, which is demonstrated by designing and delivering community services in a partnership between service providers for an equal and reciprocal outcome (and often formal caregivers, families, and local communities) (Latulippe, Hamel and Giroux, 2020).

Research limitations of the PhD study depends on an accessibility to people, organisations, data, or documents. In this case, data accessibility is denied or limited in various circumstances, the explainable reasons are described in the chapter. According to the language translation, the meaning might be changed and might have a bias on a person, a place, an event, and a culture, which are viewed or shown in a consistently inaccurate way.

1.5   Thesis Structure

The PhD thesis is organised into nine chapters following the research objectives. Chapter 1 presents the literature review to cover topics such as dementia-friendly environments, therapeutic landscapes, concept of place and ergonomics to ascertain the possibilities of mobility in people with dementia. The second part of the chapter demonstrates the importance of human capabilities, which include topics such as the salutogenic approach and attachment styles. The grey literature is in the salutogenic approach, which should support their capabilities.

Chapter 2 expands on the role of design for dementia care to the tourism design system. The first section of the chapter reviews topics such as deinstitutionalisation, design for coherence, and emotional design which argues for the role of design in dementia care. The second part of the chapter consists of topics such as globalisation, design ethics, design thinking, and transnational care in Thailand. The grey literature focuses on the ergonomic design-thinking framework which has to be developed.

Chapter 3 describes the research design. The chapter reviews the main case study selection criteria. Research methods, research data collection, and data analysis are explained in this chapter. Towards the end, research limitations are discussed.

Chapter 4 presents the findings of how designers perceive the design of dementia care in the context of Thailand. This chapter discusses the perception of designers in terms of the design of the physical environment for dementia care in the context of Thailand. These domains included design for sense of coherence (SOC), design as collectivist culture, and design for neuroscience.

Chapter 5 summarises the perceptions of care stakeholders as the main facilitators. This chapter explores stakeholders' perceptions of care regarding the design of physical environments for dementia care settings. Three overarching themes were explored: the comprehensibility of architectural languages, manageability of hospitality, and perception of place.

Chapter 6 explains the ethnographic data. This chapter explores the ethnographic study of dementia care facilities to investigate the use of space by end users, including people with dementia, caregivers, and care stakeholders. The methods are behavioural mapping, sketches, POE, and photography. The expected outcomes of this chapter are to demonstrate the pattern of space usage based on environmental psychology that encompasses culture, meaning, representations, bodies, and sensory issues. The main domains will be explained in the chapter.

Chapter 7 illustrates the triangulation between ethnographic data and participants' interviews. The chapter's main objective is to establish a design framework for an enabling environment for dementia care. The chapter explains the triangulation of the research findings (from the previous chapters) that show different perceptions of stakeholders. Triangulation was conducted based on the research findings. The results will show domains that emerge from the triangulation of various stakeholders' perceptions.

Chapter 8 displays the contextualised co-design workshop findings. In the context of dementia care, design is a research tool to support care involving people with dementia by shifting the focus of healthcare towards the experiences, values, and people with dementia's quality of life and their care participation. The four existing domains were discussed and adjusted by the research participants. Accordingly, an emerging domain of self-actualisation addressed the prominence of 'agency' when designing an enabling environment for dementia care.

Chapter 9 explores the relationship between the results and the existing literature and design recommendations. The chapter discusses the research findings, which demonstrate that the design of an enabling environment for dementia care should be based on the flexible needs of the end users. The discussion emphasises the importance of an enabling environment for dementia care which directly relates to the culture and context of the settings.

1.6   Summary

This section introduces the PhD study and the prominence of the design of an enabling environment which can support the quality of dementia care. This section presents the main research questions, aims, and objectives. The research methodology and the three main research methods employed by the study were also presented in this section. Finally, the thesis structure is explained. The next chapter will describe the literature review, demonstrating the global challenges of dementia and the quality of dementia care.

2 THE QUALITY OF DEMENTIA CARE

2.1 Introduction

This chapter demonstrates the global challenges of dementia and the quality of dementia care. The chapter presents the literature review to cover topics such as dementia-friendly environments, therapeutic landscapes, concept of place and ergonomics to ascertain the possibilities of mobility in people with dementia. The second part of the chapter demonstrates the importance of human capabilities, which include topics such as the salutogenic approach and attachment styles.

2.2 Quality of Dementia Care

As its Latin origins suggest, dementia is an umbrella term for which a person who has a progressive cognitive decline and represents a departure from previous mental functioning through a clinical diagnosis, requires new functional dependence (Cunningham *et al*., 2015). Dementia is caused by neuropathic changes in the brain, attributed mainly to Alzheimer's disease and vascular dementia (Kalaria, 2016). Common symptoms include cognitive, linguistic, behavioural, and mood impairments, and disorientation to time and place (new experiences) (Duong, Patel and Chang, 2017). As shown in Figure 4, symptoms of dementia are commonly categorised into stages, and each person has experienced dementia in their own way (Eriksen et. Al, 2016). With progressive symptoms, the rate of decline notably depends on the type of dementia affecting the person, including neurogenerative diseases, the primary causes of which are unknown (DeTure and Dickson, 2019). In addition, the COVID-19 incidence indicates that the infection may potentially increase and contribute to cognitive impairment and dementia (Ciaccio *et al*., 2021). Some broad similarities include loss of executive functions, and these deficits occur because the brain is becoming progressively damaged by the disease or small strokes (Jenkins, 2016). Short-term memory decline may become increasingly apparent in memory loss, mood changes, disorientation, and problems with communication and reasoning, which may be different in each person (Duong, Patel and Chang, 2017). Dementia can be perceived as one of the biggest challenges associated with an ageing population (Garder, Valcour and Yaffe, 2013) and creates a more significant risk to predominantly affect older people. However, a normal part of ageing or exacerbated by the symptoms of dementia are not related to dementia (Bullain and Corrada, 2013). Recently, the term "major neurocognitive disorder" replaces the term dementia and defines the condition as significant cognitive decline that, critical to the diagnosis, impairs independent living (Cummings, 2020). Dementia is not a single disease, but instead a medicalised syndrome

formed by a range of recognisable symptoms, such as memory loss, disorientation, and may experience behavioural changes that may escalate aggression (WHO, 2017).

Moderate Stage

It becomes harder to perform regular daily activities and self-care as dementia progresses.

increasing confusion or poor judgment.

greater memory loss, including a loss of events in the more distant past.

Early Stage

In the early stages of dementia, a person's symptoms are often relatively mild and not always easy to notice.

problems with memory

speed of thought, language

perception

Late Stage

In the final stage of the disease, dementia symptoms are severe.

Individuals lose the ability to respond to their environment, to carry on a conversation and, eventually, to control movement.

They may still say words or phrases, but communicating pain becomes difficult.

Figure 4 Stages of Dementia
Sources: Adapted from Ning et al. (2020)

In 2020, over 50 million people were living with dementia globally (Alzheimer's Disease International, 2020; Nichols et al., 2022). The number of dementia cases is projected to double every 20 years, reaching 82 million in 2030 and 152 million in 2050 (Alzheimer's Disease International, 2020). The increase will challenge the healthcare workforce, which is already inadequate in size and training (Warshaw and Bragg, 2014). Developing cost-effective models of care which deliver caregivers' needs alongside the medical management of the disease is necessary to maximise the quality of care, address safety issues, and positively improve people with dementia's and caregivers' experiences (Noel, Kaluzynski and Templeton, 2017). Finally, improved health outcomes and unnecessary acute care visits are attained (Jennings *et al*., 2019).

However, various research has shown poor quality of care in dementia care settings and physician non-adherence to quality indicators (Jennings *et al*., 2016). This highlights the limited training of healthcare professionals in best practices of dementia care and disease management (Surr *et al*., 2017; Parveen *et al*., 2021). As a result, the decreased number of care workforce can cause a significant service demand in the community care services (Chan et al., 2020). Simultaneously, nursing and care assistant work can be stigmatised as 'dirty

work' (Jervis, 2001), as well as emotional burden of the professional caregivers correlates with neuropsychiatric symptoms (Seidel and Thyrian, 2019). Therefore, stability, longevity, shared experiences are related by the strength and internal consistency of a cultural change movement by care management teams (Killett *et al*., 2014).

The term 'person-centred care' is used commonly in healthcare policy and practice (Godfrey *et al*., 2018), which is a care approach to place a person at the centre of their own care (Couler and Oldham, 2016). The person in person-centred care approach contributed to shared decision-making, equality of communication and mutual respect (Mitchell, 2015). Kitwood (1997) described two forms of interactions that staff can have with people with dementia. The first is Malignant Social Psychology (MSP) (Kitwood, 1997; Chaudhury, Hung and Badger, 2013). Kitwood identified the interactions (if allowed to happen or continue) that will contribute to the negative experiences of people with dementia within organisations which also threaten dignity (Hobson, 2019). However, the concept of generation is translated into everyday nursing care continue to present a challenge (Ross, Tod and Clarke, 2015). People with dementia's exchanging attitudes receive personalised care, who based on their individual needs, preferences, and lifestyles (Wehrmann *et al.,* 2021). Personhood can be concerned on treating them as a person, as well as treating dignity and respect for people with dementia to support a sense of self (Hennerlly *et al.,* 2018). Hence, a relationship with others progresses the sense of being a person (Hennelly *et al*., 2018). Nevertheless, the domain agency is required to be extended (Kaufmann and Engel, 2016). According to Wozniak (2018), a concept of person may be counter-intuitive to nursing's duty to care, especially for those who are most vulnerable.
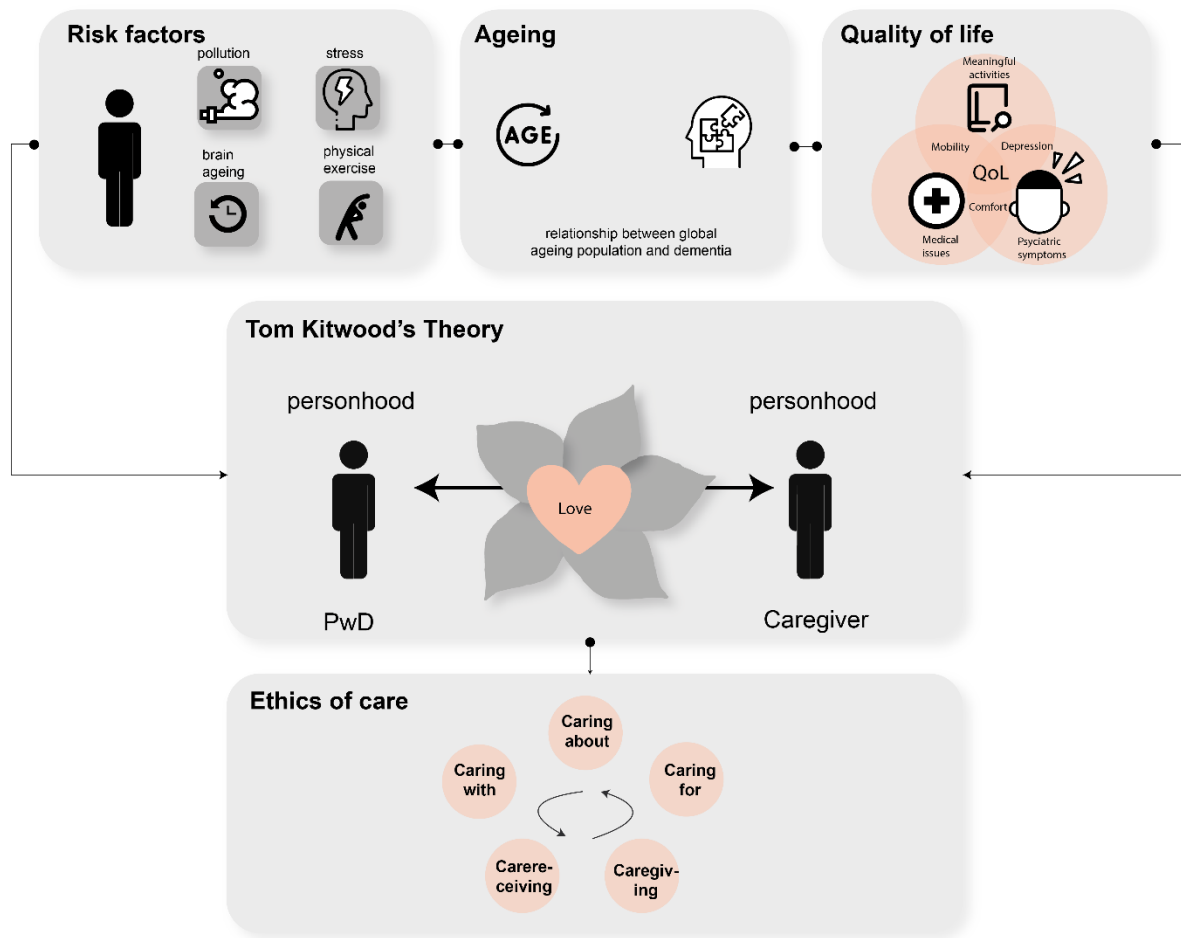
Figure 5 Dementia Quality of Care
Sources: Adapted from Kitwood (1997) and Groot et al. (2018)

In dementia care, improving care quality is crucial for improving care quality, which nursing management and leadership should be considered (Sfantou *et al*., 2017). The objectives of the best quality care for residents, empowers the care staff working in nursing homes who are committed and involved in an organisational and interpersonal issue to influence their work situation (Andre *et al*., 2014; Andre *et al*., 2020). As a result, person-centred care can be enhanced by qualities to increase empowerment, for example the care staff's job satisfaction, empowerment, autonomy, transformational leadership, pace of work, staff ratio, and communication (Choi *et al*., 2016; Ree, 2020). Simultaneously, several positive outcomes of patients, such as increased satisfaction, less falls, and reduced mortality, are associated with person-centred workplace cultures (Braithwaite *et al*., 2017). Crucially, to achieve innovative performance and specially to resolve the everyday tasks, organisational culture affects the innovativeness and the creativity of the human capital (Caliskan, Turunc and Akkoc, 2014). Advocated values and assumptions should be evolved (Killett *et al*., 2014) (as shown in Figure 5). Hence, the person-centred bio-psychosocial model also motivates and encourages people

with dementia to have more independence, and it results in a more cost- and time-efficient, high-quality care service (Nicholson, 2021).

2.2.1   Dementia-friendly Environments

The expansion of the person-centred care philosophy (O'Rourke, Lobchuk and Lengyel, 2022) is supported in a dementia care facility's physical environment and has been increasingly acknowledged as significant in influencing the quality of life (Dahlan, Ibrahim and Masuri, 2016; Chaudhury *et al*., 2018; de Boer *et al*., 2018; Lee *et al*., 2021). According to caregivers' perspectives, factors such as comfort, familiarity, and an organised space are significant therapeutic resources for supporting the residents' well-being (Burton and Sheehan, 2010; Lee, Chaudhury and Hung, 2016). Moreover, poor environmental factors, include overloaded sensory stimulation (Pfeiffer et. Al, 2017), safety risks, wayfinding, and rushed care, influence residents' behaviours (Kuliga, Berwig and Roes, 2021). In this case, environmental design interventions for people with dementia are influenced by design features such as colour contrast, high-intensity lighting, dining room size and noise (Goudriaan *et al*., 2021; Fleming and Bennett, 2017; Bowes and Dawson, 2019). The design of dementia-friendly environments enables people with dementia to retain their independence, which is recognised in improving dementia care in healthcare settings (Waller and Masterson, 2015). However, the care process of protecting and providing what people with dementia needs (Cambridge Dictionary, 2022). The environment can be thought of in terms of physical and social dimensions. According to Figure 6, a dementia-friendly environment, therefore, includes the groups to which they belong, the neighbourhoods in which they live, the organisation of workplaces, and the policies they create to order their lives.

dementia-friendly
environment

enabling environ-
ment and learning
environment

tension

healing (spiritual) environment

atmosphere

multi-sensory environment

natural environment

psychosocial environment

social environment

physical environment
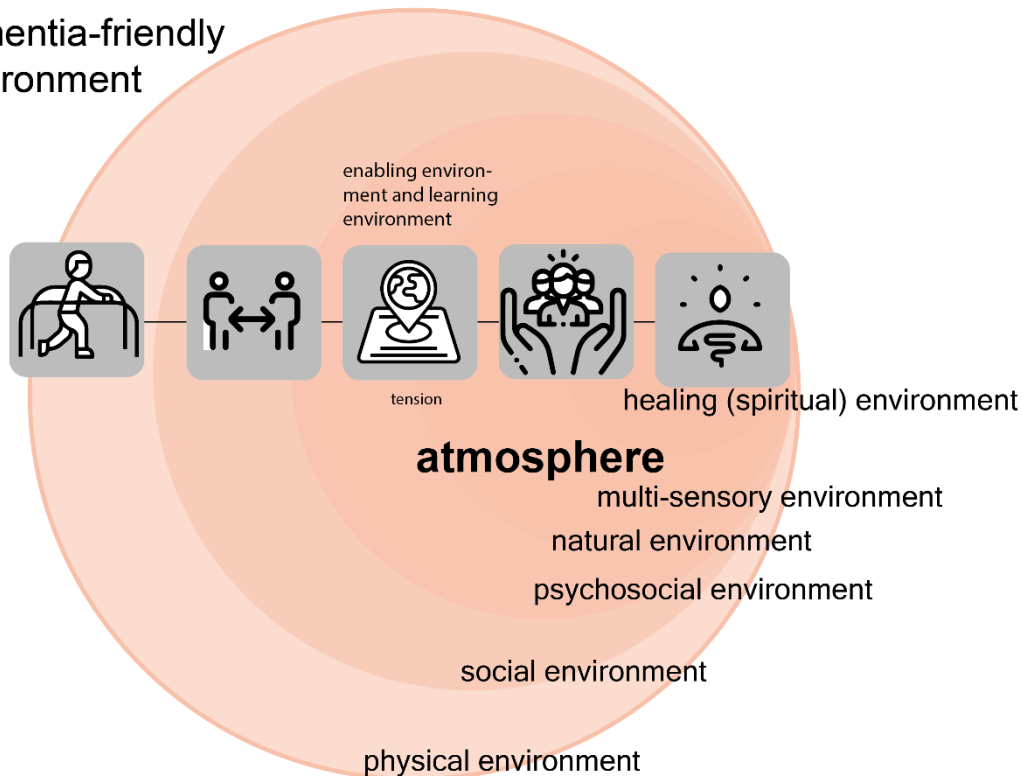
Figure 6 Dementia-friendly environments

The social relationships were observed as a part of 'nested' groups within the larger social environment (Runcie *et al.,* 2013; Modlinska *et al.,* 2018). Unique dynamics and outside factors often influenced their structuring in the 'nested social groups' (e.g., the physical environment and staff preferences) (Doyle, de Medeiros and Saunders, 2011; Dunn *et al.*, 2014). An association has been found between the severity of cognitive impairment and decreased social connectedness, with dementia sufferers susceptible to social isolation due to their cognitive impairment (Lapane *et al.*, 2022). Social connectedness forms a part of the recovery journey, and relationships can support or re-connect self-identity (Best *et al.*, 2017). Spatial factors, including living arrangements, the size of social networks, and engagement in social activities form part of social connectedness (Poey, Burr and Roberts, 2017; Schmitz, Mauritz and Wagner, 2021) and can solve issues of perceived social isolation, influencing perceptions of social support and loneliness. Acknowledging social preferences and designing solutions to integrate person-centred care into the social fabric of care facilities and communities can also promote social connectedness (Adlbrecht *et al.,* 2020), as can meaningful and valued occupations (De Vriendt *et al.,* 2019; Vaartio-Rajalin *et al.,* 2020) in dementia care facilities to support 'recovering' processes through concepts of hope, identity,

meaning and empowerment, established through structured routines, ADLs and occupations (Doroud, Fossey and Fossey, 2015).

Moreover, individuals' freedom of movement is often non-existent, and contact with those not residing or working within institutions is restricted by living within a locked environment (Joyes *et al*., 2021). Even though these restrictions may be necessary to protect the individual's mental health, the environments can be unintentionally unhealthy (Joyes *et al*., 2021). More importantly, the psychosocial climate presents and engaged by caregivers who act as catalysts (Goodall *et al*., 2021). A climate interpreted as at-homeness supports people with dementia's well-being (Ohlen *et al*., 2014). When absent, the climate can quickly become anxious, facilitating people with dementia's ill-being (Edvardsson, Sandman and Rasmussen, 2012). To provide quality dementia care, care staff requires to acknowledge their roles in a setting and the emotional tone of the psychosocial climate (Villar *et al*., 2021). This emotional tone also significantly influences people with dementia's well-being (Rock *et al*., 2020; Adibe, Hebert and Perticone, 2021). Standard management practices can deal with disturbing behaviours such as noisemaking, including pharmacological interventions (Doyle *et al.,* 2005). Hence, interventions were the contingent reinforcement of quiet behaviour and environmental stimulation tailored to individual preferences (Cohen-Mansfield, 2004).

The use of peripheral memory and memory training can assist people with dementia to maximise their cognitive functioning (Logsdon and McCurry and Teri, 2007) and independence (Lanzi, Burshnic and Bourgeois, 2017). The creation of therapeutic and healing environments is required for theoretically based and empirically supported nursing interventions that decrease stress and improve dementia's lived experiences (Coakley and Mahoney, 2009; Huisman *et al*., 2012). Furthermore, the health benefits of therapeutic gardens for people with dementia spans across physical, social, psychological, and cognitive effects (Noone *et al*., 2017). The word healing has also been substituted by other synonyms that reflect the same meaning. In general, healing can be defined as a good and positive effect of psychology (Izwani Nor Hamzah *et al.*, 2020). The healing concept can be applied to building and landscape design. A healing garden is one of the implementations derived from the healing concept. An optimal healing environment (OHE) is a shared space where healing occurs by addressing all aspects of a person's individuality. Individuality includes the physical, psychological, social, cognitive, economic, environmental, spiritual, and behavioural components of humans (Sakallaris *et al*., 2015). Through the healing and cognitive process, the use of multisensory stimulation in people with dementia has become progressively popular in recent decades (Collier, 2007). While nature provides the ultimate multisensory environments, Snoezelen or MSE becomes an engineered environment, which provides more

personalised sensory stimulation for people who, due to their abilities, are unable to seek required stimulation by their own (Pagliano, 1999).

Appropriate adjustments must be individually controlled for feelings and behaviours of people with dementia based on their current moods and needs in multisensory stimulation environment (Machado and Castro, 2022). As a result, people with dementia can experience the multisensory environment in a comfortable mood (Tsai and Hong, 2019). The sense of stimulations inside day care services can incorporate nature and cultural characteristics by connecting older people with their lifestyles through the most appropriate healing environment (Spence, 2020). From a barrier-free environment to a healing environment, the older people's inner body, mind and spirit are cured (Huelat, 2003). The life experience is further designed in the connection for older people to choose independently to live in a dignified living environment (Tsai and Hong, 2018). However, the needs and preferences of people with dementia understand regarding rehabilitation services (Laver *et al*., 2020). Demands of personalisation shift away from resource-led/stereotype provision constraints to one where service users and carers are empowered to choose the solutions to their needs (Orellana, Manthorpe and Tinker, 2021). In a nursing home environment, there is a much deeper spiritual need for people who have dementia (Odbehr *et al*., 2015). A sense of normalness is supported to improve memories of people with dementia by having personal belongings and furniture in private spaces (Norberg, 2019). A group of people with dementia are allowed to celebrate life, experience joy, express their despair over their symptoms, resolve the past, come to terms with their strange new environment, foster hope, maintain dignity, have enriching social connections, and make meaning out of their situation (Kirkland, 1999).

Empowerment, aspiration, self-confidence, contribution, and meaningful activities are defined and qualified as dementia-friendly environment (Hung *et al.,* 2021; van Corven *et al.,* 2021), which include way-finding abilities, a sense of safety, accessibility, social acceptance, dementia perception (Lin, 2017). The emphasis on community accessibility and social acceptance may represent the view of dementia as a type of disability (Lin, 2017). The contemporary thinking of living with dementia (e.g., dementia as a disability, equal human rights, and a sense of meaning) is reflected into definitions of 'dementia-friendly communities' (Steele *et al.,* 2019). Recently, the term 'dementia-friendly communities' has emerged from policymakers and professionals to address solutions as the global population ages (Buckner *et al.,* 2018). A public awareness is raised by the concept to remind society that people with dementia can be independent and autonomous. Thus, their opinions should be heard and acted upon (Mitchell, 2012).

The level of physical activity has been shown to have an inverse relationship with cognitive health diseases such as the incidence of stroke, peripheral vascular disease, and cognitive heart failure (Tan *et al.*, 2017). In a dementia context, leisure activities are conceptualised as pursuits undertaken for relaxation or pleasure after completing essential chores and occupational responsibilities (Fallahpour *et al.*, 2016). Leisure activity invokes the cornerstones of cognitive reserve: mental activity, physical activity, and social engagement (Henderson and Elias, 2020). Participating in leisure activities can also associate with a reduced risk of dementia and adjusting for nourishing cognitive status and excluding subjects with possible preclinical dementia (Fallahpour *et al.*, 2016). Moreover, the VR-based intervention programme develops to reduce symptoms, such as BPSD, which was feasible and offers users with a high degree of satisfaction (Kim, Park and Lim, 2021). Several studies have highlighted an importance of engaging people with dementia in meaningful activities (Kaitlyn and Neena, 2015), which be enjoyable and provide a connection with others (Han *et al.,* 2016). Activities offered by care facilities, such as bingo or games, might be less attractive to residents but are appreciated as an opportunity to meet other residents (Samuelsson, Ferm and Ekstrom, 2021).

Meaningful occupation is related to participating in pleasurable tasks and activities (in terms of means or process) that enable clients to move towards improved health, function, or quality of life (in terms of end or outcome) (Hammell, 2017). Occupation becomes a collection of activities that people use to fill their time and give life meaning, as well as organising around the roles of activities of daily living (ADLs), work and productive activities, pleasure, and personal meaning (Guidetti *et al.*, 2020). Purposeful activities have been described in many ways, such as tools or media that therapists use to enhance or facilitate performance or as vehicles for bringing about change (as shown in Figure 7). Thus, purposeful activities are part of the occupational therapy process. There is a natural bond between occupational therapy and activities. Only a few studies have been carried out that scientifically show that activities have many therapeutic values if appropriately used. Therefore, therapeutic, or restorative activities mean maintaining or improving one's life or delaying the deterioration of skills. In many cultures, the 'doing' of and taking part in occupations and activities are essential to everyday life (Law, 2002). What we do (and are perceived and expected to do) (Sen, no date) provides a personal and social identity and role of families, work, and social environment (Stangor, 2022). Indeed, the importance of self-esteem and self-identity in older people is related (Hsu and Lu, 2018). Hence, maintaining purposeful activity (work or volunteering) may preserve people with dementia's dignity and sense of self. The intervention can also facilitate

carers and family members to continue working and supporting people with dementia (Roach and Drummond, 2014) (as illustrated in Figure 7).
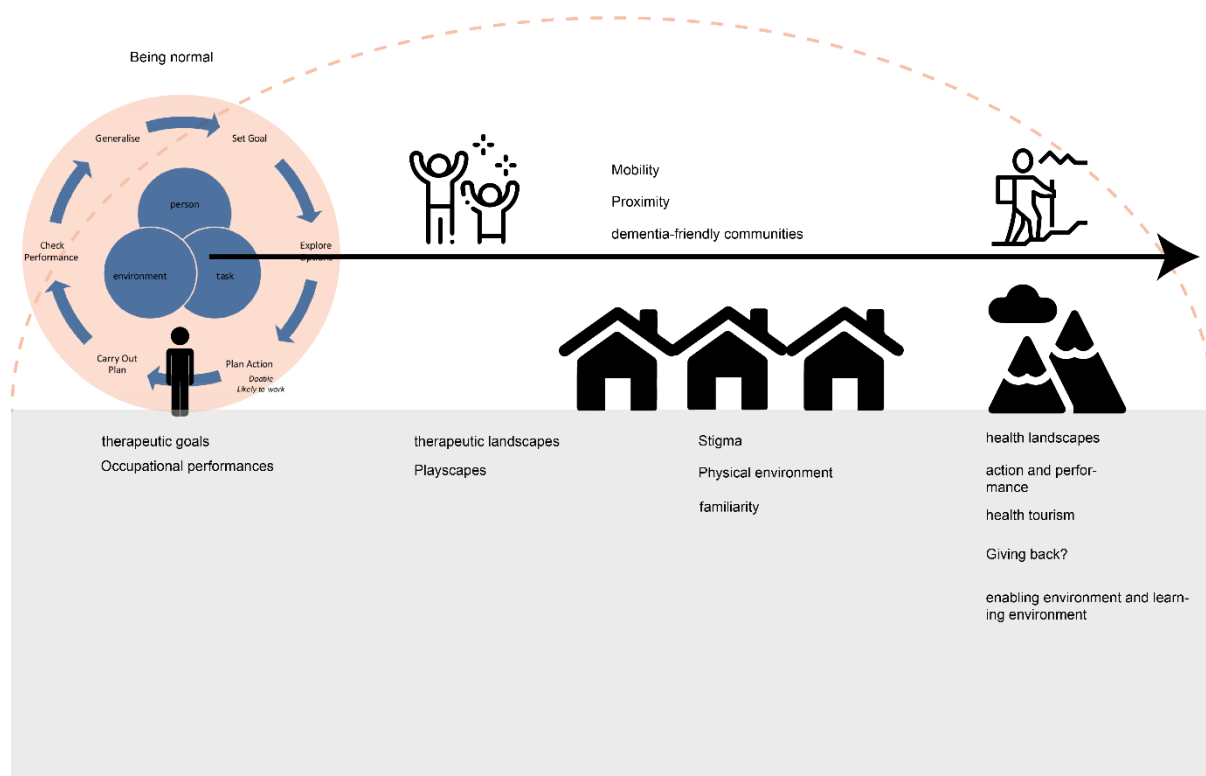
Figure 7 Relationship between Therapeutic goals and Health landscapes

The philosophy of occupational therapy is established as the concept that occupation is essential to human existence and good health and well-being (Hooper and Wood, 2013). Occupation includes all activities people participate in, e.g., working, learning, playing, caring, and interacting with others. The construction of 'frail' subjects occurs amidst a larger 'decline narrative' (Gullette 1997; 2004), supported by the medicalisation of impairment and dementia (Grenier, Lloyd and Phillipson, 2017). Some aspects of functional autonomy can be increased by different methods for learning or relearning activities in the early stage of people with dementia, (Me de Werd *et al.,* 2013). Likewise, vanishing cues are a combination of learning techniques of forward and backward chaining, which consist of graduating the assistance given to participants (Bier *et al.*, 2008). Concepts and assumptions about cognitive impairment are combined with approaches that are organised around the concept of success and activity (Petersen *et al.,* 2014; Saykin and Wishart, 2003). As a result, people with dementia can be viewed as unsuccessful older people (Bahar-Fuchs, Clare and Woods, 2013). In health and social care practices, the awareness to reduce dementia risk through protective lifestyle and environmental changes (Ward *et al.,* 2021) have raised interpretations of dementia as 'frailed'

and 'failed' old age (Grenier, Lloyd and Phillipson, 2017). Rehabilitation's primary goal and purpose have shifted from bodily functioning to participation (Hanssen and Lindqvist, 2003). Hence, brain-activating rehabilitation as a new type of rehabilitation for dementia (Yamaguchi, Maki and Yamagami, 2010) still focus on the idea of physical and mental impairment.

In educational settings, learning is a typically play-based. Similarly, play occupation is an acceleration of learning in early childhood (Coralan *et al.,* 2020). While leisure activities are experienced as fun and motivational, they are less central to learning. Emotional responses are often experienced changes in people with dementia, in which expressions over feelings are less controlled (Lee and Algase 2014). 'Play', according to Gillin and Johan Huizinga's Homo Ludens (1951), is at the centre of human activity that gives meaning to life (Persson and Savulescu, 2019). However, empirical research on play across the life course (Zucchella *et al.,* 2018) and in dementia care is a relatively new concept (Swinnes and Medeiros, 2018). In addition, research on humanistic inquiry has slightly different goals than the growing body of qualitative and quantitative studies of participatory and creative arts interventions (Wood, Jepson and Stadler, 2018). In this case, play becomes a method to explore the potential for self-expression (Lochrie *et al.,* 2019), meaning-making, and relationship-building in later life (Giordano, Landreth and Jones, 2005), which does not use to infantilise and trivialise people with dementia (Swinnen, 2018)—reclaiming the street as a playscape is being promoted around the world by grassroots organisations such as Playing Out (Tonkin and Whitaker, 2019). Landscape architects and designers have adopted playscape terminology to define the environmental features that encourage play and social interaction for all age groups (Qin et al., 2019). Key to the concept of the playscape is a space perceived by the players as offering possibilities for play (Luken, Carr and Brown, 2011). Opportunities for social interaction within the playscape also nurture social and emotional development (Loebach and Cox, 2020). Notably, a factor of playscapes is to mediate these meetings and enable the essential factor of producing an enabling environment (Tapia-Fonllem *et al.,* 2020).

Positive risk-taking aims to make good decisions, which is taking calculated and reasoned risks rather than leaving things to chance. It is all too easy to see the negatives around someone living with dementia and to remain oblivious to their capabilities and potential (Morgan and Williamson, 2014). As a result, the management of wandering can be practised and structured in positive risk-taking (Moser, 2018). Therapeutic landscapes in the dementia context often mean healing gardens. The term 'therapeutic landscapes' was first devised by health geographer Wilbert Gesler (1992) to explore why design of an enabling environments contribute to a healing sense of place (Bell *et al*., 2018). Current concepts of therapeutic landscape combine landscape with principles of holistic health and the interaction of social,

affective, and material factors. In the dementia context, nursing homes were translated as a place. The concept of therapeutic landscapes and research in dementia caregiving and ethics discuss the contours of those intersubjective spaces. At a time when humans are living longer, urbanising faster, and spending less time in nature than ever before, we desperately need salutogenic landscape design solutions. Therapeutic landscapes have recently seen a rise in health tourism (Yan and He, 2020).

In this case, the research by Yan and He (2020) presents an actor-network perspective and scrutinises the co-evolution of therapeutic landscapes, health tourism and its inherent dynamism (Van der Duim, 2007). Networks develop because they interact with other networks, and self-production requires adaptation to an ever-changing environment (Stalder, 1997). In general, no actor is exclusively defined by one network, and every actor network is affected by the actors' characteristics that have emerged from where they belong (Cresswell, Worth and Sheikh, 2010). An actor can and usually belongs simultaneously to more than one actor network.

2.2.1.1   Concept of Place

The subjective, experiential, and 'everyday' social practices have been rarely focused on the contextualisation of people with dementia living in neighbourhoods (Clark *et al*., 2020) (as illustrated in Figure 8). The concept of place determines how neighbourhoods are experienced as relational places (Clark et al., 2020) and consider how the production of the places is contributed through engagement and interaction, which social health system may be beneficial (Clark et al., 2020). As approached scientifically, the concept of 'place' could be reduced to a mere spatial concept. It would thus mean 'a location in space'. This is, for instance, the meaning that Georg Henrik von Wright (1983) gives to it in his 'logic of place'. He investigates the differences between modal concepts in temporal and spatial systems of formal logic. His system of spatial logic explains modal concepts of 'nearby', 'somewhere', and 'somewhere else' (von Wright, 1983). Later, Ramon Jansana (1994) developed von Wright's system by adding aspects of distance.
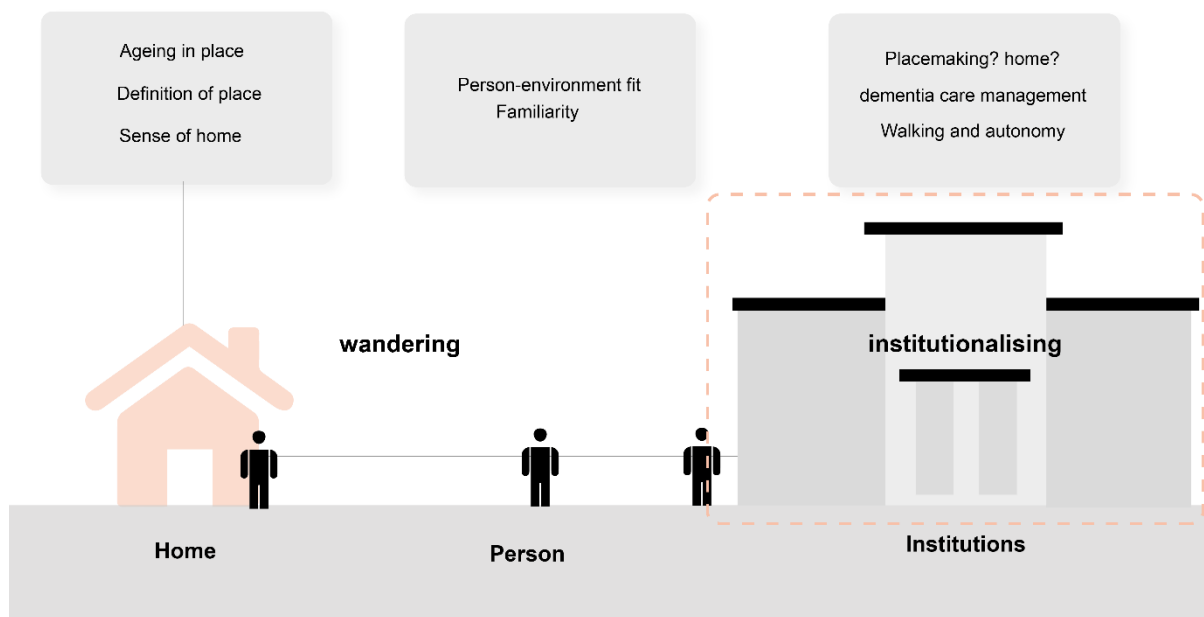
Figure 8 Concept of Place

The sense of self can be essentially developed by a feeling at home, which is a fundamental aspect of human existence (Norberg, 2019). Thus, losing one's home is losing oneself (Garfield, 2022). Significant activities, significant others, significant places, and a sense of transcendence can create the feeling at home through one's life cycle (Dein, 2020). A physical structure of a house can function as a stage of daily activities that provide a high-quality physical environment, for example, daylight, thermal comfort, sound insulation for physical comfort, as well as feelings of privacy and freedom (Heijs and Stringer, 1988). Key findings of a qualitative study by Felix *et al.* (2015) stated that an experience of the house as a home can be interchangeable and emphasised on feeling at home in neighnourhoods (Boccagni and Vargas-Silva, 2021). As a result, mobility, self-reliance and social participation within the neighbourhood and the larger community can be enhanced by the spatial design, proximity of infrastructures (Koelen, Eriksson and Cattan, 2016). By analysing the characteristics of different physical settings, the aspects of place facilitate or inhibit rehabilitation (Mills et al., 2017). Consequently, the place progressively mediates and is mediated by social interaction. By negotiating the goals of the rehabilitation process (Preede *et al.,* 2021), the power-inscribed relationships between service users, informal caregivers, and care professionals can be related in various dimensions of place (Martin *et al.*, 2005).

Essentially, an overview of the health effects of relocation facilitates and informs decision and policymaking regarding these relocations (Ryman *et al.*, 2019). People with dementia will need more care and support as their symptoms deteriorate over time. Even though people with

dementia are willing to stay in the community as long as possible rather than be institutionalised, some may require moving into a care facility where needs can be met (Sury, Burns and Brodaty, 2013). The health may improve when people with dementia can access the right care, in the right place, and at the right time (Hall, 2013). However, in most studies, the health effects of the relocation of people with dementia were negative (Ryman *et al.*, 2019), for example a higher level of stress. A decline in physical, mental, behavioural, and functional well-being was reported. The most recurring effect was a higher level of stress, which is more problematic for people with dementia (Cheng, 2017). In 1980, Wiseman developed the behavioural model of older people migration to explain the process by which older people relocate or remain in their current home and community. Kaplan *et al.*, (2015) found that the quality of life of the relocation, either objectively or subjectively, decreased after being moved to the new environment. However, life satisfaction and motives for moving home are complex entanglements, reflecting multiple desires and experiences. Changing a place of residence is not only a life stressor but can be interpreted as a positive means leading to enduring improvement in individual satisfaction (Nowok, Findlay and McCollum, 2016). Being in a new environment, with unfamiliar routines, communities, and generally fewer recognised resources, people with dementia performed worse on wayfinding (Cipriani *et al.*, 2014), but they attended to similar features of the built environment and made equal use of features such as signs in wayfinding (Kalantari *et al.,* 2022).

The physical environment for people with dementia is feasible and may help guide planning policies likely to enhance independent community living for this group (Sheehan, Burton and Mitchell, 2016). However, the concept of wandering is poorly understood, which remains an unsolved symptom (Cipriani *et al.,* 2014). In addition, the term 'wandering' describes different types of behaviour, including aimless movement without a discernible purpose. A variety of adverse outcomes is associated with wandering, which is an acutely distressing problem worldwide, and is a significant reason for nursing home admission for people with dementia and caregivers (Cipriani *et al.*, 2014).

In this case, a successful dementia care management programme providing high-quality dementia care to people with dementia and informal caregivers required care managers (with a nursing or social work background) trained to use dementia care management tools and protocols to yield substantial quality-of-care gains (Chodosh *et al.*, 2012). Cost of care and the risks of using medicines for dementia management may have risks over benefits for people with dementia (Poon *et al.,* 2018). On the other hand, regular structured routine, good sleep hygiene, reminiscence and other activities are non-pharmacological management to improve the well-being of people with dementia (Poon *et al.,* 2018). General challenges in the

management of dementia include providing antidementia drug treatment, addressing neuropsychiatric symptoms and behavioural problems, reducing inappropriate psychoactive medication use, and managing caregiver burden (Thyrian *et al*., 2017; Sorensen and Conwell, 2011). Safety problems and management strategies, as well as barriers and factors facilitating management, are suggested to help guide the development of interventions (Morgan, 2014) (as shown in Figure 9). The caregivers give preference to people with dementia's safety more than autonomy when they are responsible for the people with dementia. When people with dementia are under the responsibility of other caregivers, they give preference to people with dementia's autonomy more than their safety (Landau *et al*., 2010). Despite high levels of stress, an overall positive perception of health and well-being appears to naturally engage in a profession (Bergmann, Muth and Loerbroks, 2019).
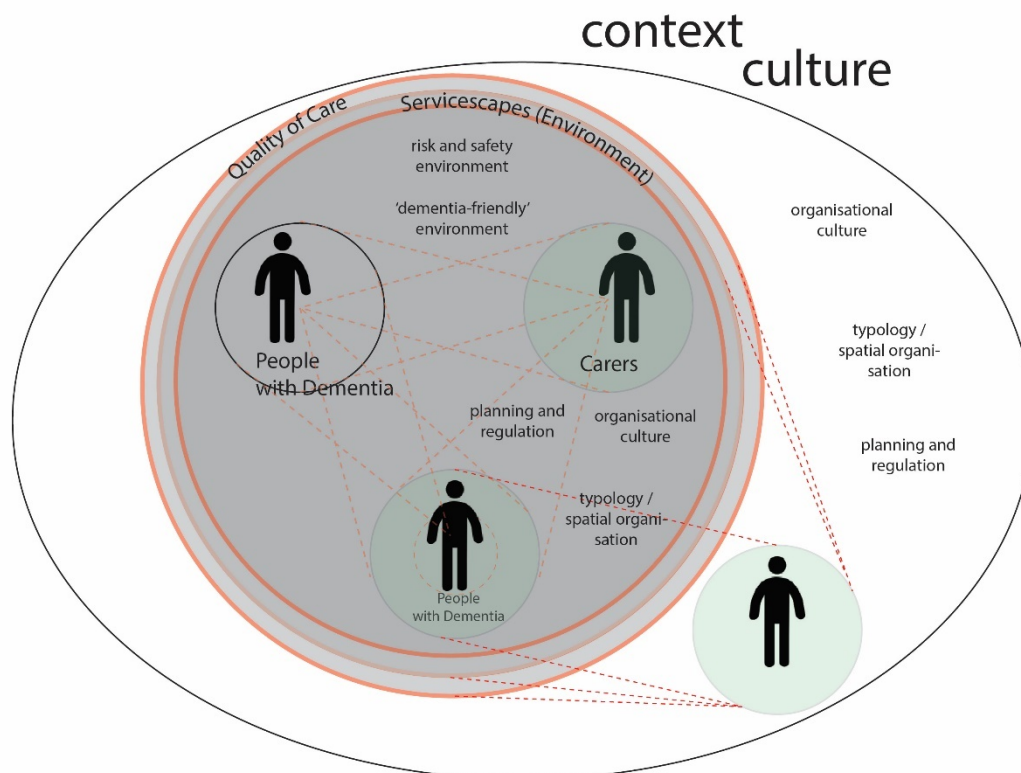
Figure 9 Organisational Culture of Dementia Care Facilities

In inpatient settings, aggressive behaviours are frequently occurred between people with dementia and professional caregivers (Schnelli *et al*., 2020), which high rates of violence are informed (Pinyopornpanish et al., 2022). In contrast, a substantial risk to the safety and well-being of caregivers is proved with low success rates of chemical restraints (Singleton *et al*., 2017). As a duty of care, perceiving dementia as a disability in terms of the social/rights-based model can be the approach in which people with dementia respond to various implications. Capable, trained workforces with leadership, shared governance, and coordination are

required in integrated healthcare systems (Barbazza *et al.,* 2015). Person-centred care and care planning are crucial to promote an awareness and understanding of dementia (Kim and Park, 2017). In addition, the role of education and experiences of dementia care should be highlighted. However, funding, role conflicts, time constraints, and time-consuming paperwork act as barriers that affect professional roles and responsibilities (Rankin, McGuire and Russell, 2015). Collaborative problem-solving between management and the workforce is required. The unique skills of this workforce may affirm empowering caregiver resilience (Perry, Mulligan and Smith, 2017).

Nevertheless, behavioural stressors, which support individuals to use available competencies and to reduce caregivers' strain, may be reduced by an enabling, safe, and comfortable environment (Gitlin and Corcoran, 1996; Unwin *et al.*, 2009). People with dementia and caregivers may experience various tensions in an enabling environment from competing imperatives (e.g., safety versus comfort) (Soilemezi *et al.,* 2019). As a result, the in-between of balancing safety, independence, respect, and privacy should be compromised by residents' needs (Soilemezi *et al.*, 2019). Finally, the residents' needs based on care mangers' perceptions highlighted an individual's needs, which are dominated by user needs of dementia care facilities (Evans *et al.*, 2016).

2.2.1.2 Ergonomics

Assistive technologies can support people with dementia to sustain and improve their independence, safety, and well-being (Hadjri *et al.*, 2020; Ghasemzadeh and Kamali, 2010). Described as 'affordances', the enabling and restrictive qualities of the physical environment have been first developed in ecological perceptual psychology and refers to the positive or negative possibilities for action provided by an environment (Lobo, Heras-Escribano and Travieso, 2018). Kyttä (2003) uses the concept of affordances in transactional person–environment research when studying children's environment. The role of people assisting people with dementia is to encourage them to perceive, utilise, and shape the positive affordances and to minimise the existence and perception of negative affordances. Everyday products have not been functionally adapted to the needs of people with dementia due to their cognitive impairments and the resulting limited interactions with technical equipment (Shu and Woo, 2021). Importantly, people with dementia require adapted assistive technologies to their specific symptomatology (Kilmova, Valis and Kuca, 2018). The issue of false affordances is also important, which mean people with dementia often have challenges in perception and hallucination (Kim, Effken and Lee, 2022). For positive affordances, the emotional dimensions

of perceiving, utilising, or shaping affordances and the motivational basis of activity deserve more attention.

The significance of ergonomic design improves the high prevalence of stress, and receptiveness to participatory health promotion programmes (Zhang *et al.*, 2011). Ergonomics is the procedure of designing or arranging workplaces, products, and systems so that they fit the people who use them (Lusetic, Trstenjak and Cosic, no date). With regard to worker health, healthcare facilities typically address how work and working conditions can influence the physical and mental health of workers. Work system and patient safety and the interactions between work system elements (the people such as people with dementia and healthcare providers, tasks, tools and technologies, physical environment, and the organisation) influence the way care is delivered (Carayon, 2012). In addition, anthropometry can be defined as the study of body dimensions i.e., body size, shape, strength, and working capacity. The main goal of the integration of ergonomics into architectural design is the optimisation of human-built environment interactions to increase humans' satisfaction with their built environment and improve the performance of buildings (Eilouti, 2023). Hence, an ergonomic assessment is necessary to assess a worker at their workstation (Waters, 2012) to ensure correct working postures and workstation set-up, which can reduce a worker's exposure to physical hazards (Chong and Proctor, 2019).

According to Figure 10, person-organisation (P-O) fit is defined how people and organisations have the compatibility when one provides what the other requires and share similar fundamental characteristics (Kristof, 2006; Boon, 2017). P-O fit has also been called person-culture fit. Regulatory fit theory predicts that when individuals adopt strategies that sustain their motivational orientations, they feel right about what is happening. Regulatory non-fit was associated with lower procedural justice perceptions and this, in turn, related to higher burnout. The theoretical and practical implications of applying regulatory fit theory to person-organisation relationships are discussed. Apathy is a mutual symptom in dementia and is associated with rapid cognitive decline, poor quality of life, and higher mortality (van Dalen *et al.*, 2017). Lawton's Competence and Environmental Press model (Lawton, 1977) suggests that an individual's behaviour and effect are influenced by the fit of their functional abilities with the environmental demands (Wahl, Iwarsson and Oswald, 2012). Yet, there is no empirical evidence on the association between person-environment (P-E) fit and apathy. Thus, this study examined the relationship between P-E fit and apathy in dementia. Specifically, this study focused on the extent to which the physical environment fits individual functional limitations (Jao *et al.,* 2021). P-O fit facilitates a person's adaptation to their environment through strong social ties leading to an increase in knowledge sharing (Tsai, 2002). Like all

other human behaviours, creativity must be examined by considering both personal and situational influences, and P-O fit provides a suitable theoretical perspective to investigate the congruence between people and organisations in the domain of creativity (Tyagi and Gupta, 2005). However, the consequences of P-O fit on creative behaviour are presented in few research studies (Sarac, Efil and Eryilmaz, 2014). Although many of these studies have identified a positive relationship between P-O fit and creativity, it is suggested that congruent individuals are less likely to be inventive (Subramanian, Billsberry and Barrett, 2022).
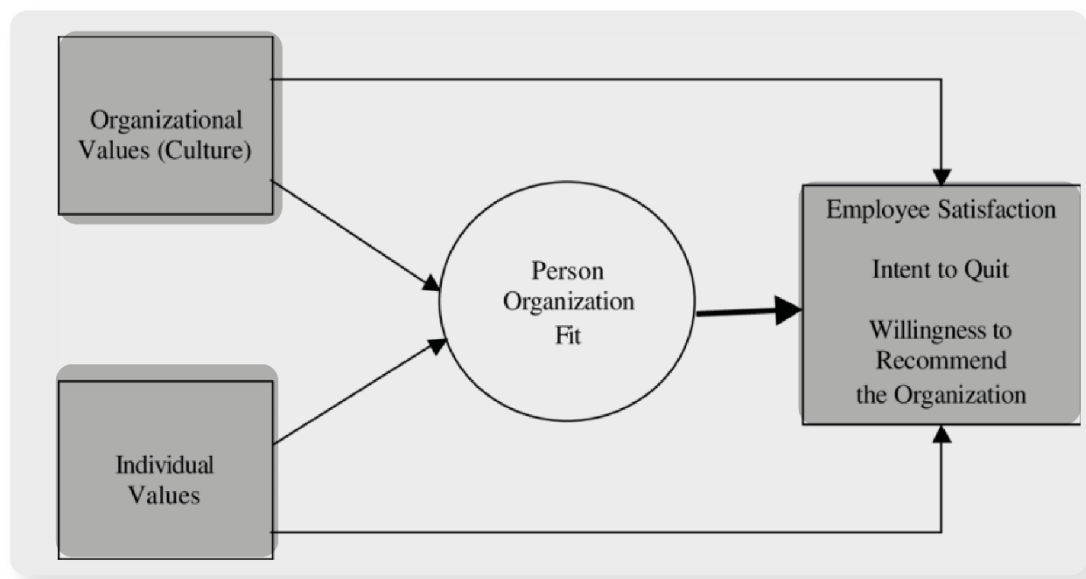
Figure 10 Person-Organisation Fit
Source: Adapted from Tepeci (2011)

An essential element of person-centred care is flexibility, which attempts to adapt care to users' unmet needs, capabilities, limitations, and personal backgrounds with users' unmet needs (Cohen-Mansfield and Bester, 2006; Cohen-Mansfield, 2006). However, flexible environments and modifications for dementia care are required and planned. Advanced care planning is an opportunity to establish values and preferences and is associated with comfort and a decrease in burdensome interventions (Eisenmann *et al.,* 2020). Likewise, planning after a diagnosis of dementia enables people to manage essential decisions on their care needs, financial and legal affairs. People with dementia and their relatives have been known for decades and are familiar with values and treatment preferences (Brazil *et al*., 2015; Tilburgs *et al*., 2020), but people with dementia may have difficulty making decisions. The capacity of people with dementia for complex reasoning, executive functions, and decision-making is assessed and emphasised for motivational and cognitive processes (Darby and

Dickerson, 2017). As each person has a unique comfort state (therapeutic rapport), comfort can support dementia care facilities and assisted living communities to adopt and embed through staff practice and individualised organisational routines (Nakrem, 2015). Hence, palliative care becomes a care framework that increases an individual's comfort and quality of life by managing distressing symptoms, such as pain (Rome *et al.,* 2011).

Town and city planning has become crucial in planning health and social care policies. Nevertheless, limited dementia-friendly design guidelines focus on orientation and wayfinding (van Buuren and Mohammadi, 2022). Simultaneously, psychological, and neuroscientific knowledge integrated custom, practice, or intuition, which need to be better integrated (Wlodzislaw, 2007), but navigation research still needs to be more specific. In this case, capability-based planning (CBP) provides a method for identifying the levels of capability needed to achieve the strategy or solve a shared problem. CBP explicitly connects capability goals to strategic requirements with scenarios' assistance, indicating that planning and capabilities are taken that jointly influence operations performance. Significant correlations were found amongst these constructs in the source, make and deliver process areas. (Bronzo, Valadares de Oliveira and McCormack, 2012).
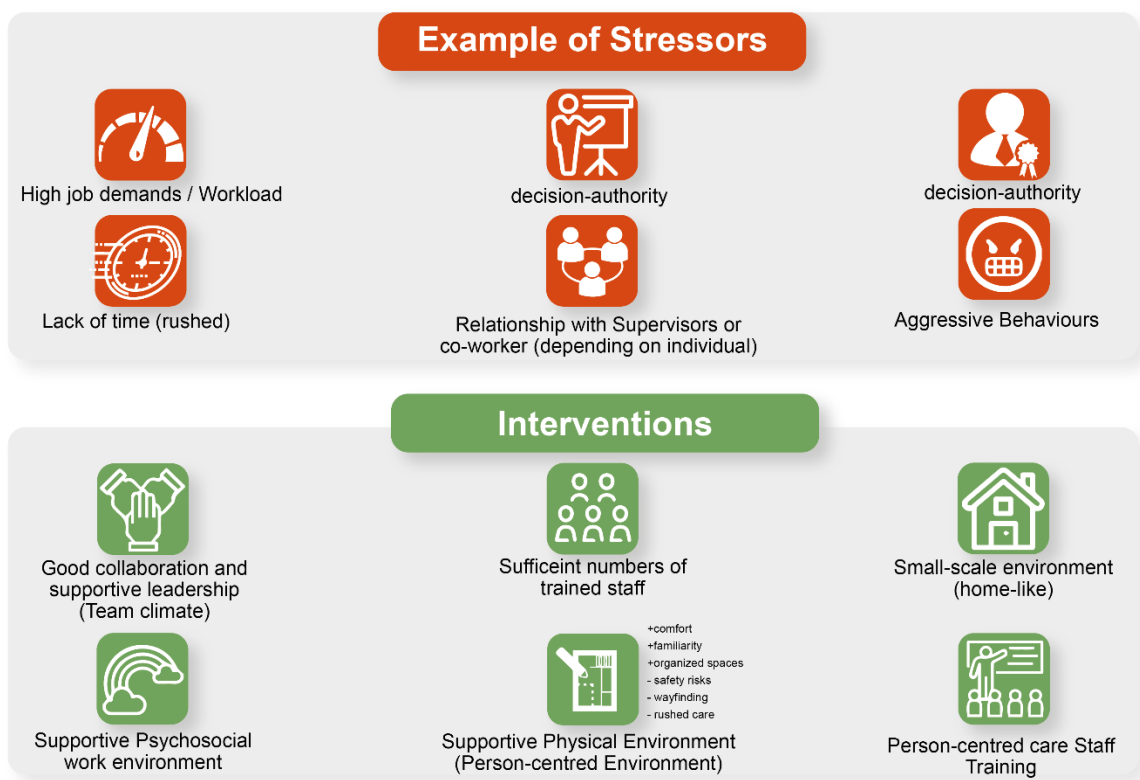
Figure 11 Stressors and interventions of care environment

2.2.2 Human Capabilities

The capability approach, developed by Sen (1999) and Nussbaum (2000), provides a theoretical underpinning of human development, essentially individualistic. Human development consists of the expansion of individuals' capabilities or freedoms that are defined as what a person can be ('beings') or do ('doings'). Capabilities are described as a person for the authentic opportunities has to be and to do things according to what they value in life (Ponce, Cancio and Sanchez, 2018). According to Nussbaum, every person's duty in the society should become capable of a dignified human life (Melander *et al.*, 2018). However, individuals cannot flourish alone. Indeed, they cannot function alone. When they are born, the family provides their life support (Stewart, 2013). Capabilities are what people can do and to be, with their freedom (Stewart, Ranis and Samman, 2018). The capabilities approach can be understood as building upon the foundations of the concept of basic needs. However, Sen (1999) argued that a proper focus for understanding well-being is on what people can be and can do, rather than simply on what they have. According to the capabilities approach, both objective and subjective perceptions of well-being are engaged (as illustrated in Figure 12).

People with advanced dementia have difficulties in human capability, for example, life planning and achieving practical reasoning (Beuscher and Granda, 2009). The capability approach stated by Nussbaum (2000), ensure that nursing staff and caregivers should provide people with dementia's basic needs and a dignified life (Melander *et al.*, 2018). Importantly, a dignified life for people with dementia requires nursing staff's responsibility to ensure if an individual can achieve human capabilities (Melander et al., 2018). According to Martha Nussbaum, the capability approach articulates a practical means to promoting and enhancing people with dementia's dignity (or respect-worthiness as a human) and ensuring that people with dementia flourish within the limitations imposed by the disease. Prominently, people with dementia should be 'treated as people' (Müther, 2010). Factors of people with dementia about their experiences of healthcare delivery recur strongly in studies (Coyle, 1999; Entwistle *et al.*, 2012; Goodrich and Cornwell, 2011). Hence, depersonalisation can be interpreted as de-humanising, and the (linked) de-individualising seems to be the main barrier to care quality (Entwistle and Watt, 2013).
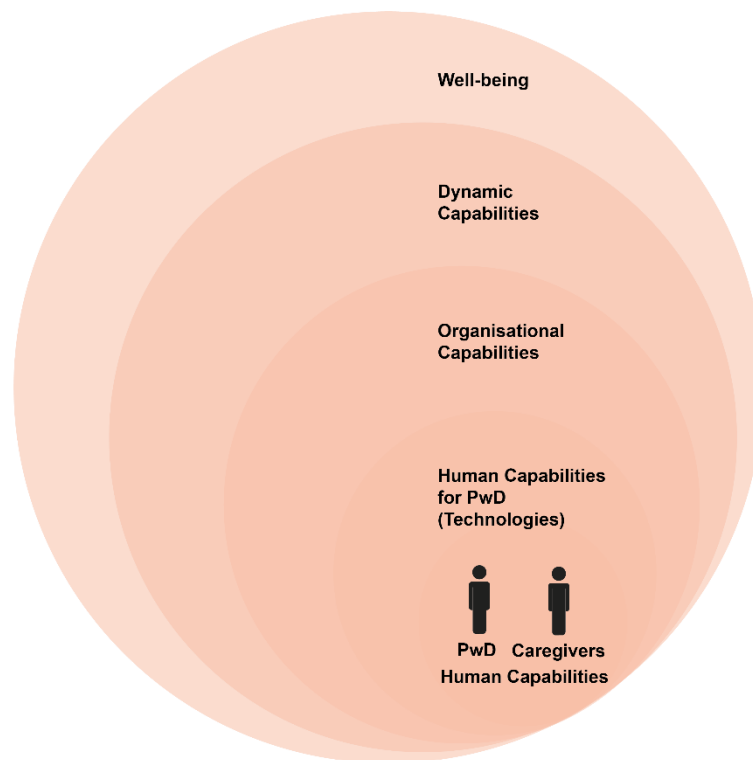
Figure 12 Types of Human Capabilities

Although various types of assistive technologies (ATs) have compensated for physical and cognitive impairments in recent decades (O'Brolchain, 2008), the scientific literature has remained largely confined to the engineering and computer science domains with few exceptions (Bharucha *et al*., 2009). Tasks cannot do or increase the ease and safety of assistive technologies in each individual device or system (Royal Commission on Long-term Care, 1999). However, ATs may signify a barrier leading to social exclusion if the person cannot employ ATs successfully, although the design aims to reduce disabilities in older people (Kenigsberg *et al*., 2019). The capabilities approach becomes possible to ground virtue ethics based on the existence of human dignity (Bertland, 2009). Virtue ethics is free of the need for strict teleology by replacing the notion of developing the capabilities of others (Bertland, 2009). The role of an institution is to provide opportunities for individuals to develop capabilities to function at a level worthy of human dignity (Nussbaum, 2000; Bertland, 2008). Against human flourishing and self-actualisation, people with dementia's comfort and safety due to an overly limited understanding of the achievable quality of life and the relational capabilities of people with dementia are emphasised (Cook, Henrikson and Schouten, 2022). The meaningful agency of people with dementia does not appropriately recognise nor appreciate the enabling relationships people can have in the ecology of caring (Boyle, 2013).

Positive psychology (as shown in Figure 13) contributes to the conditions and processes of flourishing or optimal functioning of people, groups, and institutions (Gable and Haidt, 2005). Strengths, virtues and positive emotions become the framework (Seligman *et al*., 2005) to achieve a greater understanding of well-being, even under challenging circumstances (Keyes, 2010; Clarke and Wolverson, 2016; Stansfeld *et al.*, 2017). People with dementia can retain the capacity to experience positive states actively. In addition, their quality of life can be improved and recognised as an essential outcome of dementia care services (Lawrence et al., 2012). Positive psychology, strengths, capacities, and personal resources are one framework for understanding how a person with dementia might achieve this (Radbourne, Clark and Moniz-Cook, 2010). A group of people with dementia are acknowledged and highlighted by Steeman *et al*. (2007), who framed it conceptually in terms of a coping strategy that helps the person avoid negative social positioning as they actively attempt to maintain a sense of personal value (Wolverson, Clarke and Moniz-Cook, 2016). Empowerment of positive health in people with dementia, their caring relatives and care professionals is needed to regenerate the negative image of dementia (van Corven *et al.,* 2021). Living with dementia may change a life by leading to new social roles and different social statuses (Singleton et al., 2017). Experiences such as being disconnected and dependent on others, feeling like a burden, and being a person who is treated in paternalistic ways (Eriksen et al., 2016), can be experienced. In this case, relatives, friends, and people with dementia play significant roles and responsibilities in maintaining meaningful activities (Smits, Dusee and Groen Van de Ven, 2017).
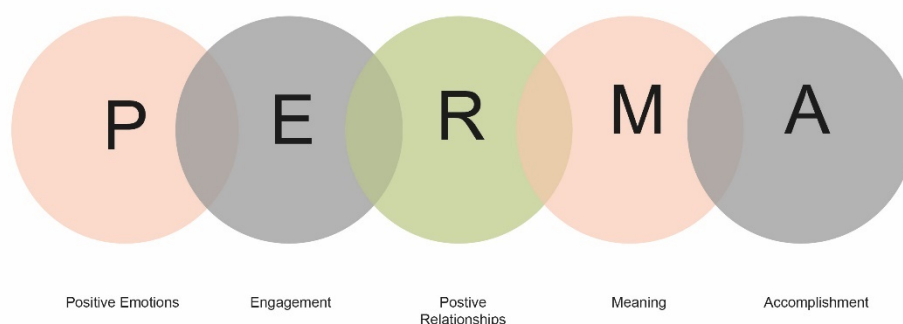
Figure 13 Concept of 'PERMA' in Positive Psychology

Consequently, occupation requires organisational capabilities and human development in long-term dementia care facilities, which usually matches people with dementia's unmet needs

(Gaugler *et al.,* 2005). Due to the increasing number of people with dementia and related research study (Livingston *et. al,* 2020; Corrada *et al.,* 2012), well-being, organisational and environmental characteristics can inspire an engagement in different types of occupations (Wong and Leland, 2018). The study by Smit *et al.* (2014) suggests that factors that dominate how residents engage in well-being-enhancing occupations are budget and care staff ratio (Smit *et al.,* 2013). The physical environment and care organisation have played a key role in equipping staff with integration skills for well-being-enhancing occupations into care practice (Nordin *et al.,* 2021). Positive organisational interventions (POIs) have emerged as popular mechanisms to facilitate employees' professional development and well-being. These interventions draw from positive psychological principles, processes, and practices to enhance the positive capabilities of individuals and teams in order to produce positive outcomes for the individual (e.g., work engagement), the team (e.g., collaboration, team flow), and, ultimately, the organisation (e.g., innovative work behaviours). They define dynamic capabilities as a firm's behavioural orientation that constantly integrates, reconfigures, renews, and recreates its resources and capabilities (Peng, Zhang, and Yen, 2019). Most importantly, upgraded and reconstructed of the physical environment attain and sustain the capability approach (CA) (Mohamud and Sarpong, 2016). Design capability (DC) suggests the development of 'particular capabilities', like creativity or innovativeness, which are more likely to improve performance and competitiveness (Ferreira, Coelho and Moutinho, 2020).

2.2.2.1 The Capability Model for Well-being Science

The functioning relevant to well-being varies from elementary ones as escaping morbidity and mortality, being adequately nourished, having mobility, to complex ones, such as being happy, achieving self-respect, and taking part in the life of the community (Dang, 2014), and appearing in public without shame (the last a functioning that Adam Smith illuminatingly discussed) (Nussbaum and Sen, 1993). As shown in Figure 14, the claim is that functioning creates a person's being while a person's well-being has been evaluated and taken as a form of an assessment of constituent elements (Sen, 1993). Well-being literacy is defined as "a capability to comprehend and compose well-being language, across contexts, to use such language to maintain or improve the well-being of oneself, others or the world" (Oades *et al*., 2021, p. 719). Moreover, the concept of well-being literacy relates to how people communicate about and for well-being, in which freedom and choice are conceptualised and promoted (Oades et al., 2021). In well-being experience, freedom to choose what well-being means to a person and how it is maximised via language and knowledge (Oades et al., 2021). Well-being is highly individualised and should focus on the freedom and choice to decide what well-

being is and why it is essential (Oades *et al*., 2021). Language is also universal and has broad, systemic effects on human social experiences (Hirosh and Degani, 2018). As a result, people actively construct meanings in their experiences through language (Boyd and Schwartz, 2020). These constructed meanings make language a powerful leverage point for people to influence their well-being and the well-being of others (Chan *et al.,* 2020).
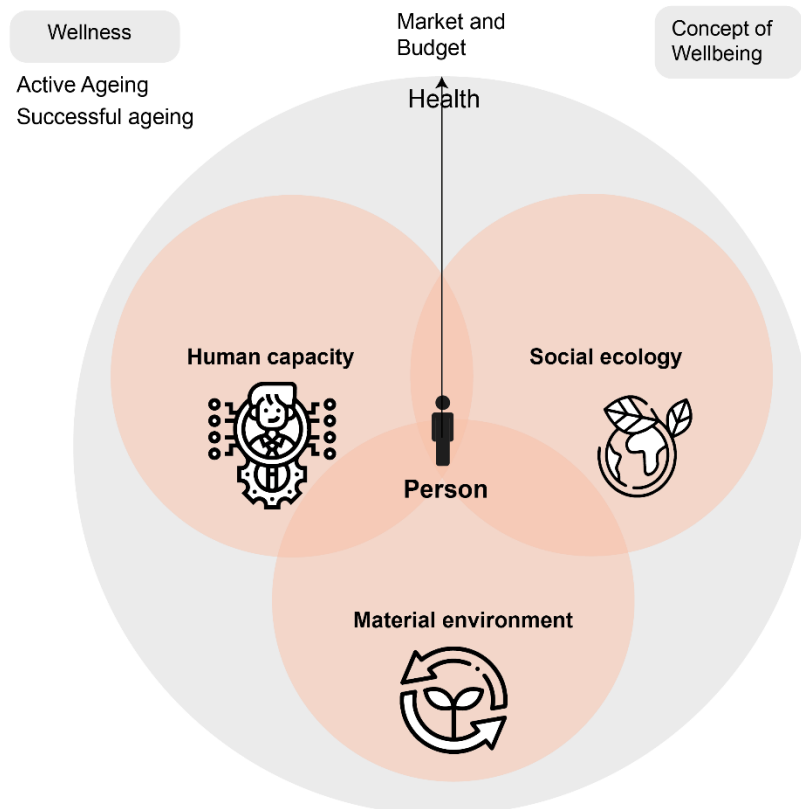
Figure 14 Concept of well-being
Source: Adapted from Galappatti and Richardson (2016)

The concept of personhood describes the subjective well-being of people with dementia by factors such as comfort, inclusion, identity, occupation, and attachment (Kaufmann and Engel, 2016). Based on the self-report of people with moderate or severe dementia (Frank *et al.,* 2011), Tom Kitwood's model of psychological needs examine the importance of subjective well-being of these targeted groups (Kaufmann and Engel, 2016). Likewise, the subjective perception of the well-being state differs based on the specific circumstances in the case of long-term evaluation (Western and Tomaszewski, 2016) and is necessary to approach from an objective point of view. Moreover, cultural differences can cause variations depending on certain conditions and overall health status (Galanti, 2000). For example, people may perceive obesity differently according to social norms and social expectations. Therefore, the approach

from the subjective point of view is necessary along with the traditional objective assessment (Dikli, 2003). Health, eventually, is conceptualised as a complete state of physical, psychological, and social well-being and does not mean that disease is absent (Kuhn and Rieger, 2017). Thus, in 1986, WHO clarified health as an everyday life's resource and not the objective of living (WHO, 1986).

A healthy lifestyle provides the means of meaning and purpose to lead an entire life (WHO, 1999). Well-being buffers against age-related disease by a psychological resource (Sutin, Stephan and Terracciano, 2018). In addition, a risk of dementia has decreased 30 per cent by an independent of psychological distress, behavioural risk factors, income and wealth, a clear life purpose as well as a genetic risk (Sutin *et al*., 2021). At least half of risk factors are attributed to lifestyle factors such as diet, exercise, and smoking (Barnett, Hachinski and Blackwell, 2013). However, the measurement of well-being after considering psychological distress is not protective against the risk of dementia (Zotcheva *et al.,* 2018). As a result, a meaningful life purpose and a goal-driven life can reduce dementia risk (Sutin, Stephan and Terracciano, 2018). Moreover, modifiable lifestyle factors such as healthy diet and physical activities can enhance healthy ageing and improve the quality of life of older people (Michel, Dreux and Vacheron, 2016). As a result, nurses are ideally placed to advise older people on nutrition and physical activity to reduce the burden of age-related disease (Ross *et al*., 2017).

The concept of 'successful ageing' is a challenging discourse in gerontology, which dominate the conflicting paradigms, including a health promotion activities model and a model critical of successful ageing (Katz and Colasanti, 2015). However, the concept of successful ageing can be perceived for a wrong goal and in a different perspective (Annele, Satu and Timo, 2019). The quest of successful ageing should be for resilience, an undervalued and not thoroughly examined concept in ageing (Harris, 2008), regardless of social and cultural backgrounds or physical and cognitive impairments (Harris, 2008; Sugita *et al.,* 2020). Consequently, its role in re-articulating later life is essential to understand the social nature of dementia and its cultural significance. The concept of the fourth age can be worth understanding better the perception of dementia and how culture affects both social and health policies (Gilleard and Higgs, 2014). Moreover, a new way of communication, creativity, intentional capacities, and self-expression should be discovered though the loss of agency (Stončikaitė, 2022). The fullest potential and activeness depend on themselves (Teixeira *et al.,* 2012). Thus, they do not have to be active all the time.

Longevity is the life span of an organism (Taormina *et al.,* 2019), and ageing is an organism's sequential or natural progressive change (Sgarbieri and Pacheco, 2017). However, an

increased risk of debility, disease, and death, progressively decreasing older people's life span (Jayanthi, Joshua and Ranganathan, 2010). Ageing in place is defined as "the ability to live in one's own home and community safely, independently, and comfortably, regardless of age, income, or ability level" (Lim and Bowman, 2022), which supports the need to meet older people's needs (if not old age). The preference of older people to age in place develops a matching between a person and environment, or the theory of person-environment (P-E) fit (Perry, Dokko and Golom, 2012). Similar to the theory of P-E fit, the concept of health explains an equilibrium between a person and the environment, the unity of mind and body, which relates the origin of disease as the backbone of the health perception in ancient Greece (Svalastog *et al.*, 2017)

2.2.2.2 Salutogenic Approach

Salutogenesis (origins of health) is a model for public health practice rather than pathogenesis (origins of disease), which can focus on supportive factors that increase well-being rather than on preventive factors (Fries, 2020). In this case, the environment forms the physical context for human lives, which influences and comprises meaningful and occupied places (Sallis *et al.,* 2012). The focus is on life, where health serves as a resource. As illustrated in Figure 15, the usability of available resources is related to health, for example, the reorientation of one's life perspective, reflecting and continuing to set up a different path for one's life course and finding constructive support for a continuation through internal or external resources (Lindstrom, 2018). As a result, a sense of coherence (SOC) by Antonovsky (1987) mentions to an ability for someone to use resources (Super *et al.,* 2016). The stronger the ability of SOC, the better the capability to manage life and all its challenges (Umberson and Montex, 2010). In Antonovsky's perspective, a system of Salutogenic approach illustrates the sense of coherence between individuals and their supporting structures and creates an interactive system (Alter, 2018).
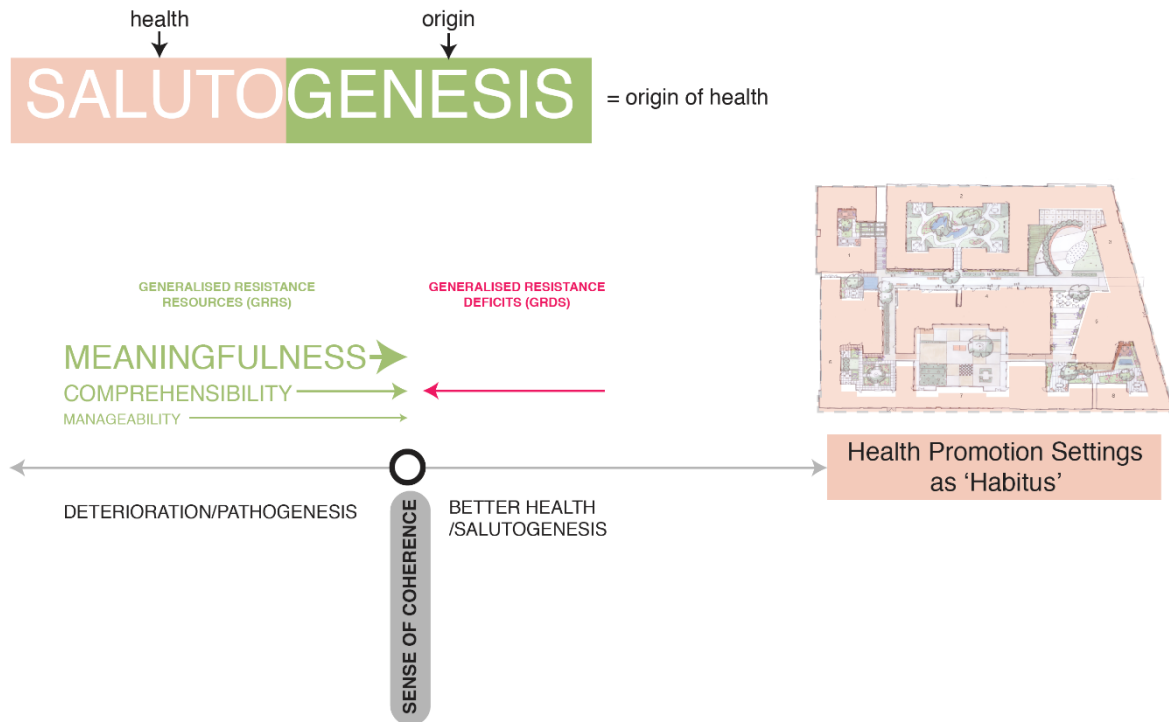
Figure 15 Concept of Salutogenesis
Source: Adapted from Golembiewski (2019)

The narrative sequence can foster a sense of control and personal security (Johnson, 2018). However, perceived narratives of the environment and without adequate care can decrease the confidence of people with dementia (Golembiewski, 2016). As a result, self-tuning is essential for health promotion settings for exploring in-depth job engagement and promoting a salutogenic capacity (Bakibinga, Vinje, and Mittelmark, 2012; Vinje, 2007; Vinje and Ausland, 2013; Vinje and Mittelmark, 2006). As a result, the inner vocation catalyses a higher job engagement and highly diligent dutifulness (Langeland et al., 2022). In addition, creativity explores its possible benefits, emphasising an increase in creativity rather than exploring benefits (Richard, Holder and Cairney, 2021). As a result, creativity enhances meaningfulness through a natural connection with a sense of coherence and purpose (Kaufman, 2018). The desire for metaphors becomes a core concept for life meaning and can be reached through creative activities (Martela and Steger, 2016). Hence, past, present, and future pathways to creativity can be encompassed by life meaning (Martela and Steger, 2016).
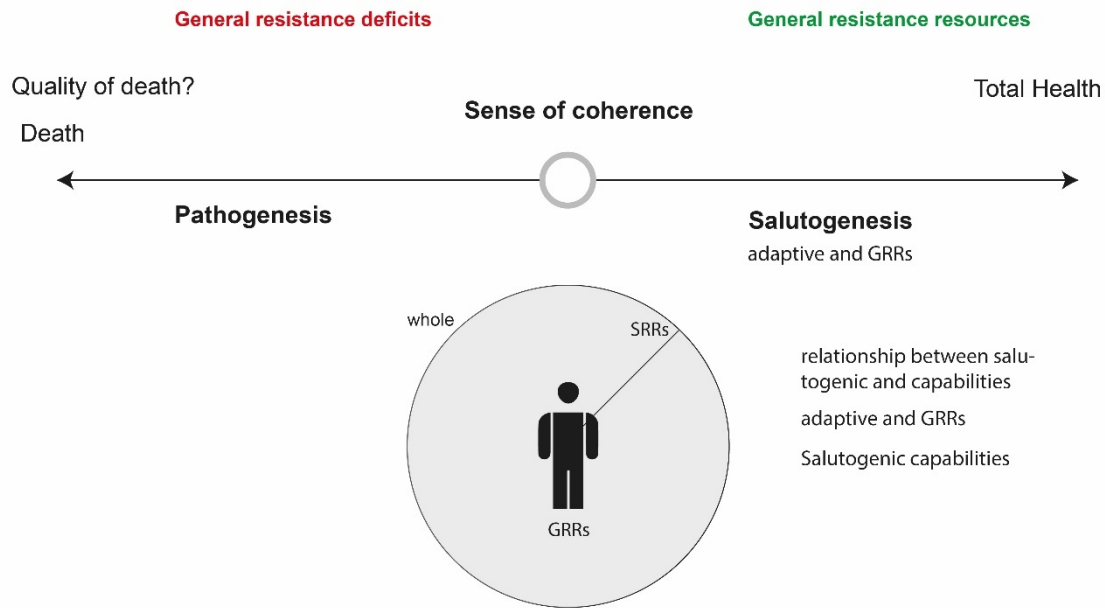
Figure 16 Sense of Coherence (SOC)
Source: Adapted from Roskams and Haynes (2019)

As memory often embeds in a familiar environment, recent evidence suggests that familiarity with an environment may protect against spatial memory decline for familiar objects in older people. In western culture, older people, both with or without dementia, eventually have to move from their familiar environments (Wiener and Pazzaglia, 2021) into unfamiliar settings, such as sheltered housings or dementia care facilities (Wiener and Pazzaglia, 2021). Accordingly, the concept of familiarity becomes very important, and the design interventions of the physical environment have to consider the concept and develop for people with dementia Forsund *et al*., 2018). Hence, the role of memory in everyday life is changing as a technology-dominated universe emerges. Coherence of memory can improve emotional problem-solving through the process of meaning-making (Vanderveren, Bijttebier and Hermans, 2017). As narratives reflect a person's experiences and a sense of being in the world (Barkhizen, 2022), the meaning was progressively created (Cox, 2015). Autobiographical memories, including personal beliefs, emotions, and thoughts can portray personal experiences of events as memories (Vanderveren, Bijttebier and Hermans, 2019). As the events are precisely unfolded and information is provided, the narrative can be considered as coherent (Gubrium and Holstein, 1998). However, the progression of the disease is different for every person affected. As a result, personality, biography, health status, and environment also impact the symptom's development (National Academies Press, 2006). More importantly, the significance of narrative care focuses on interventions that involve a person and their unique life narrative (Puto *et al.,* 2022).

All types of settings are implied with an organisational form and its definition (Li *et al.,* 2018). Potential settings such as worksites, schools, universities, and prisons, are potential settings which are formalised (Apa *et al.,* 2012), and can be comprehensively influenced by organisations, such as cities, neighbourhoods or healthy environments (Laambert et al., 2011). A societal action which health promotion has a contributing role are optimised by Specific resistance resources (SRRs) to provide supportive social and physical environments (Mittelmark et al., 2016). Generalise resistance resources (GRRs), similar to SRRs, have significance to a health promotion approach (Idan, Eriksson and Al-Yango, 2022) (as shown in Figure 16). As a result, the main focus of salutogenesis is an organisational health intervention that concentrate on positive resources and outcomes for organisational change processes (Bauer and Jenny, 2013). Uniformity, balance, accessibility, and opportunities to participate in decision-making should be concerned for a salutogenic work environment, that requires comprehensible, manageable, and meaningful (Jenny *et al.,* 2022). The sense of coherence of employees, would be supported by their perception of comprehensibility, manageability, and meaningfulness (Montgomery et al., 2013). The sense of coherence of employees should provide GRRs (for example job resources) to allow for positive work experiences (Jenny *et al*., 2017).

2.2.2.3 Attachment Styles

Alzheimer's disease (AD) symptoms are numerous, including worsening mood, psychotic symptoms, and aggressive and impulsive behaviours, which is generally anticipated a relationship between the severity of dementia and aggressive symptoms (Bidzan, Bidzan, and Pąchalska, 2012). Cognitive functioning disorders and the intensification of aggressive and impulsive behaviours are related. Many people with dementia become aggressive because higher pain levels, caregiver burden, and declining mutuality increase the risk of aggression over time. More severe forms of dementia are connected with a more significant intensification of aggressive and impulsive behaviours as the disease progresses (Singleton *et al*., 2017). As a result, emotional safety is significant for people with dementia to understand their emotional safety needs (Grobosch *et al*., 2020). However, people with dementia are appeared as vulnerable to decrease their emotional safety (Grobosch et al., 2020). Interaction with emotional and behavioural expression during dementia can show pre-morbid attachment style (Browne and Shlosberg, 2006). In addition, parent fixation and childhood's attachment behaviours can influence attachment behaviours in most dementia care facilities.
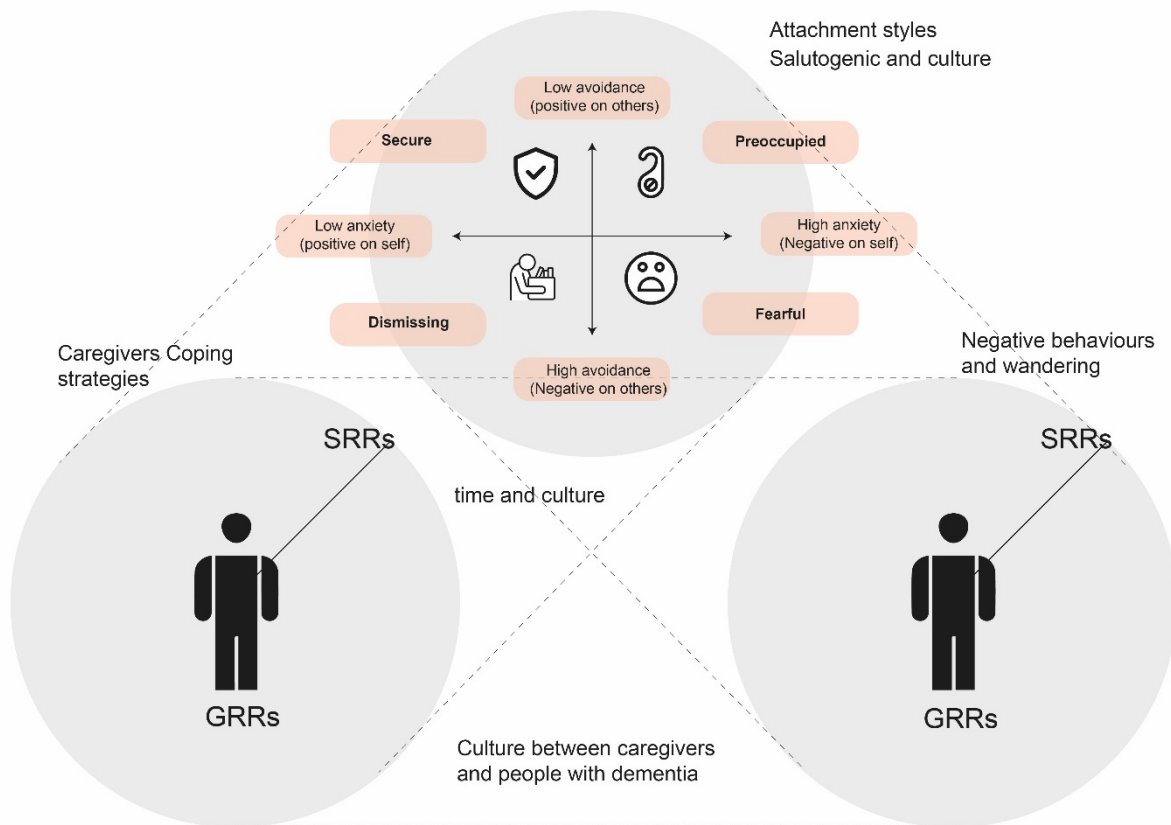
Figure 17 Relationship between attachment theory and Sense of Coherence (SOC)
Source: Adapted from Kim et al. (2019)

As shown in Figure 17, attachment bonds, the relevance of attachment for people with dementia, and how attachment influences care experiences of caregivers are related to personality development, emotion regulation, and mental health throughout the lifespan (Neils, Clare and Whitaker, 2014). At various stages of dementia, attachment behaviours are evident for parent fixation when attachment needs are not met (Nelis, Clare and Whitaker, 2013). Neuropsychiatric symptoms and attachment security can lead to insecure attachment and can result in caregivers' psychological health (Monin, Freeney and Schulz, 2018). Provocatively, supportive for healthy attachment for people with dementia and caregivers are required (Neils, Clare and Whitaker, 2014). As mentioned above, the SOC developmental process contributes to emotional closeness, which is s type of life experiences and has been primarily conceptualised in social networks within the framework of attachment theory (Bowlby, 1973; Grossmann and Grossmann, 2006; Mikulincer and Shaver, 2007). Overall, individuals' backgrounds in the variety of emotional, social, and behavioural adjustment should be highlighted since the early stage of interactions (Cassidy and Shaver, 2008; Grossmann *et al*.,

2006). Hence, attachment theory is a lifespan developmental theory (Mikulincer and Shaver, 2007), which the salutogenic theory focuses on early interactions with significant others (Idan, Eriksson and Al-Yagon, 2016).

Generally, people with dementia precede the condition's clinical manifestations, such as cognitive impairment, and exhibit personality changes. Premorbid personality might be a determining factor as dementia progresses, distorts or exaggerates the existing personality (Wahlin and Byrne, 2011). Personality is described as the characteristic pattern of behaviour that determines an individual's adjustment to the environment or situation (Beckmann and Wood, 2017). The pattern describes how individuals affect others, and how they understand themselves and their pattern of internal as well as external measurable traits. The relationship between demographic groups and high-income countries is associated for personality-dementia links (Aschwanden et al., 2020). The development of personalities is shaped and influenced by cultures and ecologies. Both universal and culture-specific variations in personality are unique such as complexity, tightness, individualism, and collectivism (Triandis and Suh, 2002). Personality trait theory suggests that impressions of other people are veridical reports of their characteristics. Social perception theory suggests that personality descriptions are individuals' attributions, assumptions, and perceptions about others. Hence, strong physical boundaries, defined roles, and a structure of an organisation are identified by contexts and settings (Dooris et al., no date). Different health promotion settings can address interventions, needs and capacities of people with dementia by addressing the contexts in which people live, work and play (Poland, Krupa, and McCall, 2009).

2.3   Summary

The chapter demonstrates the global challenges of dementia and the quality of dementia care. The term 'dementia' is an umbrella term, as its Latin origins suggest, describes people who have a progressive cognitive degeneration, a departure of previous mental functioning (Hugo and Ganguli, 2014) through a clinical diagnosis, and may require a functional dependence (Cunningham *et al.*, 2015). As people with dementia commonly exhibit personality changes and precede the clinical symptoms such as cognitive impairment, the number of people with dementia will increasingly challenge the healthcare workforce to be inadequate in size and training.

In summary, this chapter presents the literature review to cover topics such as dementia-friendly environments, therapeutic landscapes, concept of place and ergonomics to ascertain the possibilities of mobility in people with dementia. The second part of the chapter

demonstrates the importance of human capabilities, which include topics such as the salutogenic approach and attachment styles. The grey literature is in the salutogenic approach, which should support their capabilities.

3   DEMENTIA CULTURE

3.1   Introduction

Dementia is a social concept, which has related to stigmatisation and feelings of hopelessness in people with dementia (Rewerska-Juśko and Rejdak, 2020). Deinstitutionalisation of dementia care facilities has become a trend. Design for dementia has been used to support personalised narratives related to personality and lifestyles, and essentially related to a decision-making process that has emerged and practiced in healthcare services. However, ethics and marketing aspects are ambiguous within the design decision-making.

The role of design for dementia care in relation to the tourism design system will be explored in this chapter. The first section of the chapter reviews topics such as deinstitutionalisation, design for coherence, and emotional design which argues for the role of design in dementia care. The second part of the chapter consists of topics such as globalisation, design ethics, design thinking, and transnational care in the case of Thailand. The additional literature reviewed focuses on the ergonomic design-thinking framework which has to be developed.

3.2   Cultural Production of Dementia Care

In many cultures, emotional terms, such as 'tsunami', 'suffering', 'burden' and 'lack of care' are used to describe the concept of dementia (Zeilig, 2014), which has contributed to the stigma and feelings of hopelessness in people with dementia (Low and Purwaningrum, 2020). The history of dementia as a concept and a behavioural syndrome becomes to influence a knowledge and a precondition for scientific research. The word 'dementia' was used since Roman times to mean 'being out of one's mind, insanity, madness, folly' (Ames, 2017). Historically, the Latin stem *demens* (without mind) had found a home in most European vernaculars between the 17th and 18th centuries (Assal, 2019). However, the full medicalisation of dementia started after the 1750s (Assal, 2019), which different cultures and contexts understand dementia differently due to influences of global media and the lifestyle interventions (Hillman and Latimer, 2017). As a result, perceptions of 'the elderly' have also changed and socially constructed as an 'epidemic' (Hillman and Latimer, 2017). The term 'dementia' has transformed into 'neurodegenerative disease', which are result in a progressive degeneration and the death of nerve cells (Gao and Hong, 2008). However, dementia is a culturally defined phenomenon, which is based upon the medical power to explain a collection of changes, behaviours, and experiences (Hillman and Latimer, 2017). Even though the biological phenomenon of ageing is universal, the daily life of an older person varies

considerably according to social, economic, and cultural contexts (Bagheri-Nesami and Shorofi, 2014). Thus, ageing and health becomes socio-cultural determinants, which an available social support and status are varied in different cultures (Shaji, 2009) (as shown in Figure 18).

Culture

Belief

Knowledge

Concept of dementia

Eastern concept of dementia

In many Asian countries, dementia is regarded as a shameful illness, and the local terms for dementia are derogatory. Dementia carries a stigma that may lead to patients' reluctance in seeking treatment and delay in diagnosis. In addition, local names for dementia frequently conjure up pictures of severe stage of dementia, and may lead to therapeutic nihilism.

Western concept of dementia

Dementia is basically a Western diagnostic category and most of the research findings, as well as the instruments used to measure cognitive loss, are from Western sources. However, the phenomenon is thought to be universal. The World Health Organisation has developed a cross-cultural definition.

Media

SOCIETY (Degree of structural stability varies)

MEDIA (Number and centrality of info function varies)

AUDIENCE (Degree of dependency on media information varies)

EFFECTS (Cognitive, Affective, Behavioral)

Building types

Building as media

Spectrum

Abandonment

Images

Design culture

MEAP

PEAP

DDAT

SCEAM

OHE

Figure 18 Cultural Production of Dementia Care
Source: Adapted from Melvad and Yousefi (2018)

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The concept of culture seems even more opaque to researchers who compared organisations in different countries. In the words of Child (1981), national differences are found in characteristics of organisations by their members (Hesmondhalgh, 2016). The analysis of Bourdier's cultural production in terms of its effectiveness for understanding contemporary media production begins by outlining the main features of Bourdieu's work on cultural production, with an emphasis on the potential advantages of his historical account over other, competing work (Gartman, 1991). Previously, spatial organisation has been the productivity, efficiency, and optimal staffing levels comparing to working hours (M Architects, 2018). A current priority is to provide the operational efficiency of healthcare facilities and to protect people with dementia who have accepted self-worth and life purpose (Martin, O'Connor and Jackson, 2020). Lefebvre's humanist Marxist stress on the role of human production in society relates to design and furnishes the social mediating processes of spatial practices, symbolic meaning and social control that provide insight into the conflicts that arises as different groups and socio-political forces struggle to claim and define these culturally significant public spaces (Fuchs, 2019). Hence, the news media, especially online newspapers, is one of the powerful transmitters (sm-Rahman, Lo and Jahan, 2021) due to its contribution to social beliefs and attitudes that shape perceptions on dementia (Sm-Rahman, Lo and Jahan, 2021).

One of the major sources of cultural production is media. Even though various media platforms (Shu and Woo, 2021), such as smartphones, tablets and websites have facilitated the distribution of dementia knowledge, the media representation of dementia is essentially heterogeneous (Armstrong *et al.,* 2010). However, the influence of online news coverage and the social perceptions of dementia are associated and should be understood broadly (sm-Rahman, Lo and Jahan, 2021). Many media interventions have been designed and promoted to raise public awareness about dementia (Brayne *et al.*, 2020). For example, social projects such as social projects such as the Forget Me Not Café reinterpreted the capability of older people with dementia to communicate and live with their capabilities (Masoud et. Al, 2021). As routines, actions positively influence personal circumstances (Xu, 2021) based on their personal goals. Hence, the physical environment, in its ability to shape and represent the local standards and rules of social interaction, plays a crucial role in the construction and reflection of social behaviours (Kinzig et al., 2013). Therefore, media architecture should avoid imposing any specific experience that fails to harmonise with the existing fabric, or to create an artificial reality on terms (Moere and Wouters, 2012). However, architecture as media has not yet been interpreted in the context of dementia care.

The concept of building type has traditionally been defined into two different kinds of logic, either the logic of form (materiality and construction) or function (Kärrholm, 2013; Rashid and

Ara, 2015). In this case, formal and use types have evolved and tended to focus on the split between form and function (Haferkamp and Smelser, 1992). During the 18th and 19th centuries, building typologisation became an essential means of users and was conceptualised as a machine with a specific outcome (Kärrholm, 2013). Building types play fundamental roles in society and simple, everyday life. Nursing homes are complex environments with many features that may impact the residents' quality of life. A multivariate analysis of the effects of individual features is complicated because many features are potentially confounded (Kahlert *et al.,* 2017). As a result, medical practitioners and architects have linked the human condition to architectural planning and programming (Azzopardi-Muscat *et al.,* 2020). Moreover, one of the most potent factors for mental health is the physical environment (Charras, Eynard and Viatour, 2016). Models of human-environment relationships to architecture and design of special care units (SCU) have been developed and researched by designers and researchers in the medical and social sciences discipline (Charras, Eynard and Viatour, 2016). Therefore, the formal structure of settlement patterns is influenced by building regulations that specify detailed safety elements (Imrie and Street, 2011).

People with dementia's capabilities is one of the greatest challenges which the increased use of pharmacological interventions are restraints and are not optimal (Olson and Albensi, 2021). Especially mobility, the concept of 'walk with purpose' exhibits safe wayfinding, reduces fall risks and injury (Vendenberg *et al.,* 2016). Design for dementia has increased attention, however, different perspectives for design purposes are still lacked. As a result, insights from environmental psychology may be relevant for the design of caring and healing environments (Ludden *et al.,* 2019). Additionally, the domains are not usually based on technology development and unfortunately considered the opportunities when the built environment are integrated (Ludden *et al.*, 2019).

3.2.1   Deinstitutionalisation

Deinstitutionalisation has been recently used as a policy for state hospitals and was being incorporated into mainstream society. Within dementia care facilities, deinstitutionalisation becomes a trend (Ilinca, Rodrigues and Leichsenring, 2015). Small-scale and home-like care settings replace and transform larger dementia care facilities (Verbeek *et al.*, 2010). Normal everyday activities and meaningful activities are emphasised and centred around the domestic household (Yohanna, 2013; Verbeek, 2011). Architecturally, large-scale environments are traversed independently towards smaller and more restricted environments (Kuliga, Berwig and Roes, 2021). Hence, the change of scale from a large-scale environment that can be

traversed independently towards smaller and restricted environments, has gradually changed the experience of built environment. A smaller group of residents (usually six to eight people) live together in a home-like environment to introduce the movement of small-scale care facilities (De Boer *et al*., 2020). In these facilities (as illustrated in Figure 19), normal daily activities are encouraged for residents to participate, and household tasks are integrated by care staff (WHO, 2020). Consequently, this type of dementia care facilities is more satisfied and received positive feedbacks than those in regular wards. However, nursing and care staff working alone during the workday is related to the main barriers (Verbeek *et al*., 2011). People with dementia who are living in a home-like or positive stimulating setting have fewer challenging behaviours and a higher level of well-being, than people who live in a larger institutional setting (Woodbridge et al., 2018). The rewards, trails, and tribulations of community created within the confines of the modern welfare state are based on an ethnographic fieldwork of Germany's first Dementia Village (Haeusermann, 2017). By creating a Dementia Village, a communal space was created for its residents governed by societal standards of care that ties into long-standing traditions in social thought. The tension of combining sociality with rationalised bureaucratic efficiency has been shown (Gilbert *et al.*, 2020).
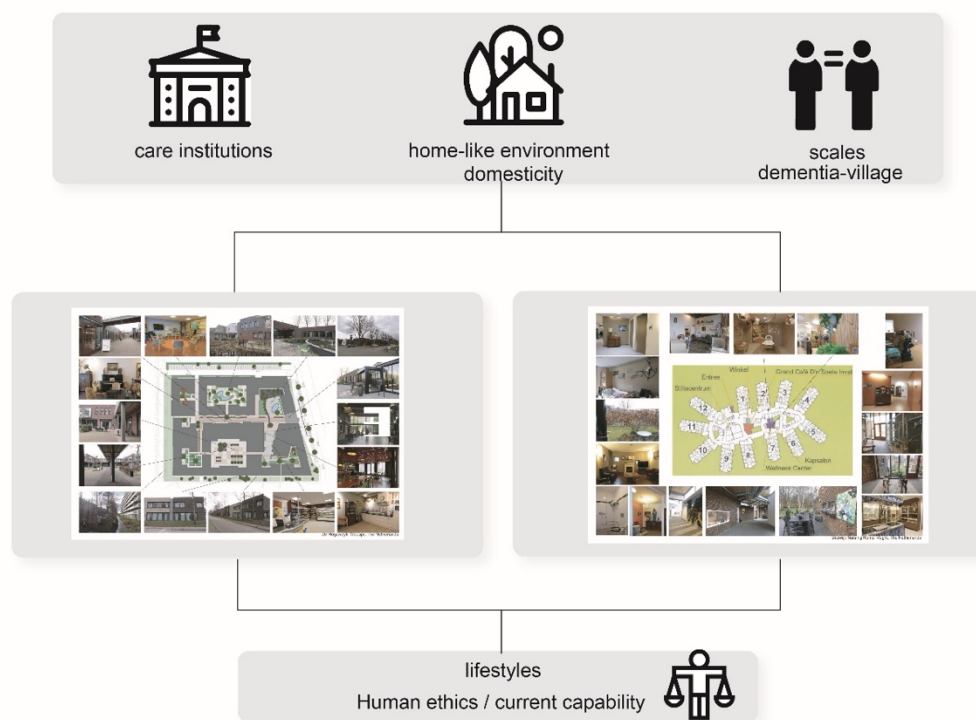
Figure 19 Deinstitutionalisation of Dementia Care

The examples of De Hogeweyk and Park Boswijk in the Netherlands (as shown in Figure 20 and Figure 21), argue for domesticity and a lifestyles approach. The location is away from the urban area with a courtyard typology. Within this structure, the building has been organised into a series of progressively private and secure spaces and courtyards. However, social interactions and segregations are categorised into different social classes, occupations, and cultural background. Inequalities and suffering are legitimised and naturalised the differences in social status, which may not be explicit (Crompton, 2006; Skeggs, 2011; Skeggs and Loveday, 2012) and can be revealed by everyday accounts of 'ordinariness' (Jones, 2017). The result of an economic as both ageing and social class have been transformed refers to the social and cultural coordinates of late modernity (Scott, 2002.) based on the unequal root of later life which is a critical question (Jones and Higgs, 2013; Jones, 2017). A risk factor includes social status and class in the past (hierarchy) for the development of dementia, as well as the association between socioeconomic status (SES) and dementia (Petersen *et al*., 2021). Hence, the perception of dementia and social class have embedded in social relations and the sociological insights which may represent as an important role of the lived experience of dementia (Birt *et al.*, 2019).

Figure 21 De Hogeweyk, The Netherlands
(Photos by author)

Figure 20 Park Boswijk, The Netherlands
(Photos by author)

Social institution and agency of people with dementia are often based on their past lifestyles and personality (Yates *et al.,* 2019). People with dementia may experience being disconnected and dependent on others, feel like a burden and being a person who is treated in paternalistic ways (Eriksen *et al.,* 2016), as experiencing dementia may change lifestyles, social roles, social status. They may change their personality and judgement, which raise both practical and philosophical problems with regard to personal identity. According to John Locke and Derek Parfit (1971)'s theories of personal identity, a basic criterion for personhood were emphasised to make rational choices and encourage the importance of psychological continuity and the abilities to think (Fuchs, 2020). Losing the status of being a person, may be experienced and threatened, especially to people with severe dementia (Norberg, 2019). However, the concept of person becomes a dualistic framework which body can be interpreted as a medium of a brain (Newen, 2018; Fuchs, 2020). People with severe dementia are involved in processes of meaning making to recomposes their narratives and concepts (Isene *et al.,* 2021). Expressions of meaning making, and of interactions include transitions of meaningfulness based on experiences of significance, orientation, belonging which transform into narratives (Fivush, Booker and Graci, 2017). Hence, these processes present the interrelation role of the body and the senses. An experience of meaning also suggests an experiencing of personhood (Young, 2019).

Woodward (1997) argues that identity could be marked out by differences, facilitating humans to differentiate their identities from others. Individuals' sense of self, sense of identity, and capacity for autonomous action or agency often limit the person's agency for external support in making decisions in daily life (Gómez-Vírseda, de Maeseneer and Gastmans, 2020). The decision-making process is supported by family caregivers who are legally empowered on the behalf of the people with dementia (Bosco et al., 2018). However, family caregivers often lack the capacity or no information on how to provide support (Reinhard et al., 2008). An understanding of the role of the caregivers in the decision-making process provides mechanisms for health and social care personnel to be promoted or discouraged through training (Al-Janabi et al., 2019). In this case, people with dementia can be supported, maintained, or improved their independence, safety, and well-being by using devices and systems of assistive technology (Klimova, Valis and Kuca, 2018). Design is specially compensated by physical and cognitive functions associated with dementia (Najar *et al.,* 2019), for example technology integration, environmental design and traditional care provision can be emerged in a smart home system (Martin, Bengysson and Droes, 2010). Even though technological equipment and service applications generate in care settings are often comples, ethical issues can arise when technology is used as an intervention in the life of a person with dementia within these complex scenarios (Wangmo et al., 2019). Hence, major human rights

such as the protection of personal data (privacy) and the rights of older people should be concerned and integrated (*Stanford Encyclopaedia of Philosophy*, 2005).

3.2.1.1 Human Needs (ADLs)

As a framework to categorise care needs, Maslow's hierarchy of needs was developed and used by Benson and Dundis (2003). Maslow (1954) proposed a classification of basic needs into five categories: physiological, safety and security, belongingness, esteem, and self-actualisation. As the human individual developed from birth to adulthood, needs appear sequentially through the phylogenetic scale (Decety and Svetlova, 2012). As these basic needs are satisfied, the next step would be the individual's psychological health (Lester, 2013). As a result, the largest gap of unmet needs was found in people with dementia who were in observation or unable to communicate, or their basic needs of activities of daily living and comfort were not met (Scerri, Scerri and Innes, 2020). The expense of other needs such as safety needs often emphasise care staff (Teisberg, Wallace and O'Hara, 2020). In addition, need for social contact, self-esteem, dignity, and respect were often ignored by people with dementia and lead to the feeling of devalued (Røsvik and Rokstad, 2020). In acute settings, the holistic needs of people with dementia (Røsvik and Rokstad, 2020) and care delivery procedures should facilitate person-centred care with these unmet needs by hospital staff (Røsvik and Rokstad, 2020). A result of deterioration in parts of the brain, dementia can cause changes in personality, behaviours, and physical bodies brain (Cerejeira, Lagarto and Mukaetova-Ladinska, 2012). Therefore, sensory changes can be experienced which can affect on older people's health and well-being. The safety concern should be concerned and made (Ho, Chenowth and Williams, 2021).

According to person-centred care, people with dementia's personality, life experiences, and preferences should be cared for (Wehrmann *et al.,* 2021). People feel more at home when they own familiar objects and environments. In care home settings, it is important that residents are able to personalise the furnishings in their rooms. Personal narrative relates to personality and concept of lifestyles, which depend on personalisation to understand and orientate. Despite most dementia care practices still adopt a medical approach, physical needs are prioritised over psychosocial well-being (Ringland et al., 2019). Expectations of people with dementia are not fully met by care stakeholders, based on various health and social care needs (Khanassov *et al.,* 2021). Consequently, the important needs of people with dementia and care stakeholders should be achieved include memory, physical health, sensory, communication, medication, looking after the home, and money/budgeting (Miranda-Castillo, Woods and Orrell, 2013).

As older people age, their impaired ability to interpret what they see and other vision-related changes begin to occur (Cordeiro *et al.,* 2021). As a result of changes in the brain, vision-related changes can be caused which can cause people with dementia to lose their ability to perceive objects and may also alter their sense of depth perception (Javaid *et al.,* 2016). Furthermore, smell is one of the most critical sensory changes that occur with Alzheimer's or other forms of dementia (Brai and Alberi, 2018), which helps to alert people with dementia if there is an emergency issue (Santos *et al.,* 2004). In addition, taste sensitivity declines in people with dementia (Narukawa *et. al,* 2020), which can cause many older people to overuse ingredients in order to make food more tasteful. In terms of touch, a loss of sensation occurs once dementia progresses. Moreover, according to Johnson et al. (2021), normal hearing can still be possible for people with dementia, but interpretation of what they hear can be challenging (Bucholc *et. al,* 2021). The meaningful occupation for people with dementia can be facilitated by the roles of textiles in sensory-enriched environments (Jakob and Coller, 2018), defines sensory experiences. Thus, the quality of the design of multi-sensory environments (MSEs) was investigated in interdisciplinary research of design and healthcare disciplines, which provide the positive impact of people with dementia living in care facilities (Jakob and Collier, 2017).

'Green dementia care' is increasingly recognised and benefits people with dementia who are supported to connect with nature (Evans *et al.,* 2019). Evidence from Evans *et al.* (2019) suggests that these benefits have expanded into physical, emotional, and social spheres, which can significantly uplift the quality of life (Stoewen, 2017). However, specific challenges to promoting such connections due to various factors, including risk-averse cultures and environmental limitations, are often presented in dementia care settings (Evans *et al.*, 2019). As a reciprocal need, radical culture changes in the physical, social, and organisational care environments are being implemented, which provides opportunities for developing innovative long-term care facilities (as shown in Figure 22) (Boer *et al.,* 2021).
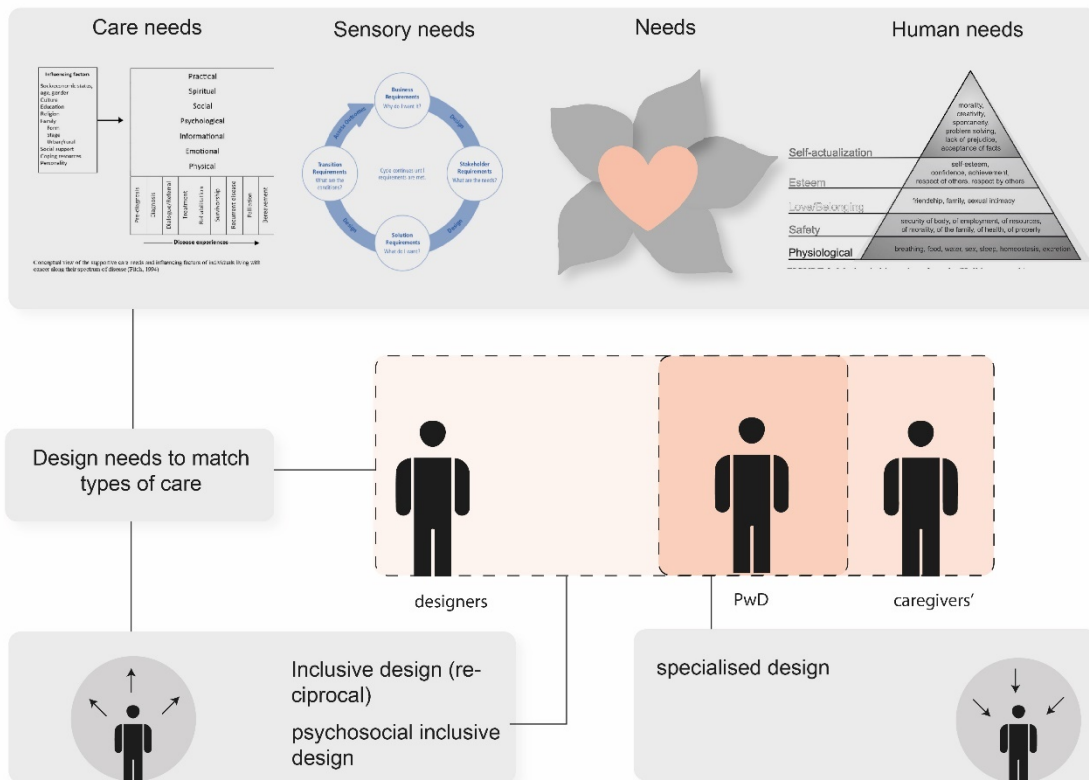
Figure 22 Types of Needs
Sources: Adapted from Kitwood (1997) and Fitch (1994)

A culturally diverse workforce provides healthcare due to global immigration and recruitment strategies (Brooke *et al.*, 2017). The immigration of healthcare workers acculturates host countries' cultures to support communication in the workplace. Consequently, understanding perceptions of symptoms, concept of dementia, and care stakeholders' cultural values are required (Brooke et al., 2018). As the interpretation of person-centred dementia care lacks clarity in many cultures, cultural values and beliefs of dementia may differ in different cultures (Brooke *et al.,* 2018). Through training and education in dementia care, nurses' capacities mainly in the cognitive domain are varied and gradually improved for the necessary of person-centred dementia care (Mulyani, Probosuseno, and Nurjannah, 2021). However, a psychological effect was questioned for an improved nurses' working performance (Rai *et al.,* 2021), which their specific needs are critically developed with strategies (Bolt *et al.,* 2020). As a result, interventions for nurses and nurse assistants working in care homes or nursing homes are supported by nursing staff's competence in providing palliative care for people with dementia. However, factors such as lower staffing ratings and resource adequacy, the experience of verbal aggression, and the observation of verbal or physical aggression among residents can increase care worker stress levels (Vogel, 2017).

Potential and capabilities (mentally, physically, and socially) define human behaviour to react with internal and external stimuli throughout their life. Individuals with various levels of dementia can improve community awareness of dementia, interventions such as educational efforts with care professionals and social support programmes (Yates *et al.,* 2019). As a result, the design of residential and community settings can significantly improve functioning and reduce behavioural symptoms of dementia, an intergenerational school where people with dementia can teach young children (Lu *et al.,* 2022). Some aspects of the work environment (Lee, Jin and Ryu, 2021) link to the concept of person-environment (P-E) fit, which the higher needs-supplies fit creates a growing impact on employees' creativity in a multicultural experience (Wang and Wang, 2018). The effects of the P-E fit have shown different versions to moderate employee creativity, and multi-cultural experience (Wang and Wang, 2018). Consequently, sense of coherence, self-compassion, well-being, and a more equity-focused understanding of health are developed (Fraser, Brady and Lordly, 2020).

3.2.1.2 Design for Affordances

The word 'affordance' was initially coined by Gibson (1978), the perceptual psychologist, who refers to the actionable properties between the world and an actor (a person or animal). Affordances are user interface (UI) object properties that tell users the possible actions they can take, and they need to be matched with their capabilities to encourage action by consequently making the UI 'affordable' (Norman, 2004) (as shown in Figure 23). VR research highlights the importance of designing for shared experiences in dementia and calls for design in the moment rather than the past or deficits (Brankaert, 2019). Ways of enriching the positive experiences of dementia are stressed by the importance of social connection, creative expressions of personhood, and maintaining meaningful relationships (Foley, Pantidi and McCarthy, 2019). The design of flexible interfaces may simplify the navigation of virtual scenes and enhance the social interaction (Kamal and Andujar, 2035). VR and metaverse environments play an important role in strengthening older people's entertainment and social interaction in detecting the initial signs of memory loss (Segkouli *et al.,* 2015). Once experience is embodied, the individual body is experienced and compared to the lived body as subject (Tanaka, 2013; Wehrle, 2019). Individuals experience the world as *bodied beings* and must make sense of their embodied experiences by managing meanings of who they are in the world (*being*), the actions they perform (*doing*), and who they want to become (*directed becoming*) (Field-Springer and Striley, 2018). By adding to a list of considerations, the current commentary provides another potential explanation: individuals may enact dementia caregiving because it provides engagement towards purposeful aims (Hill, Wynn and Carpenter, 2020).
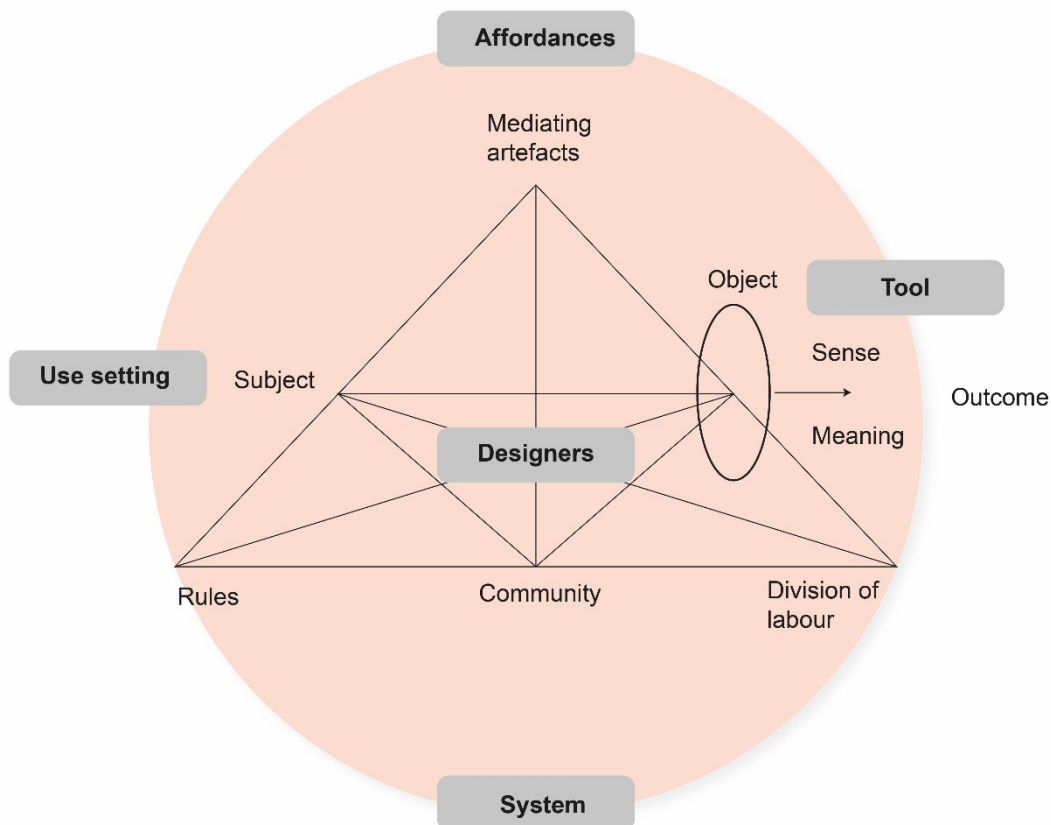
Figure 23 Design for Affordances
Sources: Adapted from Vahed et al. (2018)

Decision-making processes directly impact and maintain a strong will to remain in people with dementia's lives (Wilkins, 2017). Design theory and practice have been neglected as an essential part of decision-making and courses of action (Alexander, 1982). Consequently, design may be search or creativity, or a combination of both (Alexander, 1982). Design research may be a significant part of a residue of basically irrational creativity, which suggests that design should be deliberately undertaken in decision and policymaking, by utilising design methods and providing organisational creativity-enhancing environments (Alexander, 1982).

The perception-action cycle has been stated by the well-known neuroscientist Joaquin Fuster (1999), as "the circular flow of information from the environment to sensory structures, to motor structures, back again to the environment, to sensory structures, and so on, during the processing of goal-directed behaviour" (Strandberg-Long, 2019, p. 95-108). The neural substrate for behavioural, cognitive, and linguistic actions is hierarchically organised mainly in the cortex of the frontal lobe (Fuster, 2004). In a methodological study, Koechlin *et al.* (2003) reveal the neural dynamics of the frontal hierarchy in behavioural action depending on how

people perceive the environment. Increased social isolation and loneliness may be encountered by people with dementia and their caregivers due to the negative perceptions associated with the condition (Grycuk *et al.,* 2022). A strategy such as arts-based programmes aims for interaction and personal contact between people with dementia and the community as a goal of inclusivity (Hung *et al.,* 2021). Hence, accessible community spaces have arts-based programmes, which can play an essential role in alleviating social issues associated with the condition (Baumann *et al.,* 2021).

A lack of motivation and apathy are frequent problems in rehabilitating people with dementia. Apathy causes lower functional ability and poor relationships with caregivers. Motivation is an umbrella term for various processes involved in goal-directed behaviour (Nobis and Husain, 2018). Lang and Fowers (2019) provide multiple arguments for why dementia caregiving persists despite the seemingly significant evolutionary risk. Human motives are activated to perform an action with short and long-term effects, which can be constituted by a design practice of design for motivation (Chasanidou, 2018). As a result, target behavioural change, persuasion, and engagement are originated in developing design systems (Stibe and Oinas-Kukkonen, 2014). By repeating the routines, emotional design is the concept of creating designs that evoke emotions that result in positive user experiences. Designers aim to reach users on three cognitive levels – visceral, behavioural, and reflective – so users develop only positive associations (sometimes including negative emotions) with products, brands, and so on. Consequently, design for motivation and mechanism of engagement (such as innovation platforms), consider user participant as a key target (Chasanidou, 2018). As dementia care is challenging for care stakeholders and relatives, the emotional diligence and motivations are required for an indefinite duration (Chasanidou, 2018). Subsequently, the selection of an appropriate design strategies and tools is mostly a challenge of an early design phases of motivational design (Chasanidou, 2018). As caring for people with dementia is challenging, the emotional diligence and motivations are required for an indefinite duration (Chasanidou, 2018). People with dementia's agitation and repetitive questioning becomes challenging as their cognitive abilities decline and memory fluctuates (Reeve *et al.,* 2017). More importantly, taking away aspects of caregivers' autonomy and independence can cause caregivers to feel guilty (Mitnick, Leffler and Hood, 2010).

The concept of a 'sense of coherence' by Aaron Antonovsky (1979) allows people to re-establish inner peace and orientation in places by temporarily protecting them in daily lives (Eriksson, 2016; Harald, 2017). Moreover, psychological needs also affect family members, who a diagnosis of dementia creates fear of loss (Riley, Burgener and Buckwalter, 2014). Coping with adverse experience (Antonovsky, 1979, 1990; Eriksson and Lindstrom, 2006) can

be enabled by a sense of coherence (SOC), which is considered as an adaptive dispositional orientation (Bahrs, Deymann and Henze, 2022) (i.e., within the personality). As a personality trait is a predictor of behaviours, SOC integrates the meaningfulness, comprehensibility, and manageability of a situation or disease (Eriksson and Lindstrom, 2006; Hochwalder, 2019).

High SOC can associate with perceived and a predictive good health outcome (Eriksson and Lindstrom, 2005). Additionally, Giuseppe Boscherini argued that the design of the physical environment can balance and support to instil the calming reassurance with constructive stimulation and a positive mindset to overcome illness (Boscherini, 2017). The design features explain how light, sound, texture and colour can contribute to health-giving architecture (Boscherini, 2017). As the concept of health can be divided into two categories, pathogenic and salutgenic, pathogenic activities focus on eliminating resources of diseases, while salutogenic approach focuses on supporting resources of health (Fries, 2020). As a result, both pathogenic and salutogenic activities require the goal of achieving health, well-being and dignity of people with dementia (Golembiewski and Zeisel, 2022). The approaches can be seen in design methodology of designers (Fries, 2020).

3.2.1.3 Design for Meaning/Purpose

Higher levels of life purpose can reduce the deleterious effects of dementia's pathologic changes on cognition in advanced age (Boyle *et al.,* 2012). People with dementia may engage in goal-directed activities, allowing a stronger sense of purpose (Mak, 2010). In this case, the available activities suggest that life's purpose is an asset with well-established linkages of well-being and healthy functioning, which may inform the experience of psychological well-being (Kim *et al.,* 2021). Importantly, a significant part of the definition of the word design is purpose: to intend for a definite purpose; to assign in thought or intention; a purpose or plan of action (Razzouk and Shute, 2012). Hence, design without purpose is design without meaning or intention. Design is a purposeful human activity in which cognitive processes are used to transform human needs and intent into an embodied object (Kazmierczak, 2003). To this end, they identify their enterprise that goes beyond mere profit making and they anchor it in the entire value chain (Fleischer, 2021). During a transnational period of moving from home to dementia care settings, the well-being of older people may have a meaningful subjective effect in purpose-built environments (Broadbent and Gilbert, 2020). Architects, funding agencies, and aged care providers recommended purpose-built environments and the Memory Support Unit to enhance positive experiences and the better quality of dementia care (Broadbent and Gilbert, 2020).

The main difference between purpose and use is critical. The meaning of purpose is an objective to be reached or targeted, an aim, or a goal (Reker, Peacock and Wong, 1987), while use is an act of using (The Britannica Dictionary, 2023) (as shown in Figure 24). Perceptions of job role boundaries in dementia care are modified in end-of-life care, which routinely requires adaptability and flexibility (Abrams *et al.,* 2018). The maintenance of professional boundaries in the work environment exacerbates and affect by emotional attachments to people with dementia and their families during end-of-life care (Abrams *et al.,* 2018). The professional boundaries are reconceptualised for a relational care, which require to adopt context-specific, flexible, and inclusive attitudes (D'Astous *et al.,* 2019). Ageing in place offers a well-established health and social care intervention by the modification of home environments for older people (Bosch-Farré et al., 2020). However, theoretical principles and concepts of occupational therapy has been criticised for a disorganised modifying process (Russell, Ormerod and Newton, 2018). Likewise, occupational therapists provide a systematic and practical approach to home modification services for older people as an innovation development (Hwang and Shim, 2021).
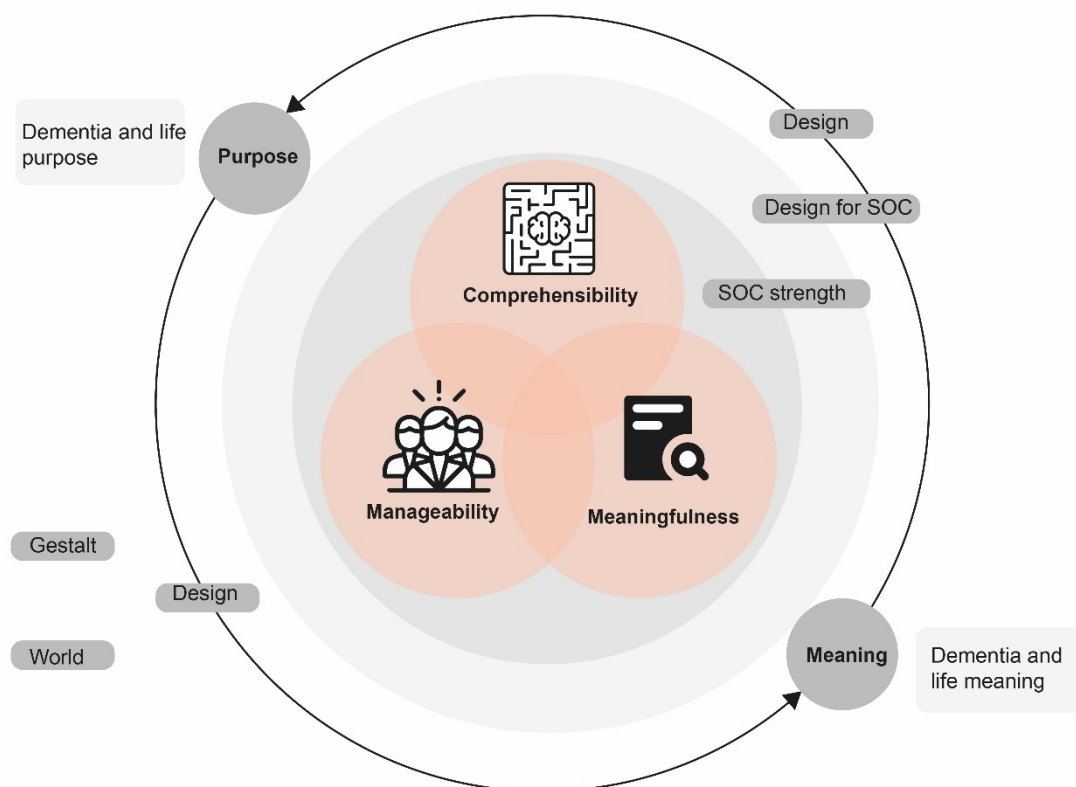
Figure 24 Relationship between purpose and meaning in design
Sources: Adapted from Giacomin (2017)

The purpose of design is closely linked to strategy than aesthetics. Design is the process of intentionally creating something while simultaneously considering its objective (purpose), function, economics, socio-cultural factors, and aesthetics. In this case, the act of design may link to the purposes of the practice of religion and the goals of salvation for oneself and others, to render due to worship and obedience to God (Davies and Thate, 2017). Hence, design is rational for someone to pursue these goals by following a religious way (the practices commended by religion, e.g., Buddhism or Christianity). To achieve goals, the way of religion will be attained and would be exceptionally worthwhile because the natural world has been conceptualised differently (Southwold, 1978). Moreover, a 'plurality of worlds' has been interpreted and conceptualised as uniqueness. Subsequently, the totality of entities, to the whole of reality or to everything can be referred to the term 'world' (Singh, 1990). In most parts of the world, free trade, economic restructuring, the globalisation of finance, and the surge in migration have tended to produce harmful consequences for older people. Hence, globalisation transfers resources from the poor to the rich within and between countries (Dorn, 2017).

Universal design can be defined as an approach which products and environments are designed to be usable by users of all ages and abilities to the greatest extent as possible (Story et al., 1998). In recent years, a new paradigm aims at a holistic approach ranging in scale from product design (Balaram, 2001) to architecture (Mace, 1985) and urban design (Steinfield, 2001) which enhances universal design to grow significantly (D'Souza, 2004). Drobnitskii (1900-1975) argued for universality as the main feature of moral requirements and essentially external to the moral agent, representing to her social relations and the 'general laws of history'. Universality also characterises judgements, whose moral adequacy is verified through the procedure of universalisation (Levine, 2020). Hybridity is one of the emblematic notions of an era, which captures the spirit of times to celebrate a cultural difference that resonates globalisation, economic exchanges, and the cultural transformation (Kraidy, 2005).

Design thinking is problem solving (as shown in Figure 25). People with dementia need increasing care, and caregivers need support to cope with the increasing burden. This biomedical construction of dementia – considered an instance of the broader biomedicalisation of ageing, eloquently critiqued by Hwang et al. (2016) – has spawned significant investments in 'gerontechnological innovations'. These strive to promote independence and dignity for people with dementia by delivering cognitive cues. Expertise of design and innovation are contributed by designers and technologists (Meyer and Norman, 2020). The creative processes and perception of design were brought together with different approaches in multidisciplinary group (Darbellay, Moody and Lubart, 2017). As a way of

negotiating changes in their everyday lives, forms of creativity can be more mundane in everyday life, specifically concerning how creativity is conducted by people with dementia, cargivers, and family members (Gross *et al.,* 2015). Other cognitive abilities such as critical thinking, spatial orientation, comprehension, language, and judgement are affected by dementia (Alzheimer's Disease International, 2015). The emotional control and social behaviour of people with dementia are caused by a cognitive deterioration, which is accompanied by behavioural symptoms (e.g., depression, anxiety, wandering, or apathy) (Cerejeira *et al.*, 2012). Such behaviours can lead to a critical situation (Alzheimer Research UK, 2015) that requires a caregiver's creativity to prevent sufferers from harming themselves and caregivers from burning out (Avargues-Navarro *et al.,* 2020).
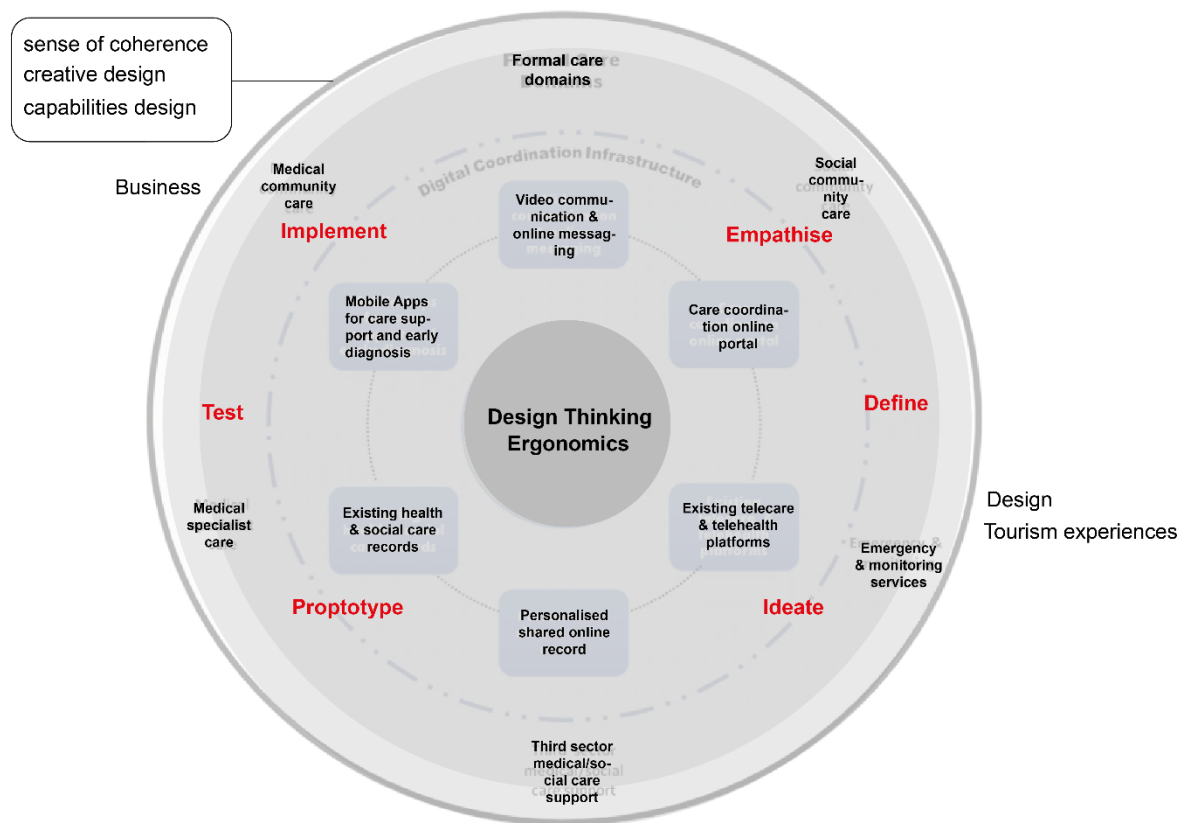
Figure 25 Design Thinking Ergonomics
Source: Adapted from design thinking ergonomics (De Paula, Dobrigkeit and Cormican, 2018)

In care organisations, functional guidelines suggest for the assertive practice of design thinking in organisational environments, and therefore to promote innovation (as shown in Figure 25). Three specific guidelines – design conductive formalisation, responsible hierarchical presence, and integrative functional differentiation – go through a qualitative

validation (Ishio, Gaspar and Lins, 2020). Organisations in all sectors of the economy has embraced design thinking (Dunne, 2018). In this qualitative study by Dunne (2018), organisations' goals in adopting design thinking, include the challenges such programmes encounter, and the approaches they have taken to deal with these challenges (Dunne, 2018). Likewise, the work of design programmes is compromised with the issues of unclear goals, the need to build legitimacy, cultural resistance, and leadership turnover (Fapohunda, 2013). Organisations have been suggested to derive value from a design thinking (DT) capability (De Paula, Dobrigkeit and Cormican, 2018), which aims to develop a conceptual framework. A design thinking capability model (DTCM) can map out the DT capability in business organisations. However, an understanding of how to integrate and assess DT strategy in projects is still a very limited.

An essential factor in a value chain's ultimate competitiveness and development is its business enabling environment. The business enabling environment (BEE) is the policy, institutional, regulatory, infrastructure, and cultural conditions that govern formal and informal business activities. It includes the administration and enforcement of government policy, and national and local institutional arrangements that affect the behaviour of relevant actors who, together, comprise many of the crucial players in the business enabling environment (World Bank Group, 2022). The business enabling environment can be best defined as all government-influenced macro-level factors affecting enterprises throughout the value chain. Therefore, improving the business enabling environment can benefit many organisations within it. The facilitation and creation of an enabling environment by local government for businesses to prosper is one of the key factors in regional economic development. In creating an enabling environment, effective service delivery by local government is essential. The local government can create this environment through good governance and transparent management. However, many local governments struggle to provide an acceptable level of global management and service delivery to their communities.

As part of the designer-user relationship, the starting point is the distinction between two perspectives on products: designer and user. There is often a mismatch between these two perspectives, but both matches and mismatches constitute a major source of the affective reactions that people have to products and their interactions with them. These reactions extend over a wide range and include not only (relatively short-term) emotions, but also longer-term reactions such as moods, preferences, and attitudes (Norman and Ortony, 2006).

3.2.1.4 Design Experiences

An experience of social relationships can influence dementia experience (Erikson *et al.,* 2016). As a lived space gradually becomes smaller for people with dementia, the experience of people with dementia and the spatial dimensions of their environment are underscored and being aware (Forsund *et. al,* 2018). The concept of person-centred care sustains and supports the continuity of identity which an existential experience is embedded in the physical and social environments (Giusti *et al.,* 2020). As a result, 'end users' can be supported through a natural recovery process by a salutogenic architecture, which drives by a sense of coherence, including manageability, comprehensibility, and meaningfulness (Golembiewski, 2017). However, embodied experiences can be resulted in the design of the physical environment. Therefore, environmental psychology and environmental design models for people with dementia propose an approach referring to the concept of use of space and human rights to express autonomy to use spaces which are not intended by the design (Charras, Eynard and Viatour, 2016).

Sensory experiences are activities that help human beings learn and develop a greater understanding of the world by using their five senses (Erikson, 1985). People with dementia may experience less agitation and anxiety because of sensory activities (Sanchez et al., 2015). Moreover, people with dementia and care stakeholders can enhance the overall well-being and the quality of life by soothing music and smelling a familiar scent (Sowndhararajan and Kim, 2016). A wide range of personal needs from pleasure to a search for meaning (Cutler and Carmichael, 2010) can build their tourism experiences, and can engage on their personal terms of memorable places in a set of activities in tourism experiences (Ramos, Henrique and Lanquar, 2016). Authenticity is an alternative source in tourism, regardless of whether the toured objects are authentic (Wang, 1999). This concept is further classified into two different dimensions: intrapersonal and inter-personal. This demonstrates that existential authenticity can explain a greater variety of tourist experiences, and hence helps enhance the explanatory power of the 'authenticity-seeking' model in tourism (Wang, 1999).

Inclusive design has an essential role to play in improving the quality of life of people with dementia (Kenning, 2018). In this case, designers have to concern the uniqueness of contexts, which people with dementia live, their stages or symptoms, and their needs or preferences (Khanassov, Rojas-Rozo and Sourial, 2021). As a primarily research into the design process, design research was originally constituted in design methods (Zielhuis *et al.,* 2021). However, the work considered with the context of designing and research-based design practice which the concept expands to include research embedded within the process of design (Anderson

and Shattuck, 2012). Stakeholders' own strategies for remembering, technological literacy levels, orientation and organisation of users' everyday living, have shown a set of issues for people with an early stage of dementia (Dankl *et al.,* 2019). The existing literature review updates on the existing design tools and design recommendations of co-designing with people with dementia. A list of limitations of involving people with dementia is also presented (Wang et al., 2019). Hence, individual users produce user-friendly design and outcomes focus on user-centred design. Human-centred design, however, takes 'humans' as its central focus, which lends itself more to 'social problem solving' (Borthwick, Tomitsch and Gaughwin, 2022).

Strategies that are responsible for local conditions and contexts, where co-design collaborative approaches require the implementation of people-centre design (Sanz, Acha and Garcia, 2021). People-centred care allows the key delivering and an involvement of co-design stakeholders in the development of health solutions (Sanz, Acha and Garcia, 2021). Differentiation and a competitive advantage can lead to innovation, which the design thinking asserts a user-centric approach to a problem solving (Tham *et al.,* 2022). Hence, an emerging innovation comprises of six distinct phases in the design thinking process (Elsbach and Stigliani, 2018). Design thinking has also started to receive increased attention in business settings. This is because the design of products and services is a major component of business competitiveness, to the extent that many known companies have committed themselves to becoming design leaders (Dunne and Martin, 2006).

Design ethics concerns moral behaviour and responsible choices in the practice of design. In all these examples, design may be described generally as the art of forethought by which society seeks to anticipate and integrate all of the factors that have a bearing on the final result of creative human effort. In the context of age-related cognitive decline, particularly dementia, social personhood is occluded rather than deteriorating with brain function. In this case, value sensitive design (VSD) applied to assistive technologies for people with age-related cognitive decline has focused on physical support (David and Oliver, 2019). Stigma can be lessened by ethical design by causing cognitive dissonance between social perceptions of dementia (Fletcher, 2019). In this case, the independence and well-being of people with dementia can be achieved by the design of the physical environment (Xanthopoulou and McCabe, 2019). The existing assessment tools can evaluate the design quality of existing dementia care facilities (Quirke *et al.,* 2021; Calkins, Kaup and Abushousheh, 2022). However, the design process has not been formally identified (Quirke *et al.,* 2021). The ability of proposal assessment at key dementia stages improves the design of future dementia care facilities (Martin *et al.,* 2021).
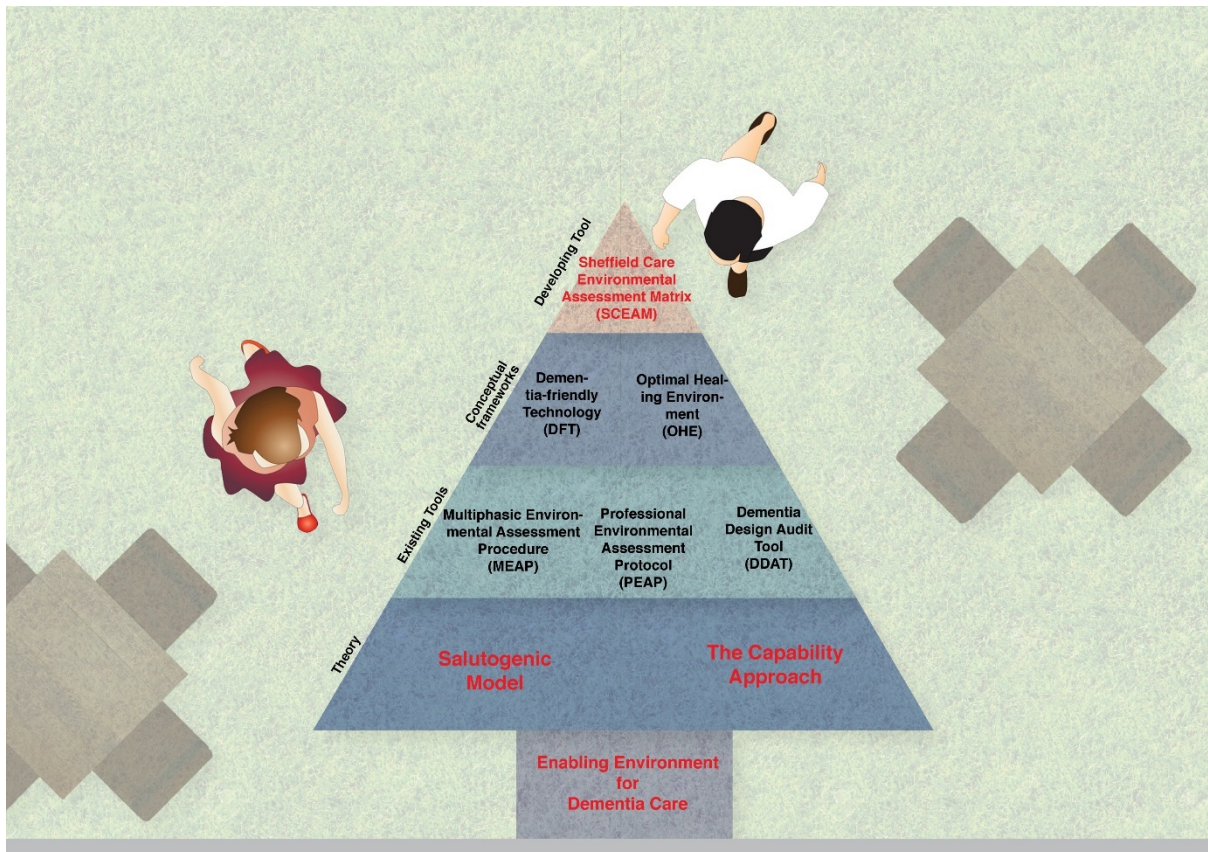
Figure 26 Types of Design Tools

A list of design and assessment tools for dementia care is shown in Figure 26. One of comprehensive assessments developed in the United Kingdom is called, The Sheffield Care Environment Assessment Matrix (SCEAM) (Nordin *et al.,* 2015). The data acquired to influence the design process in hospitals or other healthcare facilities often use an evidence-based design (EBD) as a scientific analysis methodology (Alfonsi, Capolongo and Buffoli, 2014). Moreover, both physical and psychological effects are measured on the built environment of its users (Evans, 2003). Historical precedents argues that the building was used as a form of treatment, which inform ethical design concepts when applied to current population health challenges, especially for dementia care. Even though architecture does not necessarily provide a cure, a good design practice can work as a preventative tool and enhance overall quality of care. However, end users are often missing in the development process (Akadiri, Chinyio, Olomolaiye, 2012).

The delivery of valued guest experiences is viable for hospitality businesses (Buhring and O'Mahony, 2019), which can be influenced by hotel design, luxury design, and tourism

experiences (Lin and Choe, 2022). Therefore, developing the specific measures and tools of'design experiences are required to meet guest expectations (Joern and O'Mahony, 2019). The construction and generation of memorable experiences (ME) identify the perspectives of the host of luxury hotels and guests (Buehring and O'Mahony, 2019). Consequently, various modification based on the feminist research utilises the concept of global care chain (Yeates, 2011). The global care chain, which is presently derived to transnational care services (Yeates, 2005), influence an application of global commodity chain (Yeates, 2011; Mahon, 2018).

3.2.2   The Concept of Global Care Chain

Global care chains are based on unequal power relationships of gender, social class, ethnicity, place of origin and migratory status (Orozco, 2009). The intersection of these diverse inequalities is expressed in the lives, working conditions and backgrounds of women employed in the caring industry (WHO, 2019). From the social network perspective, individuals and countries are viewed as interconnected (Kenis and Oerlemans, 2009). Consequently, the effects of migrant home care extend beyond the care recipients' and caregivers' dyads and cultural backgrounds to incorporate transnationally interconnected care procedures (Ayalon, 2021).

Globally, the indirect costs and increased severity of dementia are causing the cost of dementia care to rise (Braun *et al*., 2020). As care becomes a business, people with dementia have more choices, depending on their personal health budgets and their control over how healthcare services are managed and delivered (Ham, Dixon and Brooke, 2012). A 'service market' often uses individual budgets or vouchers in personalised schemes run by local government to ensure that individual needs, hopes and goals are met (Kruk *et al.,* 2018). Personalisation has a greater potential to broaden social inequalities with its unprecedented emphasis on individual skills (Carey, Crammond and Malbon, 2019) and the quality of the information received dependent on participants' attitudes (Jelley *et al*., 2019). Consequently, caring stakeholders' experiences and access vary according to the facilitators and barriers they face in using services (Amini and Leeuwen, 2021).

The desired goal of high-quality, safe and efficient healthcare can influence the complexity of design (Hannawa *et al.,* 2022). A range of metrics, including structure, process and outcomes, can be used to measure the quality of care (Cheng *et al.,* 2014). Although quality of care can be measured using a range of metrics – such as structure, process and outcomes – a design that meets patient and staff needs will strongly support staff performance and provide a better

therapeutic and healing environment, leading eventually to better quality of care (Fadda, 2018).

The use of markets and market mechanisms to deliver care services is growing in both liberal and social democratic welfare states. Such markets, delivering childcare and care for older people, have developed in uneven and context-specific ways, with varying consequences (Brennan *et al.*, 2012) (as illustrated in Figure 27). It may be argued that innovation has replaced scarce public resources and enabled expenditure cuts to pursue better services, more customer-oriented choices, finance, regulation and state management of private capital and resources (Curristine, Lonti and Joumard, 2007). In some cases, information about the quality of services is insufficient (Moberg *et al.*, 2016). Some studies argue that different social groups do not have the same resources to make informed choices and are, therefore, in an unequal position (Brennan *et al.*, 2012). Personal budgets and the ability to pay have been obstacles to genuine choices in some cases (Rabiee *et al.*, 2016). Safety, dignity and autonomy are keywords in care work for older people. Dementia, however, complicates the relationship between caregivers and care recipients, in part because it affects memory, thought, perception, reasoning and speech (Lundberg, 2017), thus affecting the individual's ability to express their own wishes and their competence to give consent. Care work can be ethically challenging due to the transfer of care labour and resources from poor to rich nations through the employment of women from poorer countries. Their caring roles, new caring strategies and the role of care within the family in their country of origin require the migrants to re-define (Czapka and Sagbakken, 2020). Therefore, while caring for a person with dementia can in any case be emotionally difficult, transnational care, an alternative approach to caring, itself poses many challenges for families (Czapka and Sagbakken, 2020).

At a more straightforward level, its initial use in Latin describes an offspring of "a tame sow and a wild boar'' (Kraidy, 2008). One view of the 'modern imaginary' is as a binary opposition between the Self and the Other. Beck argues that 'we' (the Self) can no longer imagine 'ourselves' in such a binary opposition: 'the Other' is among 'us', and, even more, 'we' are 'the Other' (Beck, 2007). This relates, of course, to what may be described as the postcolonial condition of the contemporary world – a condition that is not new, but which is, or so it seems, experienced increasingly in everyday life (Sayegh, 2008). While social norms are well-established, some groups of people with dementia (Austin *et al.,* 2016), seem to be more vulnerable in their advanced stages of epitomising deviance, differentness or 'otherness' (McParland, Kelly and Innes, 2017). Normality becomes an intangible concept, based on each individual's specific interests (Baars *et al.,* 2014; Denicolai, Ramusino and Sotti, 2014). Thus,

while desiring to be accepted as part of normality, the very concept of normality can be obscure and cause some people with dementia to struggle (McParland, Kelly and Innes, 2017).

Anti-ageing consumer cultures can be seen as the product of cultural depictions of the relationship between ageing and dementia, which refigure and eliminate the concept from everyday life as well as the future (Latimer, 2018). However, the progress of dementia distinguishes its sufferers as an exceptional group, eliciting public sympathy and promoting benevolence, but at the same time unwittingly implying a negative otherness. This is problematic because the perceived stigma is typically more prevalent and harmful to well-being than the enacted stigma (Fletcher, 2021). Asymmetry in power relationships is central to the construction of otherness. For both thinkers, there is no natural geography for the cultivation of responsibility. Rather, temporarily scene upon emphasises the degree to which responsibility is motivated in the activities of others (Barnett, no date). This ethics of care, Silverstone (2004; 2006) argues, are predicated on a particular politics of the representation of otherness which he calls 'proper distance' (Chouliaraki and Orgad, 2011).
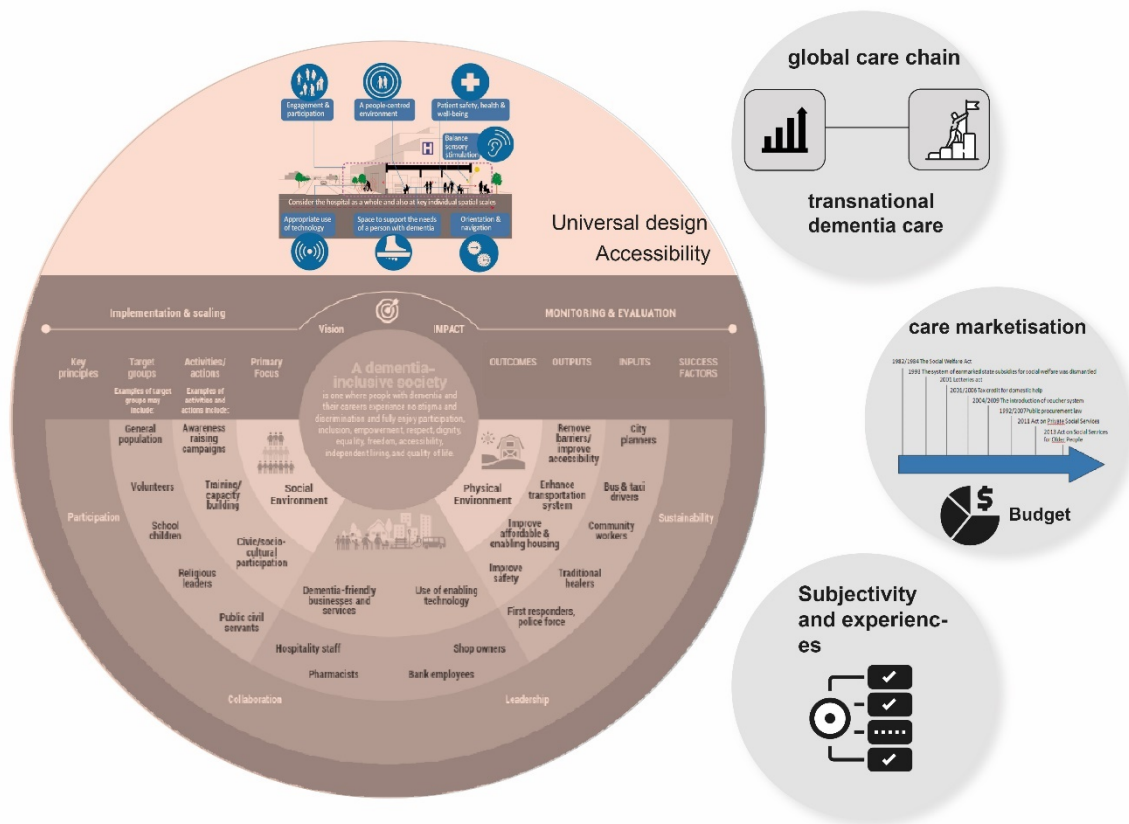
Figure 27 Universal Design and Accessibility
Sources: Adapted from WHO (2020)

Referring to the sense of detachment, people with dementia and their relatives may lose connection with friends and each other (van Wijngaarden *et al.,* 2018). According to people with dementia's most challenging emotions, the gradual sense of detachment becomes one (van Wijngaarden *et al.,* 2018), especially for family caregivers who have to accept different circumstances. The experience of uncertainty, ongoing loss, hopelessness, growing detachment and exhaustion associated with dementia are recorded as the results (van Wijngaarden *et al.,* 2018). However, the way people with dementia were affected by these feelings are varied. Emotions such as anger, disappointment and resistance may dominate. In contrast, some may feel less threatened and seem to know 'the art of living' with dementia. Others displayed ambivalence, which they constantly shifted between resisting and facing their struggles (Schneider *et al.,* 2015). However, the concept of connectedness and agency were questioned by process of separation and detachment which are positively and negatively associated (Ingoglia *et al.,* 2011). Hence, a negative prediction such as emotional separation and emotional detachment should concern and reflect review a perspective-taking, self–other differentiation, and separated self (Ingoglia *et al.,* 2011).

3.2.2.1 Medical Tourism

Medical tourism – whereby patients from developed countries travel to developing countries for affordable medical treatment (Horowitz, Rosensweig and Jones, 2007) or to receive medical care (Sonpiam, 2015) – is a recent phenomenon generating considerable interest due to its vast economic potential and the changing landscape of healthcare delivery services. Heterotopias are worlds within worlds, mirroring, yet distinguishing themselves from what is outside. According to Bochaton and Lefebvre (2008), the international hospital offers no single universal experience; this depends on the multiple experiences of who the patient is, where they are from, their expectations and relationships (Hung *et al.,* 2017). The expectations of both local patients and international clientele create highly complex cross-cultural interactions between staff and patients, and between patients and other patients in healthcare settings (Whittaker and Chee, 2015). The organisation and operation of a hospital can give rise to the concept of heterotopia, especially for foreign patients in Asia (Bochaton and Lefebvre, 2008). As a result, social relationships and specific cultural and political contexts are embodied, globalised and negotiated in given spaces with given meaning (Whittaker and Chee, 2015). However, the phenomenon problematises the 'local' creation of 'universality'.

In medical tourism, the accommodation is a combination of a hotel, a resort, and a hospital as a place of healing and rejuvenation (Kasemha and Dehkordi, 2017). Complex cross-cultural interactions between staff and patients, and between patients and other patients are

embedded in embodied globalised spaces, which are negotiated through social and specific cultural contexts (Mattes and Lang, 2021). Hence, the design of the hotel and resort destinations should meet the standards needed to successfully attract medical tourists and their relatives (Kazemha and Dehkordi, 2017; Johnston *et al.,* 2010). Developing countries have become vital destinations for offering medical services, due to lower costs than developed countries (Pattharapinyophong, 2018). However, certain standards need to be met due to the high sensitivity and importance of health, and the need to balance scientific and technical knowledge with medical and health infrastructure (Kruk *et al.,* 2018) and these standards are essential to successfully attract tourists and patients (Mason, 2003). Once met, the therapeutic use of a hospital-hotel with medical facilities can attract potential clients needing a high level of support, their relatives and experienced medical stakeholders (Suess and Mody, 2017). In addition, short-term treatment in hospital-hotels is preferred to a typical hospital by high-income individuals (Brodaty, 2009).

The term 'silver economy' encapsulates the desire to maximise economic activity and job creation in an older population. This market is set to represent one-quarter of the population – over one-third by 2050 – and needs a major overhaul of its offer, given that technological innovation is further contributing to seismic change (Guerin, 2018). The demographic transition should be a leading driver of qualitative and sustainable economic development, not least because it is based on jobs in the service sector, both skilled and unskilled, and on technological and social creativity. Despite the recent popularity of the concept, governments and NGOs are needed to stimulate the role of businesses to achieve civil society's ambitions (Banks, Hulme and Edwards, 2014). The awareness, perception and experience of businesses focus on dementia as a 'hidden condition' (Musyimi *et al.,* 2021). A dementia-friendly visitor economy will develop the attractions sector to develop a greater understanding of how to embrace dementia as part of society (Connell *et al*., 2017). The recognition of dementia is a challenge for the tourism industry (Connell and Page, 2018; Klimova, 2018) because the basic needs of people with dementia and leadership challenges are emerging issues in ageing and dementia care (Connell and Page, 2018). Simultaneously, the term 'salutogenic' has become a marketing architecture for health and nursing care and works as a powerful tool for understanding the impacts of the design process (Golembiewski, 2017). The health-to-illness continuum of how people with dementia can live independently is the main goal (Kruk *et al.,* 2018).

Medical tourism in Chiangmai, Thailand provides dementia care for people from the developed Global North (Pratt and Johnston, 2022) where a "regime of anticipation" describes the existing underfunding of dementia care (Pratt and Johnston, 2022). There are now opportunities for

people with dementia to leverage their wealth and privilege by choosing to live and receive care in Thailand. The availability of nurses and caregivers in public hospitals has a negative impact on the state supporting a privatised industry (Julchoo *et al.,* 2021). Critically, these transnational care facilities provide both opportunities for and the stigmatisation of Thai caregivers, people with dementia, their relatives and designers (Pratt and Johnston, 2022).

3.2.2.2 Transnational Dementia Care in Thailand

The Thailand Board of Investment (BOI) has proposed several tax and non-tax incentives to support products and services related to older people (BOI, 2021). Tourism is identified as a major potential industry for the Thai economy (Sharafuddin, 2015) and provides an indispensable overview of this remarkable land of contrasts. The economy's resilience has been associated with highly competitive goods and service markets, flexible labour markets and a vibrant entrepreneurial culture (OEDC, 2020). According to the OECD (2020), while the tourism industry is a catalyst for economic growth in tourism-led economies, a rapid increase in tourism can create numerous hazards (Azam, Alam and Hafeez, 2018). Its wider popularity as a holiday destination has contributed to Thailand's success in medical tourism. More than 900,000 tourists from across the globe are expected to seek medical care and experience Thai hospitals and clinics first hand. Thai hospitality, 'bleisure' attractions and international-standard venues are key resilient factors (Rittichainuwat *et al*., 2020). However, the COVID-19 pandemic has rapidly changed the business operations and travel behaviours of global communities, and further resilience is required.
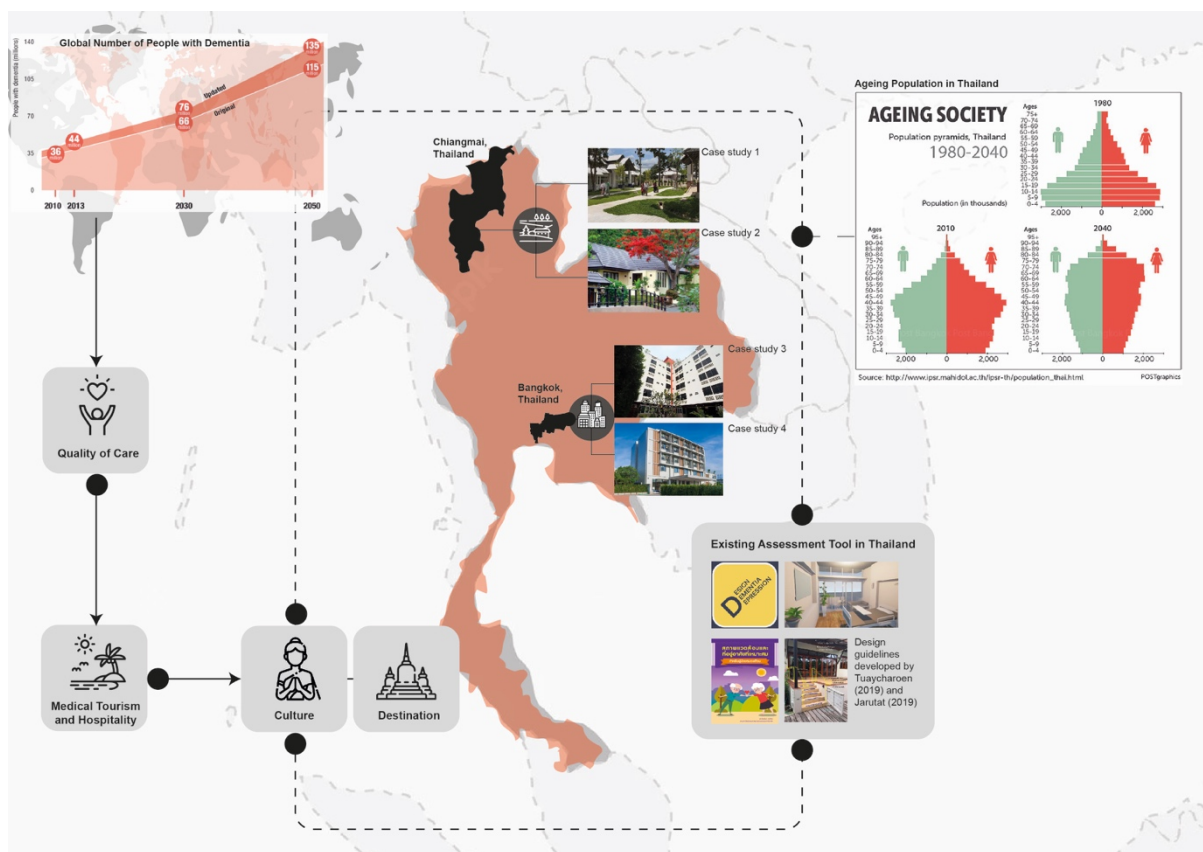
Figure 28 Case studies in the context of Thailand
Sources: Prince, Guerchet and Prina (2013); http://www.ippsr.maidol.ac.th/ipsr-th/population_thai.html

As a society, Thai people practice Buddhist teachings in showing respect to others. For instance, the Thai term 'Namjai' represents Thai hospitality, large jars filled with kindness. As stated by Cheng and Schweitzer (1996), national cultural values are shared within a group of people via a similar symbolic communication system. The Thai national identity includes Buddhism, and Thainess cultivates the concept of the crisis concierge. The meanings of the 'Thai nation' and 'Thainess' were constructed to address social and power relationships at the end of the 19th century. Since then, intellectuals affiliated with the state's artistic and cultural institutions have modified these meanings, partly to respond to new problems and the changing political context (Noobanjong, 2012). The intense reproduction of this meaning has created a Thai identity and a collective consciousness among the Thai people that the Thai nation is a nation of people who love and adhere to Thainess. The geo-body, a conceptual framing that links subjects with visual representations, enables the imagination of national space by mapping bodies (Viernes, 2018).

However, the quality of life of caregivers and older people is affected by the burden of caring (Israsena Na Ayudhya, 2007). Despite government efforts to decrease material inequalities

between rural and urban areas, rural–urban migration strategies commonly exist within household economic portfolios. Western-centric concepts of class are shaped by Thailand's historical engagement with Western powers as well as subsequent processes of globalisation (Vorng, 2011), which such notions cannot be adequately explained. Power is divided among the elites in traditional Thai society, following lines of hierarchy and patronage (Vorng, 2011). More importantly, patron–client relationships or 'bunkun', a debt of gratitude (Jittichanon, 2018) frequently shown in the relationship between younger and older people repeatedly dominates social interactions (Wanchai and Phrompayak, 2019). Three- and four-generation family patterns were found to promote active ageing, enabling elders to feel confident that they would be cared for, now and in the future (Nantsupawat, 2010). The urban–rural class divide is often used to explain the Thai political conflict (Vorng, 2011). The 'cultural turn' addresses how ageing subjectivities emerge from social and cultural contexts in social gerontology. The data suggest that cultural contexts, issues of embodiment, dependency and institutionalisation, and positive experiences of care are all elements from which older people construct embodied subjectivities (as illustrated in Figure 28).

The factors related to dementia included senescence, loneliness without social interaction, stress, unhealthy food, substance abuse, lack of exercise and sleep deprivation (Livingston *et al.,* 2020). Dementia prevention in older people should include enjoyable activities that include interacting with other older people (Piyawattanapong, 2020). Informal caregiving for people with dementia in Thailand is a dominant subject, and the principal driver of human resources for dementia care services in rural areas (Chuakhamfoo *et al*., 2020). Hence, design recommendations should be promoted by policymakers to develop standard assessment tools, initiate a national dementia care standard and long-term care regulation system, and improve staff education and competence to enhance the quality of care and of life (WHO, 2015).

3.3 Summary

The chapter initially explains the concept of dementia that has contributed to the stigma and feelings of depression in people with dementia. A trend of deinstitutionalisation within dementia care facilities has used design to support personalised narratives related to personality and lifestyles. As design can be seen as an essential part of decision-making and courses of action, the design-thinking process has emerged and practised in healthcare services. However, ethics and marketing aspects are ambiguous within the design decision-making.

This chapter expands the role of design for dementia care to the tourism design system. The first section of the chapter reviews topics such as deinstitutionalisation, design for coherence, and emotional design which argues for the role of design in dementia care. The second part of the chapter consists of topics such as globalisation, design ethics, design thinking, and transnational care in Thailand. The literature focuses on the ergonomic design-thinking framework which should be developed. The next chapter shows that salutogenic theory is an effective tool for understanding the impacts of the design process on the health and illness continuum.

4   RESEARCH METHODOLOGY

4.1   Introduction

This chapter introduces the research design which is informed by the salutogenic theory. The four case study selection criteria are presented. The chapter reviews the main case study selection criteria. The four selected case studies are briefly explained. Research methods such as semi-structured interviews, ethnography, and co-design workshops are explained. Moreover, the data analysis procedures are clarified in this chapter. Towards the end, research limitations are discussed.

4.2   Research Design

The research study composes of three main research methods, namely in-depth interviews, ethnography, and co-design focus groups, will be applied to the case studies. The first main research method is semi-structured interviews, in which research participants were selected concerning their design disciplines. Designers include architects, interior designers, and occupational therapists. Ethnography is the second method, which includes four main research methods: ethnography, behavioural mapping, POE, and autoethnography, all of which were conducted in the four selected case studies in Thailand. The last research method is the co-design workshop conducted in the two case studies.

Salutogenesis is an approach to demonstrate a linear spectrum of health and disease in a continuum (Golembiewski, 2017) and becomes an operational instrument for acknowledging the impacts of design processes (Golembiewski, 2017). In other words, the salutogenic approach differentiates diagnoses, circumstances, and environmental variation, which depends on the individual's differences and a narrative structure (Golembiewski, 2016). As a result, a connection between morphological and functional factors improves public health and well-being with the salutogenic approach's design strategies (Capolongo *et al*., 2018). The concepts of counterintuitive and countertherapeutic can be ideals of a physical, salutogenic healing environment, which would aim to celebrate and promote the presence of nature and its therapeutic benefits. Such conditions are tantamount to existing physical and cognitive barriers and can be provocatively a source of stress for the building occupant (Fries, 2020). According to Figure 29, capabilities of people with dementia and care stakeholders are questioned. A paradigmatic shift is underway in the healthcare planning and landscape architecture discourse. This shift seeks to reject excessive urban health facilities densification, as well as an excessive suburban sprawl which is to be eschewed, as both conditions deny

the therapeutic affordances of nature and landscape (Jiang and Verderber, 2015). The relationship of landscape and nature as a contributor to place and to 'healing places', and therefore as being centrally important to the healing experience, is underway. Hence, design capabilities of the dementia care facilities in the context of Thailand, will be explored (as shown in Figure 29).
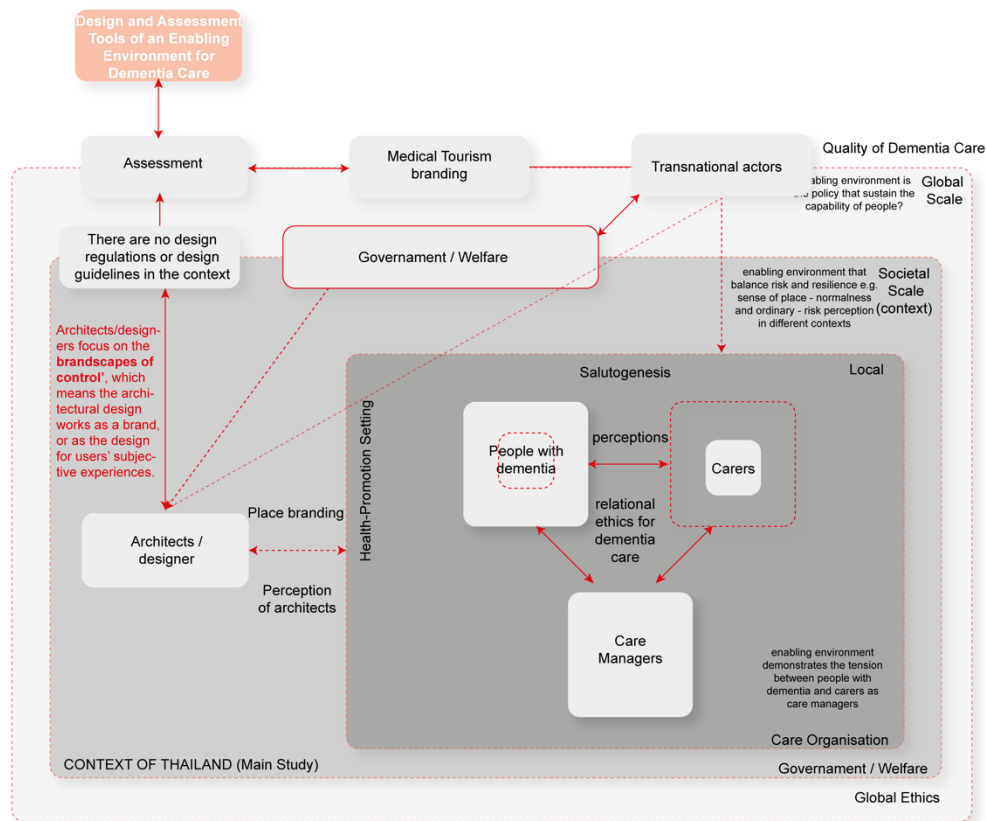
Figure 29 Diagram of Research Design

Design can be defined as a solution for a real need to empathise and reframe a problem and can innovate faster through systematic methods (Goonetilleke and Au, 2020). Design thinking is capable of transforming designers' creative problem-solving approach into a structured innovation approach by providing methods and tools to empathise with people, create human-centred solutions, and de-risk failure through prototyping (Stoltz and Schaffer, 2018). In addition, usability and aesthetically pleasing appearance are leading to user-centred or empathy-driven designs. Subsequently, products are designed by identifying problems, reframing the problem, ideating, prototyping, and testing. Rather than designing products based on clients' capabilities, users are the main character for the design thinking process to start with (Mishra and Sandhub, 2021). Researching design thinking is a methodology that solves problems for users by a solution-based approach (Pereira Coelho Santos *et al.,* 2017).

It is extremely useful in tackling complex problems that are ill-defined or unknown. Accomplishment procedure includes the human needs involved, reframing problems by human-centric ways, brainstorming for multiple solutions, and prototyping by a hands-on approach, and testing (Deepa, 2020). Therefore, a market research method can be used in qualitative research (perception) to obtain data through open-ended and conversational communication. Hence, the method is not only about "what" people think of something but also "why" they think so.

Qualitative research is conducted as a study of the *nature* of phenomena. The research is especially appropriate for answering questions of *why* something is (not) observed, assessing complex multi-component interventions, and focussing on intervention improvement. It is a type of research that explores and provides deeper insights into real-world problems. Moreover, social constructivist paradigm often uses qualitative research to emphasise the socially constructed reality. The main methods are to uncover the deeper meaning of human behaviours and experiences (Mohajan, 2018). Hence, the perception of people's experiences can be generalised into larger groups' perceptions (Austin and Sutton, 2014). Finally, qualitative research and perception of design of stakeholders and designers are based on the description of the relationship between perceptual design and rational design, which clarifies the importance of perceptual design in modern product design.

A case study intends to generate an in-depth and multi-faceted understanding of a real-life context's complex issues (Crowe, Cresswell and Robertson, 2011). Research design is established to use extensively in various disciplines, especially in the social sciences. The case study approach is mainly used to understand the real-life context, especially in the healthcare context, insights into aspects of the clinical care are provided (Crowe, Cresswell and Robertson, 2011). Moreover, the case study research can describe a policy of care, explore professional attitudes, and working experiences of care stakeholders to investigate a contemporary phenomenon (Crowe *et al*., 2011). Even though the case study research method is often considered invalid, invaluable, and improper, it is a common complaint that the case study does not have a rigorous systematic method (Teegavarapu, Summers and Mocko, 2008). Thus, dementia care facilities and the quality-of-care question factors of their purpose, needs, and GRRs.

Case selection is required to be selected in the context. Case selection in qualitative case study research has challenged for being arbitrary or relying too much on convenience logic (Poulis, Poulis and Plakoyiannaki, 2013). As Buchanan and Bryman (2012) suggested, the choice of research methods domination is based on research aims, practice, and

epistemological concerns (Buchanan and Bryman, 2016; Scotland, 2012). However, a combination of organisational, historical, political, ethical, evidential, and personally significant characteristics, dominated the choice of methods (Buchana and Bryman, 2007). Context can be viewed as affecting occupational performance as well as an underlying influence on the process of service delivery (Radomski, 2007). As a result, the sample's characteristics will give a guideline to the model application and what the analysis and implications are implemented (Nuryanah and Islam, 2015).
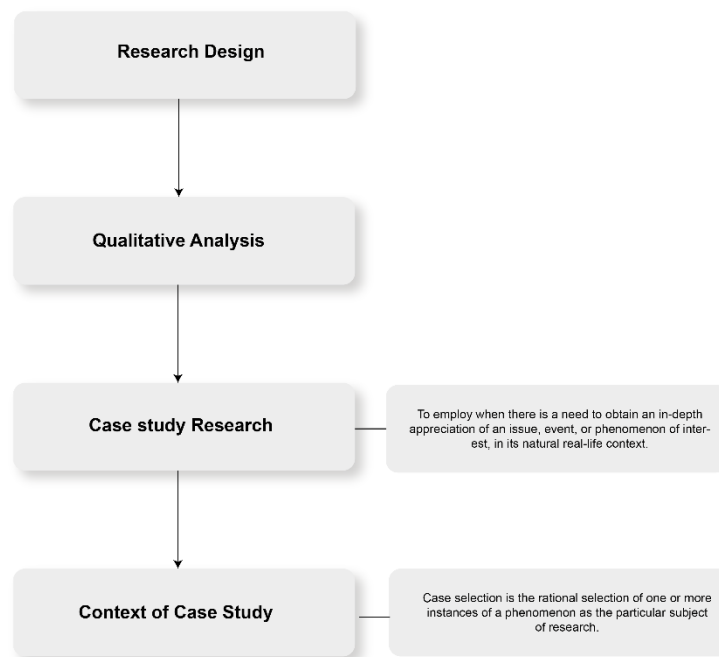
Figure 30 Diagram of Research Progress

Figure 30 shows the flow diagram of how the research study was conducted. The first stage is a qualitative study chosen because of the design study. Case study research intends to focus on the cases and context. In addition, case study criteria were applied to select the potential cases. Case study recruitment was conducted by contacting the probable cases. As a result, the context of Thailand was chosen for this study because economic growth has been catalysed by the tourist industry, including health tourism. However, numerous hazardous effects are associated with rapidly increasing tourism (Azam, Alam and Hafeez, 2018).

4.2.1 Case Study Selection Criteria

Case selection is the rational selection of the subject of phenomenal research (Kumar *et al.,* 2020). Moreover, the case study researcher has tasks for selecting case studies and planning out a research strategy for case study research (Crowe *et al.,* 2011). Numbers (N) of cross-case analysis were intertwined to find out similarities and differences, which case study selection and case analysis are intertwined (Seawright, 2008). In this case, the main selection criteria for case study analysis are varied from characteristics of particular cases in order to explore design domains of an enabling environment for dementia care. In this case, numbers of samplings in case study research requires decision-making processes for sampling strategies, number of case studies and a definition of the unit of analysis (Mohd Ishak and Abu Bakar, 2014). Hence, the case study selection criteria include care type of dementia care facilities, transnational clients from medical tourism, resort-like typology, and data accessibility.
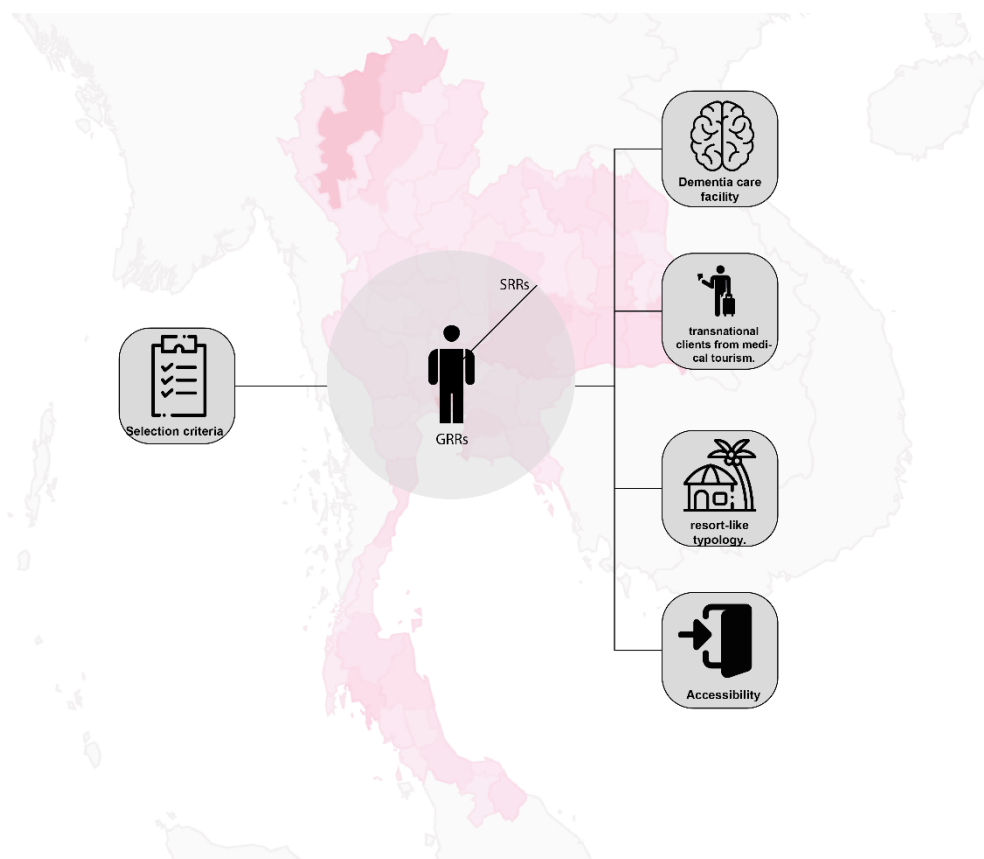
Figure 31 Case Study Selection Criteria

As shown in Figure 31, the selected case studies should be a care type of dementia care facilities (dementia care units). Selection criteria such as a classification of a level of care, care standards availability, care registration and standard inspection were overlapping and diversified in different dementia care facilities (Lhimsoonthon, Sritanyarat and Rungrengkolkit, 2019). In this case, long-term care facilities usually have variety care services and care packages to personalise person's health and personalised care needs. The dementia care services should support people with dementia to live independently and safely when activities of daily living are challenging.

The second case study criteria are transnational clients from medical tourism. The term 'foreign customer' shall mean any customer who is not a citizen, national, or resident of Thailand or its territories. The government has a policy for Thailand to become a 'Medical and Wellness' destination and world-class medical hub. As part of the strategic plan to become a Medical Hub (2017–2026), the cabinet has approved, in principle, the extended permission-to-stay for citizens of 19 countries identified as potential sources of medical tourists, and the smart visa campaign.

The third case study criterion is resort-like typology. Not having waiting areas and hallways was a central theme. The term 'natural environment' refers to the non-human-made surroundings and conditions in which all living and non-living things exist on Earth. This includes ecological units that operate as natural systems (such as soil, vegetation and so on), and universal natural resources (such as air and water).

The fourth case study criterion is accessibility to the facility and research participants. Data accessibility requires the environment that promotes data sharing and openness.

4.2.2 Sampling Techniques

The final samples are selected from the qualified respondents who can participate in the survey, which a volunteer sampling becomes a type of non-probability sampling design (Murairwa, 2015). The intention of a sensitive survey is published for the implementation of the sampling design (Murairwa, 2015). In addition, an opportunity for individuals in the target population is recognised on the survey when the final sample is selected (Martínez-Mesa *et al.,* 2016). As a result, available results can be obtained and may be prone to significant bias. Research participants as volunteers may perceive differently from those who choose not to be volunteer (as a volunteer bias). Moreover, the sample may not be representative of other

characteristics, such as age, gender, and occupation. Importantly, a sample size refers to the number of available research participants (usually represented by n.), which influences two properties, for example: 1) the precision of estimates, and 2) the power of the study to draw conclusions. The listed case studies were contacted back via emails and phone calls for confirmation and appointments.

Figure 32 shows a list of research participants' recruitment. The figure shows the table, which composes of case study selection criteria. The list came from researching databases pf dementia care facilities in Thailand based on Department of Business Development and Department of Older Persons (DOP). The research participants were selected and contacted. The red highlight shows the rejection; the yellow highlights ensure accessibility; the green highlights mean site accessibility. Gatekeepers are the person who gives permission.

Cross-case analysis (as illustrated in Figure 33) is a research method that can mobilise knowledge from individual case studies. Khan and VanWynsberghe (2008) propose that mobilisation of case knowledge occurs when researchers accumulate case knowledge, compare and contrast cases, and, in doing so, produce new knowledge. In this article, the authors present theories of how people can learn from sets of cases, discuss existing techniques for cross-case analysis, and suggest considerations that enable researchers to engage in cross-case analysis.

Name	Location	Private	Criteria : Dementia Care?	Criteria 2: Salutogenic design?	Criteria 3: Medical Tourism / transnational target	Criteria 4: Accessibility of information	Contact	
Vivo bene village	Chiangmai	Yes	Yes	Yes	Yes	Yes	sent	https://www.bangkokpost.com/business/374111/alzheimer-resort-in-pipeline
Care resort	Chiangmai	Yes	Yes	Yes	Yes		sent	
The cabin	Chiangmai	yes	Rehabilitation	yes				
Baan Meesuk Nursing Home	Chiangmai	Yes	Yes	Yes	Not sure		sent (waiting for response	http://www.baanmeesuk-nursinghome.com/
McKean Rehab	Chiangmai		Yes	No?	Yes	No	sent	
Baan Kamlangchay	Chiangmai						sent (no response)	
Nymph Care Home	Bangkok	Yes	Yes (Part of)	Not sure	Not sure	Yes	sent	
Nursing Resort	Pattaya	Yes	Yes	Yes	Yes		sent - but no email	https://nursingresortpattaya.wordpress.com/
Golden Year Hospital	Bangkok	Yes	Yes	No	Not sure			
Absolute Living Thailand	Pattaya		Yes	Yes	Yes		sent	
Carewell Service	Phuket	Yes	Yes	Yes	Yes		sent - answered - I am not in Thailand in August / September 2019 - not answered	
Mabprachan Garden Resort	Pattaya	Yes	Yes	Yes	Yes	NO	sent (due to privacy policy)	
Namthip Nursing Home Pattaya	Pattaya							
Zbreeze Elderly Resort	Pattaya							
Lanee's Residenz	Buriram	Yes	Yes		Yes		sent - but not sure - called	https://www.facebook.com/zbreezehealthcare
Garden Nursing Home	Bangkok							http://www.gardennursinghome.net/index.php/2013-07-09-15-01-17
Living well Bangkok	Bangkok							https://photos.state.gov/libraries/thailand/231771/acs/hospice_list.pdf
Paiyika	Pathumthani	Yes	Not sure (Long-term	Yes	Not sure			http://www.paiyika.com/index.php
Chersery home	Bangkok	Yes	Yes	Yes	Not sure		sent (waiting for response	http://www.cherseryhome.com/%E0%B8%AB%E0%B8%99%E0%B9%89%E0%B8%B2%
								https://www.myhomekae.com/?page_id=330
								https://thethaiger.com/news/chiang-mai/alzheimers-patient-forced-out-of-thailand-in
Panacee Hospital								https://healthandwellness.tourismthailand.org/thaimed-provider/panacee-hospital-ra
EMI								
Kummon Lanna								
Paiyika Resort	Pathumthani	Yes	Not sure	Yes	Not sure		Contact by line	
Nursing home hcs	Pattaya	Yes	Yes	Maybe - yes abit	Yes			http://www.nursinghome-hcs.com/gallery/
Baan Lalisa Nursing Home	Chiangmai	Yes	No	Yes	Not sure		Sent (address not found)	
								https://hilight.kapook.com/view/95777
								https://www.scmp.com/property/international/article/2110682/thailand-positioning-
Jin wellbeing (Thonburi Hospital)								

Figure 32 List of Potential Participants
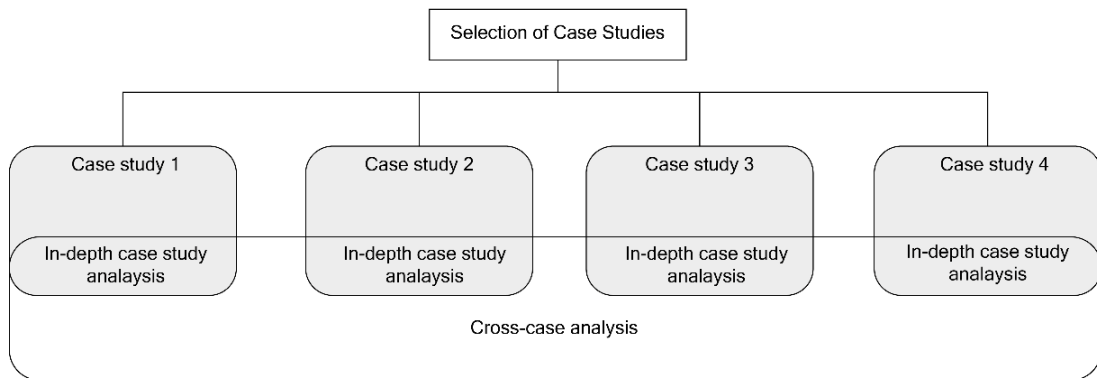
Figure 33 Cross-case Analysis

Moreover, this PhD study used snowball sampling techniques to recruit architects, interior designers and occupational therapists. Snowball sampling is applied when samples with the target characteristics are not easily accessible (Naderifar, Goli and Ghaljaie, 2017). In this case, due to a limited accessibility of dementia care facilities in Thailand is limited, a snowball sampling as a purposeful data collection was selected. Another group of participants is designers.

4.2.3 Profiles of Case Studies

A specific group of population, which is an entire collection to understand and seek a research data require the research design and data analysis. Consequently, a fundamental of research design selects the population of interest. The design of the research study dictates by the scope of inferences resulting in the targeted population. As a result, four case studies in Thailand were selected (as shown in Figure 34). However, as a targeted population is small, the research interest is measured based on the targeted population and known with certainty.

Hence, the targeted population is not finite due to financial or logistical constraints that dominate the complete information (Litt, 2010).

Figure 34 Profiles of Case Studies

Table 1 Case Studies Profiles

Case studies	Location	Owner / Culture	Organisational structure	Type of construction
Case Study 1	Chiang Mai	German/Switzerland	Care managers, care professionals, caregivers, and Occupational therapists (OT)	Purpose-built
Case Study 2	Chiang Mai	British	Care managers, care professionals, caregivers	Renovation
Case Study 3	Bangkok	Thai	Care managers, care professionals, caregivers	Renovation
Case Study 4	Bangkok	Thai	Care managers, care professionals, caregivers	Purpose-built

The first variable is location. There are two locations – Chiang Mai and Bangkok. Age and gender are variables. Chiang Mai is the largest city in northern Thailand and the third largest city in the country after the capital Bangkok and Nakhon Ratchasima. In contrast to other normally densely populated Asian cities, Chiang Mai has the appearance of a large village – orderly, clean, traditional, and almost sprawling. Chiang Mai is a flourishing tourist and resort centre as compared to Bangkok.

The second variable is organisational structure and culture, which outlines how certain care activities are directed to achieve organisational goals and care philosophy (Grossi, Royakkers and Dignam, 2007). Rules, roles, and responsibilities are included as activities. In addition, the organisational structure determines how each level of the company allows the flow of the information.

The third variable is whether the facility is purpose-built and renovated. The physical environment has not been shown to affect the progression of dementia. Purpose-built environments have positive effects on quality of life (Broadbent and Gilbert, 2020).

4.2.3.1 Case Study 1 – Vivo Bene Village

The first case study is Vivo Bene Village. It is located in Chiang Mai, in the northern part of Thailand. The case study was registered as a private nursing home. The case study is an example of investments by European business groups, who received support from BOI, Thailand. The care facility is located in Chiang Mai's Doi Saket District, which is a district in the eastern part of the province. The district is predominantly a rural farming area containing a mixture of rice fields on the valley floor and orchards and other farming on the hillsides. The village is nearby communities and temples such as Wat Doi Saket. Within the care facility, there are facilities such as restaurants, swimming pools, salons, and fitness centres. The concept of the care facility is palliative care. There are two room types to be selected. The resort has 80 residential units (pavilion rooms and villas). It is possible to configure the rooms
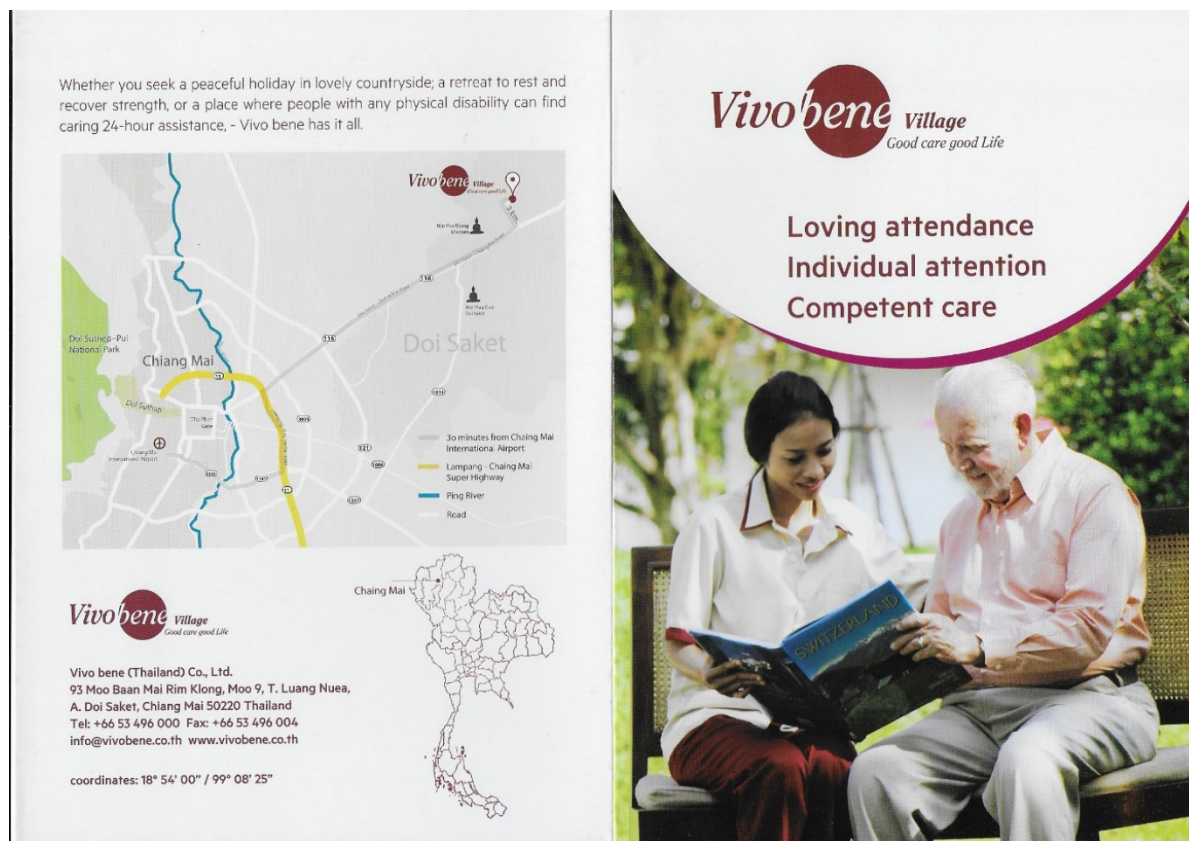
Figure 35 Case Study 1 Profiles
(Brochure from Vivo Bene Village, 2019)

according to the needs of the guests. The resort has its own designed care package which includes general care or all-day care (as shown in Figure 35 and Figure 36). A Swiss restaurant offering Asian, Thai, Western and Swiss cuisines is open to all guests.

Figure 36 Case Study 2 Profiles
(Brochure from Vivo Bene Village, 2019)

4.2.3.2 Case Study 2 – Care Resort Chiang Mai

The second case study is Care Resort Chiang Mai (as shown in Figure 37 and Figure 38). The resort has been renovated from a vacation resort in Mae Rim District. Mae Rim District is a small town with various tourist attractions and natural environments. Mae Rim town consists of a long busy road with hotels, restaurants, and activities down both sides of the streets. Within the care facility, there are facilities such as restaurants, swimming pools, and fitness centres. Care Resort Chiang Mai encourages guests to keep as active as possible, which has been shown to help both the mental and physical state. There are vast gardens which help make the guests not feel 'locked away' in the facility as they are able to walk in the gardens with caregivers and can manage their own gardening plot. Activities are a part of their routines, including arts and crafts, card and board games, ball games, singing and quizzes, photography, fishing on the lake (subject to individual capability), group games such as bingo, and, of course, supervised swimming. There are several care packages. Local excursions can

be organised for local sightseeing and activities as well as regular shopping trips. The main objective is to make life as pleasant and varied as possible for the resort's guests whilst retaining the necessary safety and security that is required.
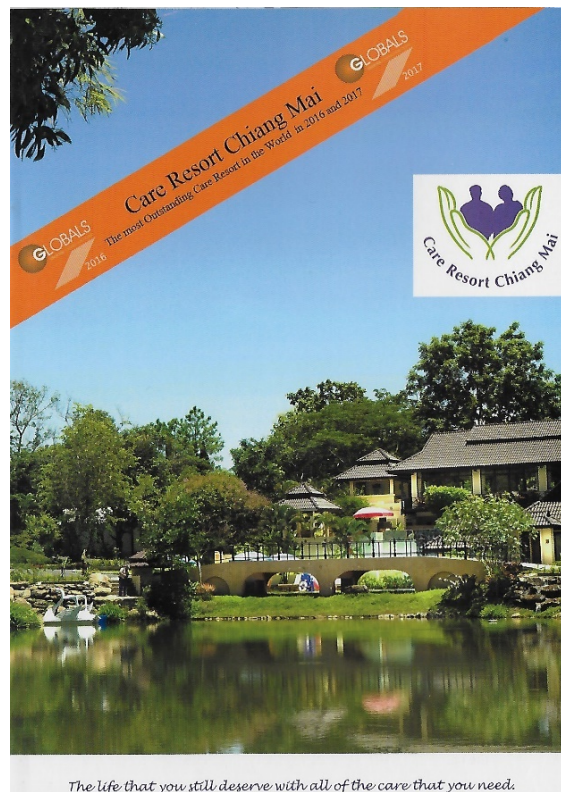
Figure 38 Case Study 2 Profiles
(Brochure from Care Resort Chiangmai, 2019)

Figure 37 Case Study 2 Profiles
(Brochure from Care Resort Chiangmai, 2019)

4.2.3.3　Case Study 3 – Nymph Care Home

The third case study is Nymph Care Home (as shown Figure 40 and Figure 41). The care home has been renovated from an existing apartment building. The surrounding neighbourhood is a residential area. It is located in the city of Nonthaburi, in the south of Thailand and north of Bangkok. The city, a northern, fast-growing suburb of Bangkok, lies on the east (left) bank of the Chao Phraya River and is linked to the metropolis by riverboats and major roads. There are no listed care packages. All rooms have air conditioning, cable TV, an en suite bathroom, a water heater, wireless internet, an intercom, and a call signal in case of needing help. There is CCTV inside the corridor and outside in public areas. Within the care facility, there are facilities such as restaurants, swimming pools, and fitness centres. All room types provide healthcare and rehabilitation services for service users who have both physical and mental difficulties. At the care facility, 24 hours special care are provided with trained nurses in accordance with nursing standards and nursing supervisors. Consultation by a doctor is also included. Services also include taking care of general daily activities, nursing care such as wound dressing, changing the catheter, basic physical therapy, recreational activities (depending on the condition of each client), three meals with snacks, laundry services with ironing clothes, and daily room cleaning.

Figure 39 Case Study 3 Profiles

Figure 41 Case Study 3 Profiles
(Brochure from Nymph Care Home, 2019)

4.2.3.4 Case Study 4 – The Serene

The fourth case study is the Serene (as shown in Figure 42 and Figure 43). The care facility is a purpose-built building. The nearby neighbourhood is Krungthep Kreetha, which is one of the older golf courses near Bangkok city centre and features an attractive layout. The golf course is one of the best-known courses in Bangkok. The policy of long-stay tourism promotes and encourages Japanese to relocate in Thailand. The concern of an influx creates an impact for foreign residents on the Thai healthcare system (Miyashita et al, 2017). In this case, the case study aims to reveal the current use of and needs for healthcare services amongst Japanese retirees residing in various locations in Thailand. Within the care facility, there are facilities such as restaurants, swimming pools, and fitness centres. The main motto of the dementia care facility is to provide an experience for the older people and patients to rest with warmth and have a better quality of life by an environment with close care and attention by experienced medical team and a multidisciplinary medical team with family-like care. All clients have good physical and mental health, relax and enjoy social activities. The facility arranges

a new society which a team of doctors and physical therapists rehabilitate people with dementia closely, with modern equipment and complete care services like family

4.3 Case Study Research Procedures

Qualitative research usually associates with the social constructivist paradigm which emphasises the socially constructed nature of reality (Barbosa da Silva, 2008). The main aim of case study research is to record, analyse, and attempt to uncover the deeper meaning (Rashid *et al.,* 2019) of human behaviour and experience, including contradictory beliefs, behaviours, and emotions (Mohajan, 2018). Researchers are interested in gaining a rich and complex understanding of people's experience and not in obtaining information which can be generalised to other larger groups (Austin and Sutton, 2014). Qualitative and perception of design of stakeholders and designers are based on the description of the relationship between perceptual design and rational design, which the importance of perceptual design in modern product design is clarified. The key research questions that emerged for this study are concerned with the capabilities approach. Participating in the planning of their lives and achieving the human capability of practical reasoning are difficult for people with advanced dementia (Darby and Dickerson, 2017). The followings are the main research questions:

Figure 42 Case Study 4 Profiles
(Brochure from The Serene, 2019)

Figure 43 Case Study 4 Profiles
(Brochure from The Serene, 2019)

- How can designers in Thailand perceive the design of an enabling environment for dementia care?

- How can care stakeholders, including care managers, care professionals, and caregivers, perceive the design of an enabling environment for dementia care?

- How do people with dementia and care stakeholders use the spaces and meet the perceived needs of an enabling environment for dementia care?

- How does the designed environment meet the users' needs to enhance their capabilities?

- How can the design framework of an enabling environment for dementia care be validated and contextualised with cultural values for sustainable health promotion settings?

The overarching research study developed and disseminated a design framework for an enabling environment for dementia care. The overriding objective of this research is to create new insights that provide original and influential uses, which may have significant social, cultural, economic, and political consequences. Moreover, the design of an enabling environment is a concept which focuses and determines specific targets to achieve among

small sub-groups of the targeted population (Sunderasan, 2012). Hence, the scale collectively achieves a meaningful impact at the global level. Finally, the research study attempts to contribute new knowledge to the design framework for an enabling environment for dementia care by contextualising and validating the tool with potential user groups.

Therefore, the study has the following objectives:

- To explore designers' perceptions of an enabling environment for dementia care.
- To investigate care stakeholders' perceptions of an enabling environment for dementia care.
- To examine how people with dementia and care stakeholders use the spaces and meet the observed needs of the enabling environment for dementia care.
- To develop a design framework which demonstrates how the designed environment and user needs are met to enhance their capabilities.
- To validate and contextualise the users' needs for cultural value and providing sustainable health promotion settings.

According to Figure 44, the research methodology has been planned into five phases. The first phase is literature review. A literature review is a piece of academic writing demonstrating knowledge and understanding of the academic literature on a specific topic. This phase is a development of design criteria and a Post Occupancy Evaluation (POE) list.

The second phase is the exploratory study. An exploratory study enquires possibilities or research hypothesis and how researchers should proceed the research procedures (Casula, Rangarajan and Shields, 2021). However, an exploratory study aims to process a specific design feature, which aims to conduct on a smaller scale research rather than a full-scale study due to time and economic reasons (In, 2017). A list of developed interview questions was examined.

The third phase is an ethical approval and preparation for main study. From the pilot studies, the main case studies consist of two phases, including the main site visit and co-design workshop. The main research studies were conducted from the perspective of case study research.

The fourth phase is the main study which includes data collection, analysis, and triangulation. The data collection was conducted by semi-structured interviews and ethnography at the case

studies. The data was analysed by thematic analysis and triangulated. Finally, a design framework was developed.

The last phase is data validation, which refers to ensuring the accuracy and quality of data. The phase includes a co-design workshop as the primary research method. The developed design framework was internally tested in the case studies to examine the perception gap between the researcher and the users.

Design and Assessment Tools of Enabling Environment for Dementia Care

RESEARCH METHODOLOGY

LITERATURE REVIEW

RESEARCH QUESTIONS

How can the Capability Approach be applied to the development of a design tool for an enabling environment for dementia care, which enhances transparency and inclusion in health promotion settings?

How can 'Design for Capabilities' approach be applied to the development of a design tool for an enabling environment for dementia care to promote design diversity (e.g. risk-based design) in health promotion settings?

How can design tool of an enabling environment for dementia care examine users' capabilities to control over the designed surroundings of health promotion settings?

How can design tool of an enabling environment for dementia care support users' capabilities to meet the material, social and participatory needs in health promotion settings?

How can design tool of an enabling environment for dementia care support users' capabilities to meet the material, social and participatory needs in health promotion settings?

How can design and assessment tools of an enabling environment for dementia care be developed and disseminated by using technologies to enhance sustainable health promotion settings?

ETHICAL REVIEW

DEVELOP CHECKLIST/ CRITERIA

EXPLORATORY RESEARCH

Preparation

Nightingale Care home & Beechy Knoll Care home, Sheffield, UK

Exploratory phase

Identify Issues

Design and Assessment Tools of an Enabling Environment for Dementia Care

MAIN CASE STUDIES Pilot Study

Preparation → Pilot phase → THAILAND → Identify Issues

Data Collection

Care Managers

(x4)
In-depth interviews will be conducted with 4-6 care managers and deputy care managers from the case studies. The interview questions will be based on intention and capabilities-based ques-

Vivo Bene, Chiangmai, Thailand

Care Resort, Chiangmai, Thailand

Interviews

Architects

In-depth interviews will be conducted with 4-6 architects from the case studies. **(x4)**

Nymph   The Serene

In-depth interviews will be conducted with approximately 15 caregivers from the case studies to examine their perceptions **(x16)**

Caregivers

Ethnography

Site Analysis   Individual-centred mapping will be conducted with two caregivers and people with dementia (from each case study) to observe end users on how they use public areas.   **Behavioral Mapping**

Data Analysis

The interviews of care managers will be analysed by using NViVo11, using thematic analysis and discussed with the existing design tools by identifying how to what extent culture and social characteristics enabling or disabling by the design of the physical environment.

The design tool from objective one will be discussed with literature on design for capabilities approach to be analysed with findings will be analysed based on thematic analysis by using NViVo11 and further discussed with the design tools. At this stage, conceptual design framework (of design tool) will be established.

The research findings will be analysed using thematic analysis aided by NViVo11, and compared how they control over one's designed surroundings to identify 'the gaps' of users' capabilities.

The research findings will be analysed by visual data analysis. The data triangulation will endorse users' capabilities in health promotion settings, which will be strategically designed to assemble the material, social and participatory needs.

Co-design workshops

With approximately 6-8 participants, co-design workshops will be arranged to actively engage care managers, caregivers, and architects to negotiate the design tools with 'cultural values'

Two versions of the tools will be disseminated (Designers/Architects anc Care home Stakeholders).Finally, feedbacks from stakeholders will be discussed on Skype/phone.

120

Figure 44 Research Methodology Flowchart

4.3.1 Development of Design Tools

The review of the existing architectural and gerontological literature identified no single assessment tools, which have captured all the relevant design elements for an enabling environment for dementia care. According to the conceptual frameworks, the development of tools as part of social justice (Dong, 2008) has integrated the Salutogenic approach, and the Capability approach to establish the selection criteria of the existing tools. The selection criteria are 1) psychosocial environment (Chalfont, 2011) and 2) functioning (Robeyns, 2005; Alkire, 2005). Consequently, four existing tools and two related conceptual frameworks were selected, which include:

- Sheffield Care Environmental Assessment Matrix (SCEAM) indicates user needs design domains based on person-centred care approach (Barnes et al., 2004) which relates to both psychosocial and functioning aspects. Hence, the tool will be used as the main tool of development for both qualities.

- The second tool is Multiphasic Environmental Assessment Procedure (MEAP) developed by Moos and Lemke (1976), which emphasised psychosocial climate in contributing to patients' care and recovery (Timko and Moos, 1989), although its architectural design domains are limited.

- The third tool is Professional Environmental Assessment Protocol (PEAP) developed by Lawton (2000), which emphasises on person and environment fit to enhance human competence for independence (Slaughter and Hayduk, 2012).

- The fourth tool is Dementia Design Audit Tool, which was developed by The University of Sterling's Dementia Service Design Centre (DSDC) in 2007, specifies design guidelines based on inclusive design (Dementia Services Development and Health Facilities, 2007).

Moreover, referring to the literature review, two conceptual frameworks were included such as:

- Optimal Healing Environment (OHE), which was developed by Samueli's Institute in 2004 based on concept of Salutogenesis (Najm et al., 2012) which supports the inherent healing capacity of patients and care providers.

- Dementia-friendly Technologies (DFT) which was included in The Prime Minister's Challenge (2012) to benefit people with dementia with technology (Mendes, 2016). More importantly, none of existing tools have applied technologies.

Therefore, exploratory research was required to primarily test the research tools and methods, and further explore the research gaps.

4.3.1 Exploratory Study

The exploratory study initially intended to explore the gap in the literature between the Capability Approach and the Salutogenic design approach for health promotion settings. The design domains of SCEAM would be developed according to other selected existing tools. Two care homes in Sheffield were selected for case studies based on the following selection criteria: 1) listed registered care homes in Sheffield, UK; 2) containing a separate dementia care unit, EMI, or a unit designed specifically for dementia; 3) private ownership. Semi-structured interviews were conducted with care-home managers and caregivers (8 participants) from the two private care homes. The findings were analysed using the thematic analysis approach with the aid of NVivo11 and discussed with the existing design and assessment tools selected.

As shown in Figure 45, four main domains emerged from the exploratory research in Sheffield: physical mobility, personalisation, sensory stimulation and comfort. The first theme is 'design for physical mobility' which includes the three domains of health and safety, senses and accessibility. The second theme is 'design for personalisation' which comprises the three domains of individual background, continuity of self and freedom of choices. The third theme is 'design for sensory stimulation' which consists of indoor senses, outdoor environment, orientation and social climate. The fourth theme is 'design for comfort', which comprises the two domains of facilities and work environment, and leisure.

The findings are compared to other existing design tools of the physical environment for dementia care, for example, SCEAM, MEAP, PEAP, DDAT and OHE. The main similarities are the requirements for physical mobility and cognitive and sensory stimulation. However, the main limitations are budget, government and public policy, and the culture of care. Moreover, further discussion was added to compare the cultures in the United Kingdom and Thailand contexts. Both case studies argued that hospitality is valued because of the culture

of the caregivers. Hence, only privileged guests who have access to resort care services can construct inequalities in global healthcare. The emerging themes indicate the similarity of SCEAM's themes and are interrelated to the OHE framework. Noticeably, compared to other selected tools, the privacy and authenticity/normalness domains in SCEAM are not mentioned. Thus, the emerged themes anticipated 'place-making' strategies under the Salutogenic approach and highlighted a need for further investigation into how the Capability Approach can enhance the dignity and freedom of people with dementia and caregivers within health promotion settings. Finally, Figure 45 explains the conceptual framework of the main study.

Comparing the Thai and the UK contexts, participants in both case studies argued that the dementia resort typology will succeed in the context of Thailand primarily because of the climate, the tradition of hospitality towards guests, and the personality and culture of the caregivers (Wongboonsin, Aungsuroch and Hatsukano, 2020). As only privileged guests can access the dementia resort typology and hospital care services, transnational dementia care services may result in inequalities in global healthcare, especially in terms of the crisis in the care workforce (Johnston and Pratt, 2022).
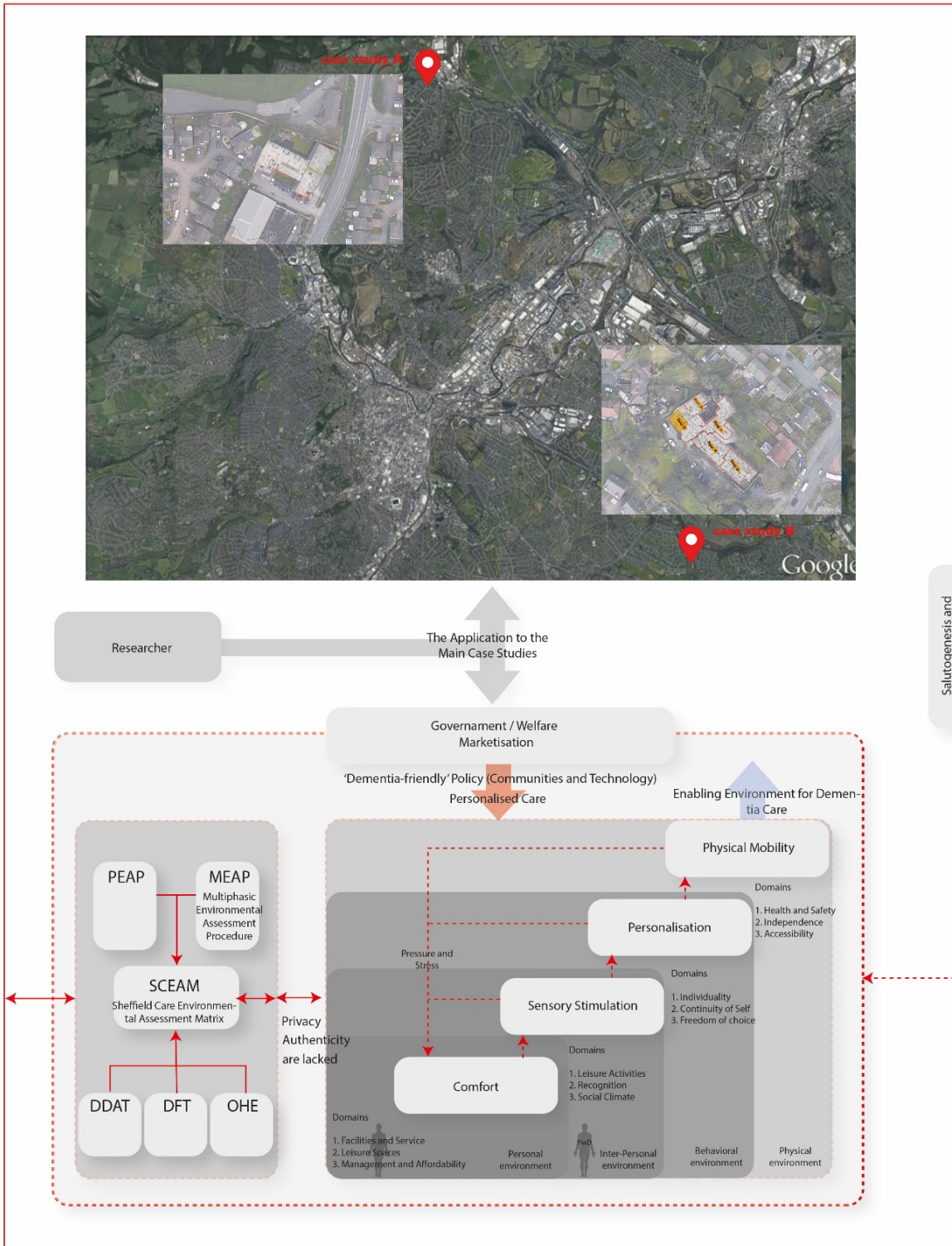
Figure 45 Exploratory Study Flowchart

4.3.2 Main Study

From the exploratory study, the main case studies consist of two phases, including the main site visit and co-design workshop. The main research studies were conducted from the perspective of case study research. The three main research methods are semi-structured interviews, in which research participants were selected concerning their design disciplines. Designers include architects, interior designers, and occupational therapists. Ethnography is the second method, which includes four main research methods: ethnography, behavioural mapping, POE, and autoethnography, all of which were conducted in the four selected case studies in Thailand. The last research method is the co-design workshop conducted in the two case studies.

Field research is characteristically conducted in a specific setting (Muller, 2020). The final object of the field research study is to observe and analyse the behaviours in dementia care facilities. However, human behaviours are challenging to analyse due to multiple environmental variables. The data collection should be based entirely on corelation. As a result, a causal relationship between two or more variables may establish a small sample size (Van de Schoot and Miocevic, 2020). Thus, a site visit is essential and is always conducted in actual environment of respondents. Hence, planning a site visit along with data collection methods is essential. Moreover, data analysis is also vital to validate the evidence of the field research. Once the data is analysed, it is crucial to communicate the results to the research participants to get feedback and suggestions (Anderson, 2010).

Prior to conducting interviews of the main study, the interview schedule was pre-tested / pilot tested with care home managers to test the adequacy of the research instrument (Sage, 2016). The sampling framework and research techniques would be operational and established (Bell, 2010), which includes a feasible test of a full-scale interview to assess whether the research protocol was realistic and effective (In, 2017). Furthermore, the semi-interview procedures were improved and refined based on constructive comments from care managers. Some care stakeholders were also able to participate in the interview procedures and gave feedbacks.
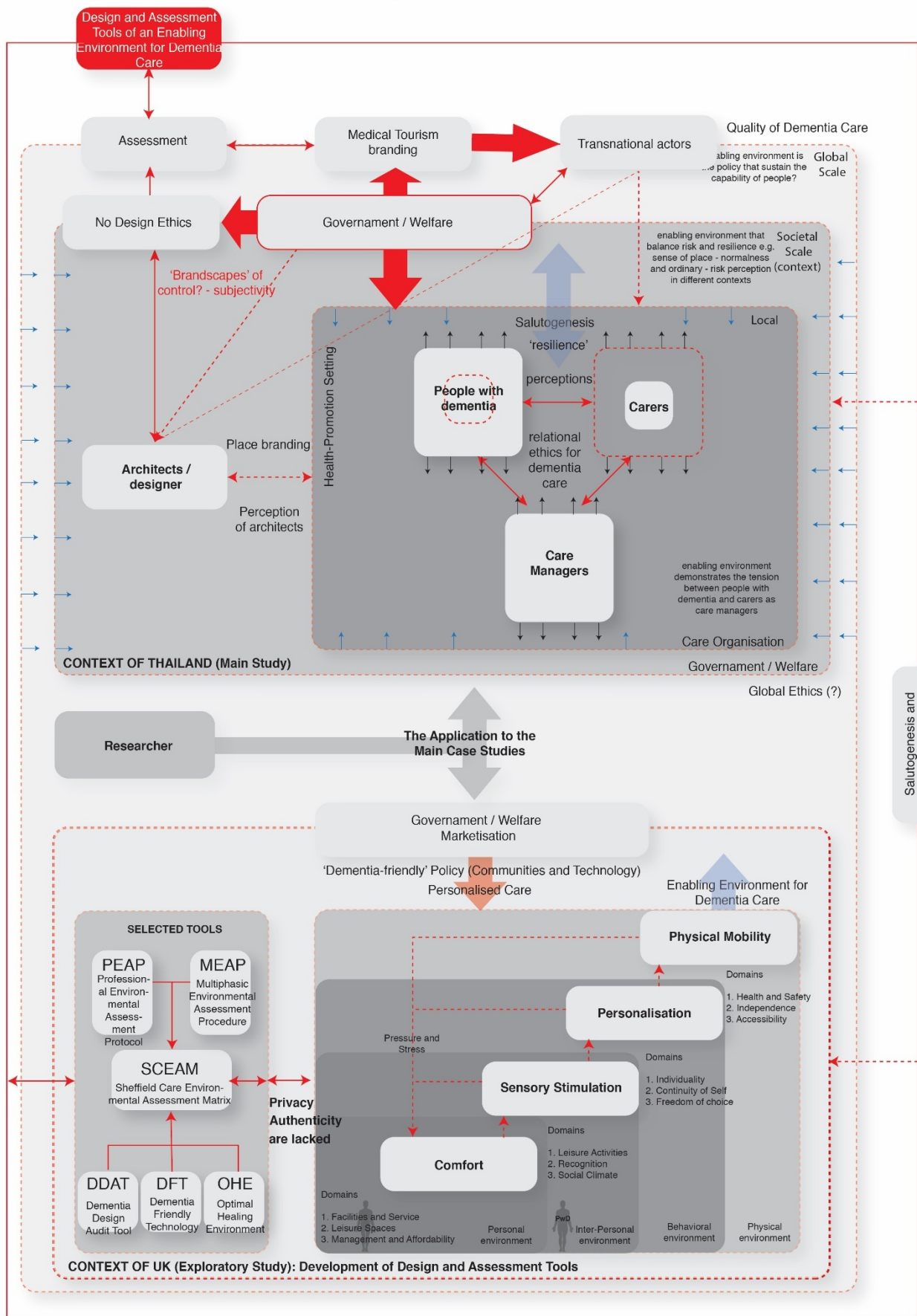
Figure 46 Conceptual Framework for Main Study

Due to the vulnerable status of people with dementia and the context of dementia care facilities, a two-stage ethical process was acknowledged (Whitehouse, 2000). During the initial stage, the ethical approval from the University of Sheffield was required before commencing the field research (see Appendix A). Secondly, the consent form was sent to each care home management. The permission process was fully supervised by qualified care home managers. The research information was shown transparently to care managers and care stakeholders in all case studies. In addition, all participants were assured of strict anonymity and confidentiality during the research process which participants have the right to withdraw from the research at any time (Wiles *et al.*, 2008). Finally, prior to commencing each interview, the participant's permission was requested to audio record the interviews. The reassurance was given that the recording would not be revealed or misused (deliberately or otherwise) in any way or form (Oliver, 2010) (as shown in Figure 47).
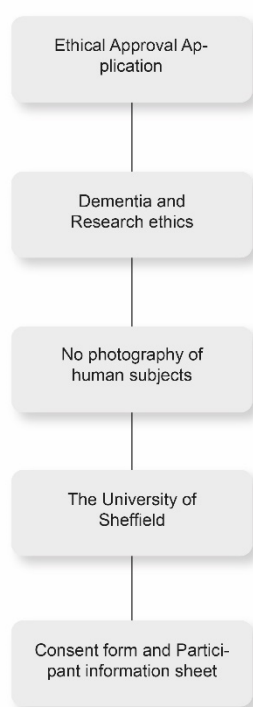
Figure 47 Ethical Approval Process

The successful conduct of trials and the generalisation of findings depend upon the efficient participant recruitment of targeted samples, which often requires the collaboration of

'gatekeepers' who mediate access to potential participants. Effective negotiation of gatekeeping is thus vital to the process and outcomes of trials and the quality of evidence (Patterson, 2011). Subsequently, a hybrid snowballing sample was conducted by inviting care home residents and caregivers to participate in the research study (Li *et al.,* 2022). The major struggles of the research study are to conveniently recruit research participants and to gain their trust during the research process. The research topic was established as a good level of rapport via a shared interest (Manohar *et al.,* 2018). Hence, the research approach may introduce bias and should be expanded to a larger and diverse sampling frame of people with dementia, care stakeholders, and designers.

4.3.2.1 Semi-structured Interviews

The first research method employed in this study is semi-structured interview. The semi-structured interview is a method that you can use to find out people's ideas, opinions, and attitudes (Wilson, 2014). There are different types of interviews, but, for research purposes, interviews can be defined as a form of conversation between a researcher and a participant. In some cases, one may need to interview several people, as a way of ensuring that the information that have been gathered is valid and representative of a broader group of people (Knott et. al, 2022). By informing the current body of evidence, the main objective of semi-structure interviews is to identify research gaps of the design of health research, practice and policies (DeJonckheere and Vaughn, 2019). As the results, audiences such as researchers, clinical developers, clinicians, policymakers, funders, and patients can benefit from understanding the status of research findings and research gaps (Nyanchoka *et al.,* 2019). The semi-structured interviews were conducted informally with one respondent at a time, which usually employs both closed- and open-ended questions. Follow-up questions of why or how were often complemented (DeJonckheere and Vaughn, 2019.). When the open-ended questions require follow-up queries, the interviews are particularly suited for specific tasks (Adams, 2015).

According to Figure 48, primary qualitative data was collected by using a semi-structured data collection (via face-to-face interviews) instrument to provoke first-hand information based on thoughts, lived experiences, and opinions of dementia residents and their care stakeholders (Abenstern *et al.,* 2019). After cooperation is obtained, the interviewer must establish a personal connection with the respondent. Fundamentally, the interviewer must be friendly, polite, and speak respectfully to the respondent. In at least some cases (Guest, Namey and Mitchell, 2013), there was a discrepancy between the perceptions of investigators regarding the role of interviewees and the perceptions of interviewees regarding their role at the time

(Chung, Ng and Ding, 2022). How interviewees perceive themselves may affect the interview process in a number of ways. In the same way that the interviewer is making judgements concerning the interviewee, the interviewee also assesses and forms impressions of the interviewer (Graves, 1993). The impressions which are formed can significantly influence interviewee's behaviour, motivation, and commitment to interview. The characteristics of the person observed, in this instance the interviewer, are influential in forming perceptions.

In terms of designers, the same set of interview questions was used. The growing popularity of technologies such as computer-mediated communication indicates that a wider audience were willing and able to participate in research using this method (WanMansor and Zakaria, 2017). Therefore, online videoconferencing was considered a viable option for qualitative data collection.
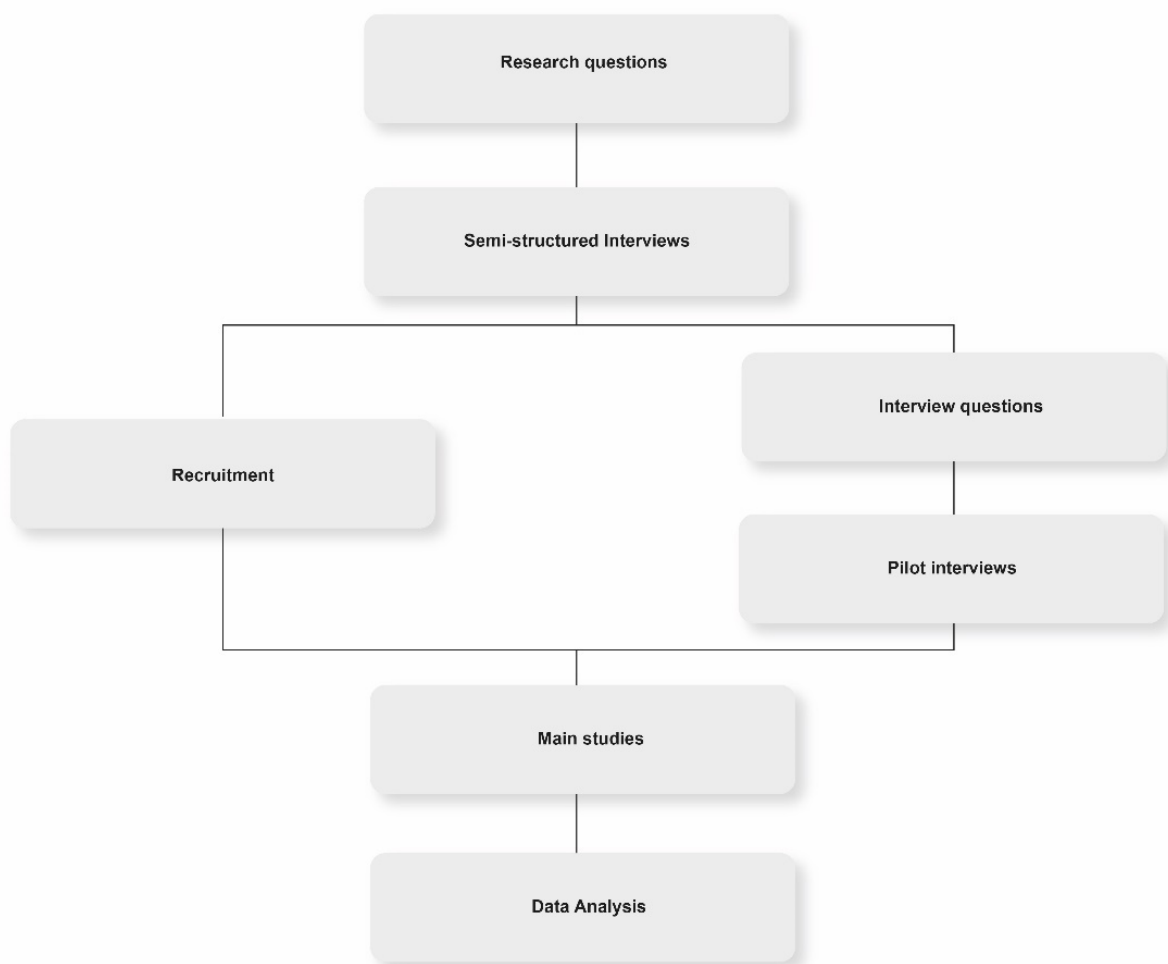
Figure 48 Semi-structured Interviews Flowchart

Thematic Content Analysis, Content analysis, Visual analysis are implemented with literature review are the primary data analysis methods. Methodologically, thematic content analysis (TCA) can be defined as a descriptive presentation of qualitative data. The data was taken in the form of interview transcripts collected from research participants or other identified texts reflecting experientially on the study topic (McMullin, 2021). The analysis of interviews followed a thematic analysis method based on the SCEAM tool. The thematic content analysis was done by coding. The interview transcripts were coded manually and used NVivo to group them.

4.3.2.2 Ethnography

The second research method is ethnography or the researcher's perception. Ethnography by the researcher often teaches architects and designers how to actively listen and observe people's knowledge about their own culture and life. The ethnographic approach emphasises structure to values and qualities, which can be conducted by documenting the terms and underlying structure of thought people use to describe aspects of their culture. Moreover, the architect can react to the user and interpret creatively by responding to underlying cognitive patterns. Thus, ethno-semantic methods can help designers enhance their professional responsibility to users and simultaneously feel fulfilled creatively (Cranz, 2016).

The ethnographic studies include four main research methods: ethnography, behavioural mapping, POE, and autoethnography, all of which were conducted in the four selected case studies in Thailand, which were selected by using criteria such as transnational clients and salutogenic design settings. The first research method, ethnography, was conducted by using fieldnotes, photography, and in-situ sketches to record the relationship between end users' behaviours and the designed physical environment. The second, behavioural mapping, was conducted by recruiting two pairs of residents and caregivers as participants and observing them from 9 am to 4 pm, which was arranged by the gatekeepers of each case study. The third research method, POE, developing from existing design tools and literature reviews, was used to assess the design of the physical environment. The fourth, autoethnography, uses drawings and sketches to illustrate the researcher's perception and experience towards the dementia care facilities. The ethnographic findings were analysed by thematic analysis. The ethnographic data such as photographs, POE, and autoethnographic analysis was put into a comparable analysis table. The written descriptions were coded and themed according to the developed themes from semi-structured interviews.

As illustrated in Figure 49, environmental psychology techniques such as behavioural mapping is an important research tool, which is used to observe and record behaviours in a particular setting and at a particular time (Ng, 2016). In this case, place-based or individual-based are depending on the focus of observation which is to identify behavioural patterns. A method of behavioural mapping was conducted in various care settings of case studies. In addition, behavioural mapping can be a useful tool for environment-behaviour research (Ng, 2016), and combined with other data collection methods.

To explore environmental qualities, POE employs a building's performance in use which is the process of obtaining feedback (Hadjri and Crozier, 2009). The value of POE is being increasingly recognised, and it is becoming mandatory on many public projects. POE is valuable in all construction sectors, especially healthcare, education, offices, commercial and housing, where poor building performance will impact on running costs (Durosaiye, Hadjri and Liyanage, 2019), occupant well-being and business efficiency. Photography and video recording help explore visual and spatial qualities of the spaces. Since 1960s, photography has been closely associated with anthropology from the beginning of the discipline (Ortner, 1984). Photography can generally play a valuable role as both sources of information and objects of study in social research and social anthropology, despite the seeming discomfort with photographs in contemporary social anthropology. In addition, photography is not used as a decorative element but is often used in a written text. Moreover, photographs can be overlayed and audible by considering when and where they were taken and by whom (Sage Publications, 2020).

Another selected research method is autoethnography. Autoethnography preliminary uses personal experiences ('auto') to describe and interpret cultural texts ('graphy') with researchers' experiences, beliefs, and practices ('ethno') (Adams, Ellis, and Jones, 2017). In theory, autoethnography believes that personal experience is infused with political/cultural norms and expectations and engaged in rigorous self-reflection – typically referred to as 'reflexivity' – to identify and interrogate the intersections between the self and social life. Fundamentally, autoethnography's main objective is to figure out process of what to do, how to live, and the meaning of researchers' limitations (Ellis and Bochner, 2006).

According to Altheide (1996), ethnographic content analysis is briefly contrasted with conventional modes of quantitative content analysis because it aims to illustrate the usefulness of constant comparison for discovering emergent patterns, emphases and themes in an analysis. Hence, an ethnographic perspective is suggested to help delineate patterns of human action when document analysis is conceptualised as fieldwork.
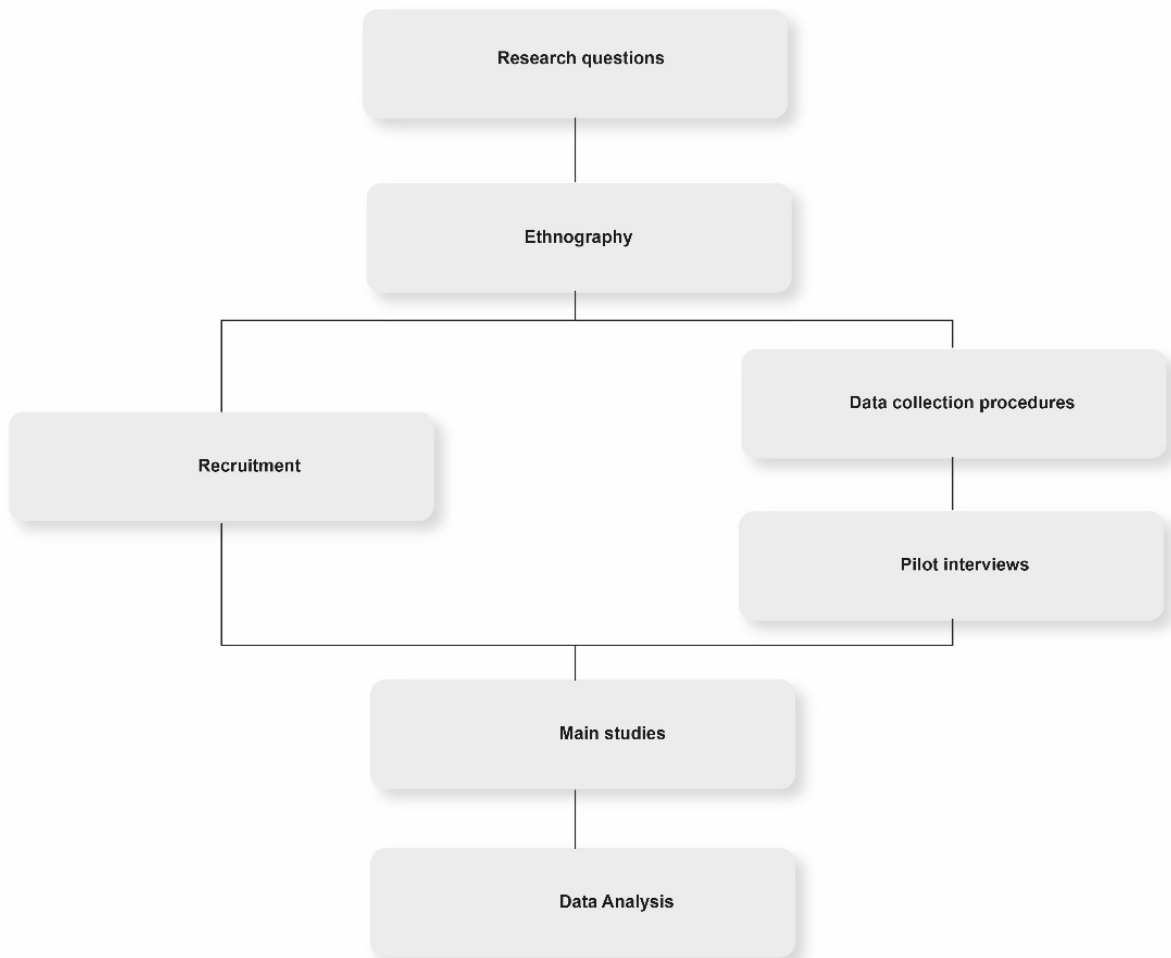
Figure 49 Ethnography Flowchart

4.3.2.3 Triangulation and Framework Development

Frameworks can be defined as application generators that are directly related to a specific domain, i.e., a family of related problems. Moreover, frameworks can be described as a recent research and development topic. The framework approach should be considered when product requirements mutate rapidly. Consequently, a good reference of frameworks creates a good assessment of the framework methodology and latest advances.
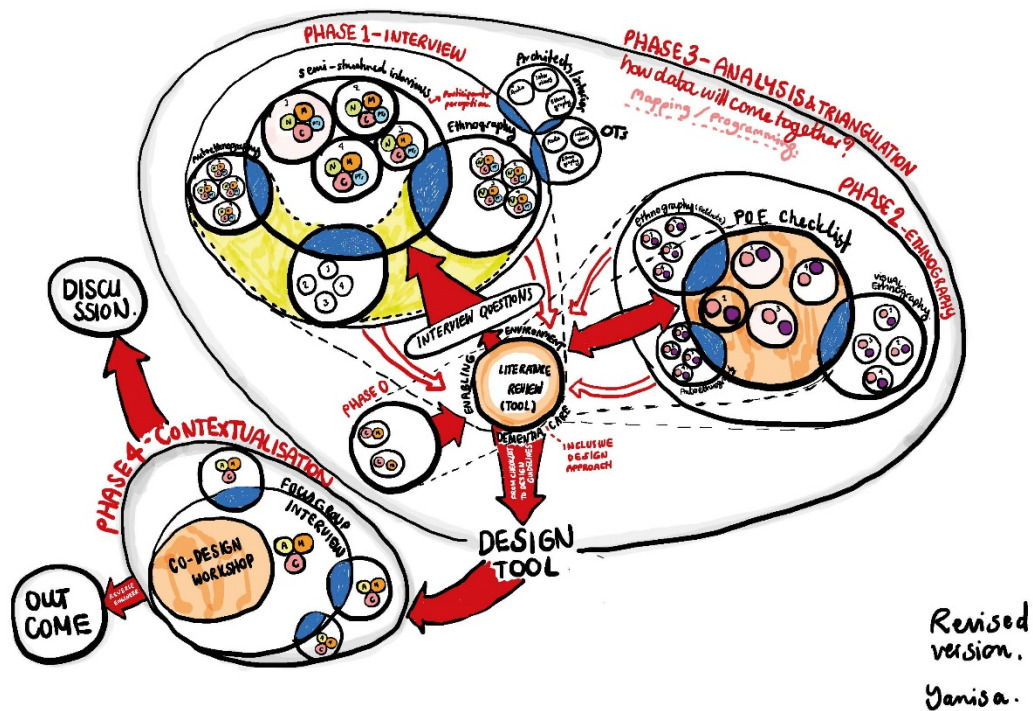
Figure 50 Data Triangulation

Triangulation will be completed by analysing three groups of stakeholders (as shown in Figure 50). The first group of interview participants was made up of designers, including architects/interior designers and occupational therapists. The second group of interview participants was made up of care stakeholders such as care managers, care professionals, and caregivers. The last research method was ethnographic studies, which include four main research methods: ethnography, behavioural mapping, POE, and autoethnography. All data collections will be conducted in the four selected case studies in Thailand. A table of analysis of previous chapters will be generated. Consequently, an infographic of a design framework (Figure 50) was reproduced to illustrate an interaction between each domain, theme, and sub-theme.

4.3.3   Co-design Workshop

Data validation implies the process of ensuring the accuracy and quality of research data, which is implemented by building several checks into a system or ensuring the logical consistency of input and stored data (Peddireddy, 2021). However, data validation and elicits ideas for future interventions should be authorised by health research findings. The third

research method is a co-design workshop concerning designing and delivering community services in a partnership – an equal and reciprocal relationship – between funders, service providers, and the people using the services (and often their caregivers, families, and others in their community). As co-designing increasingly becomes the preferred model for service design and delivery in community services, potential participants such as government agencies, service providers, service users and others – are looking for guidance on how to make it work (as described in Figure 51).

Accordingly, two case studies in Chiang Mai, Thailand, will be the primary location for the co-design workshops based on the internal validation criteria and site accessibility. The same case studies were selected for internal validity to establish a trustworthy cause and effect relationship between a treatment and an outcome. Internal validity can also reflect that a given study makes it possible to eliminate alternative explanations for findings. The gatekeepers had recruited the research participants, including care managers, care professionals, and caregivers. However, due to the COVID-19 situation, the group was broken into subgroups of a maximum of three members. Consequently, each subgroup worked on the same themes and sub-themes and presented their work to the rest of the group at the end of the co-design workshop sessions.
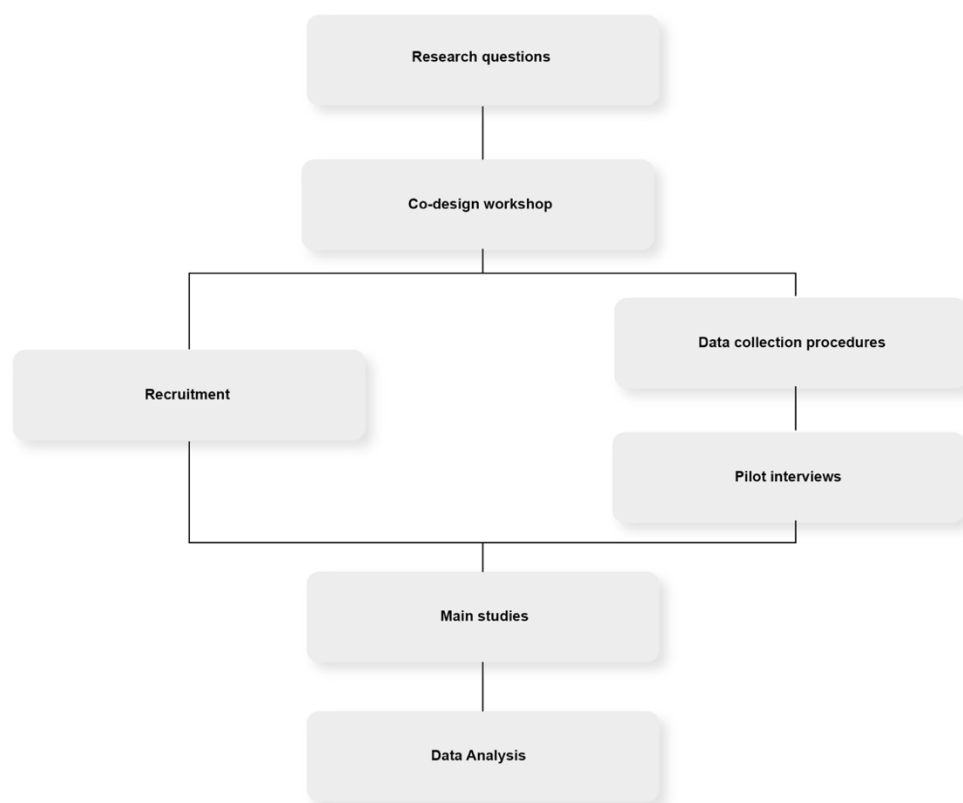
Figure 51 Co-design workshop Flowchart

Reverse engineering is a process or method that one attempts to understand how a previously made device, process, or system through deductive reasoning (Lee and Johnson-Laird, 2013). According to Wang (2010), the primary applications of reverse engineering are to recreate a mirror image of the original parts, decode the mechanism, and retrace the happened events. As reverse engineering is the primary goal of this approach, the design toolkit and equipment used for the research workshop are designed to satisfy the specific study's needs. By referring to research themes, design practice can find numerous design tools in the form of cards, the role of which is to bring inspiration and innovation to the design process. The flashcards contained illustrations and terms (both in English and Thai) and were divided into four main themes – selfhood, self-esteem, security, and creative functionality – which were used and discussed with the research participant groups. Alternatively, the research participants can construct a story with the cards by positioning them on a printed design framework. In addition, post-it notes were applied if emerging themes were stated.

The analysis of the co-design workshops was done to determine how the arrangement of themes and sub-themes are different from and similar to the existing design framework. The design framework toolkits from the two co-design workshops were analysed by searching for the overlapped themes. The second method was interview transcription, which was coded according to themes and sub-themes. The third data analysis was ethnography by coding as content analysis. Triangulation was developed into a revised version to highlight the significance of analysis within design-led approaches in strengthening communication, promoting creative action, and embedding collaborative ways of working. Moreover, cross-case study was synthesised to compare the facilities' climate and organisational factors. Hence, recognising each organisation was essential because the organisations were different in terms of context, values, culture, and people. Finally, the design framework was developed.

4.4 Research Limitations

Research limitations are described as design methodology, which has an impact on the interpretation of research findings (Ross and Bibler Zaidi, 2019). Generally, research limitations are research constraints, which work as a framework to generalise from the research results. The limitations are the relative findings which are the results of how researchers initially plan out to design the research framework (Jilcha Sileyew, 2019). This results in the method that establishes internal and external validity of unanticipated challenges (Slack and Draugalis, 2001). In this case, the research limitation depends on accessibility to research participants, organisations, data, or documents. Moreover, accessibility is

sometimes denied or limited. Additionally, an explanation of why the accessibility is denied or limited should be provided.

Nonetheless, the research methodologies in the research study prove short in a situation such as the current COVID-19 pandemic. As the researcher is to prioritise the social impact, the pandemic created an uncertainty of accessibility to dementia care facilities during the pandemic. Due to the social distancing policy and limitation of numbers of research participants in the co-design workshops, designers (both architects and interior designers) could not participate in the workshops in person. The participants' experiences during the lockdown and how they were being transformed were examined via online interviews with individuals voluntarily attending during home confinement. This methodological innovation in qualitative research is at the service of social impact and can be helpful to researchers investigating vulnerable groups.

4.5   Summary

This chapter introduces the research design, which is informed by the salutogenic theory. It presents the four case study selection criteria. The chapter reviews the main case study selection criteria. The four selected case studies are briefly explained. Research methods such as semi-structured interviews, ethnography, and co-design workshops are explained. Moreover, the data analysis procedures are clarified in this chapter. Towards the end, research limitations are discussed.

5   PERCEPTION OF DESIGNERS

5.1   Introduction

This chapter discusses the perception of designers in terms of designing the physical environment for dementia care in Thailand. Despite the gradual growth in the population of older people in Thailand, especially people with dementia moving into various care facilities, there are limited policies and regulations on dementia care facilities. This is especially noticeable in certain architectural design features present in these facilities. As shown in Figure 52, designers create perceptions by using shapes, colours, typography, visual organisations, images, and light that can shape and form visual experiences but cannot always predict the nature of users' experience. Consequently, perceptions of designers will be explored in this chapter, especially how the context has shaped the designers' decision-making process when designing the physical environment for dementia care.

The interviews were deduced that the designers perceived the designs of these environments through three main perspectives, which are termed as domains. These domains included design for sense of coherence (SOC), design as collectivist culture, and design for neuroscience. The following sections will analyse these domains, as well as the themes and sub-themes that comprise the essential elements of the perception of design.
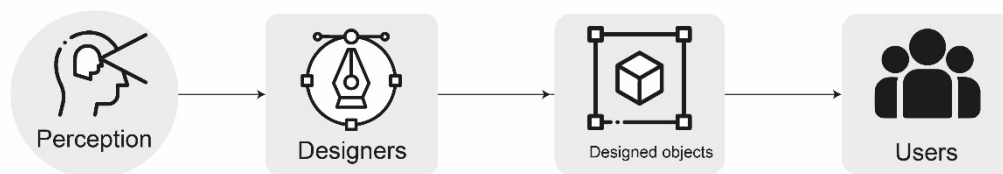
Figure 52 Relationships between perception of users and designers

5.2   Methods

According to Figure 52 and Figure 53, semi-interview was used as the main research method. Research participants were selected in relation to their design disciplines. Designers include architects, interior designers, and occupational therapists. The interview questions were developed from data in the existing literature to explore how designers perceive the design of dementia care facilities. The data analysis was completed by thematic analysis, which was

initially structured by SCEAM tool. The interview transcripts were coded by convergent thinking method. The emerging coding was themed in NViVo11.
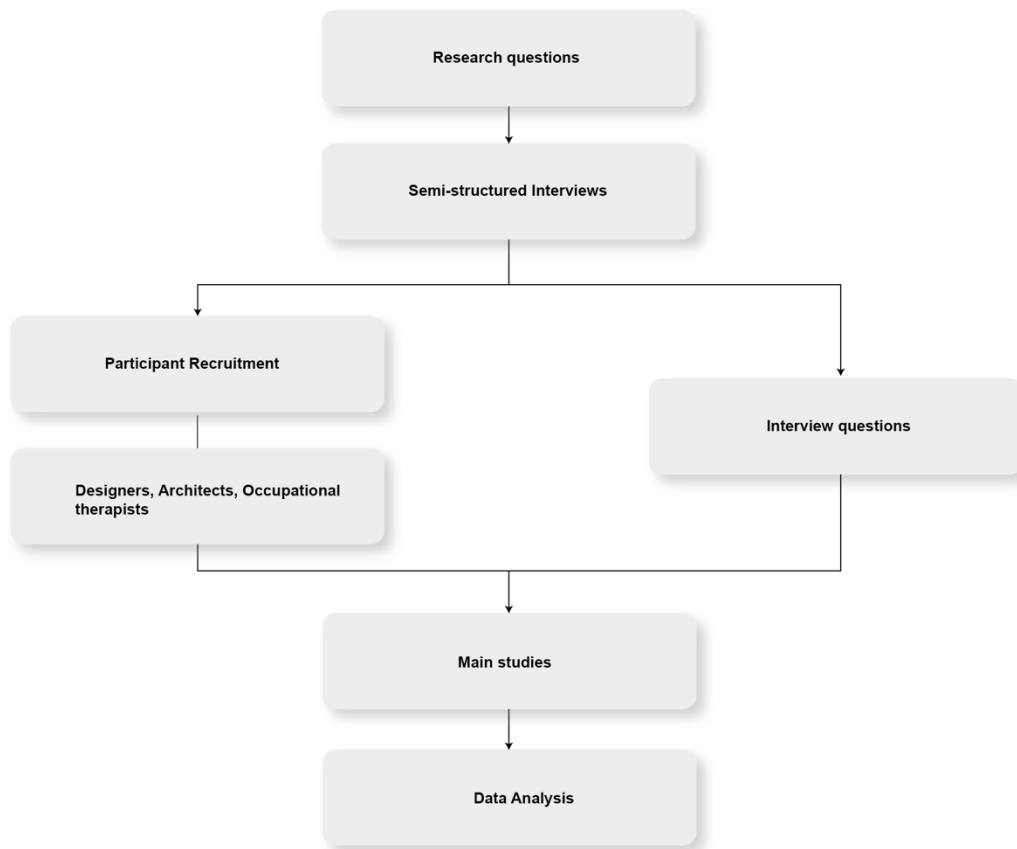
Figure 53 Research Methodology Flowchart

To conduct this study, 15 research participants were recruited in Thailand (as shown in Table 2), including eight architects/interior designers and seven occupational therapists, all of whom had experience with healthcare design. Each interviewee was recruited using the snowballing effect. The following is a list of research participants.

Table 2 Research Participants

Participant No.	Occupation / Role	Gender	Nationality	Age	Type of Organisation	**Interviews**
1	Architect	Female	Thai	30+	Private architectural company	Telephone Interview
2	Interior designer	Female	Thai	35+	Private architectural company	Telephone Interview
3	Interior designer	Male	Thai	45+	Private cross-national company	Telephone Interview
4	Architect / Academic	Female	Thai	40+	University	Face-to-face Interview

5	Architect	Male	Thai	40+	Private architectural company	Face-to-face Interview
6	Interior designer	Female	Thai	40+	Private company	Face-to-face Interview
7	Architect	Male	Thai	30+	Private company	Face-to-face Interview
8	Interior designer	Female	Thai	40+	Private company	Face-to-face Interview
9	Occupational therapist	Female	Thai	29+	Public hospital	Face-to-face Interview
10	Occupational therapist	Female	Thai	29+	Private hospital	Telephone Interview
11	Occupational therapist	Female	Thai	26+	Public hospital	Telephone Interview
12	Occupational therapist	Male	Thai	40+	Academic / university	Face-to-face Interview
13	Occupational therapist	Female	Thai	30+	Freelancer / PhD student	Face-to-face Interview
14	Occupational therapist	Female	Thai	25+	Private care setting	Face-to-face Interview
15	Occupational therapist	Female	Thai	25+	Private care setting	Face-to-face Interview

5.3 Findings

As shown in Figure 54, the findings involved the three aforementioned domains – design for sense of coherence, design for collectivist culture, and design for neuroscience. **Design for SOC** has the most pronounced hierarchy, indicating that the coherent form of the psychosocial environment enhances the experiences of individuals in the physical environment. It emerged that this domain has three themes, including comprehensibility, manageability, and meaningfulness. Comprehensibility is composed of three sub-themes: perception, recognition memory, and experiences. The theme manageability has three sub-themes, including healing programmes, social environment, and mobility. Lastly, the third theme, meaningfulness, comprises two sub-themes: spirit of place and place attachment.

The second domain, **design for collectivist culture**, indicates how designers perceive and engage with social values when they design for society. This domain includes two themes: planning and design values. The theme planning has two sub-themes, which are communities and the medical model of disability. The second theme, design values, is composed of three sub-themes, which are universal values, conceptualisation, and mindset.

The third domain is **design for neurosciences**, which discusses how human beings perceive the environment based on individuals' brains. This domain comprises two main themes, including happiness and environment as media. The theme environment as media has two sub-themes: learning and personality.

In light of these categorisations, the domains, themes, and sub-themes emerging from the perceptions of designers can be understood as a unified and homogenous whole. Totality is internally homogenous in the sense that 'all of the parts belonging to the whole' are unified according to a common governing principle. Similarly, Carbon (2019) proposed a general psychological turn in design theory and practice to purposefully not only include the top-down processes triggered by context, framing, expectation, knowledge, or habituation, but also the psychological effect of gestalt and zeitgeist. Moreover, the findings indicated that there is a progressive trend of working toward the wholeness of the physical environment with which the individualism of the users is still concerned. Therefore, 'The Comprehensive Approach' (Rintakoski and Autti, 2008) may emphasise the totality of creating this wholeness, a continuum of the building that can serve as the ideal for creating a rectified society, and simultaneously includes the parts of individuals within the whole.
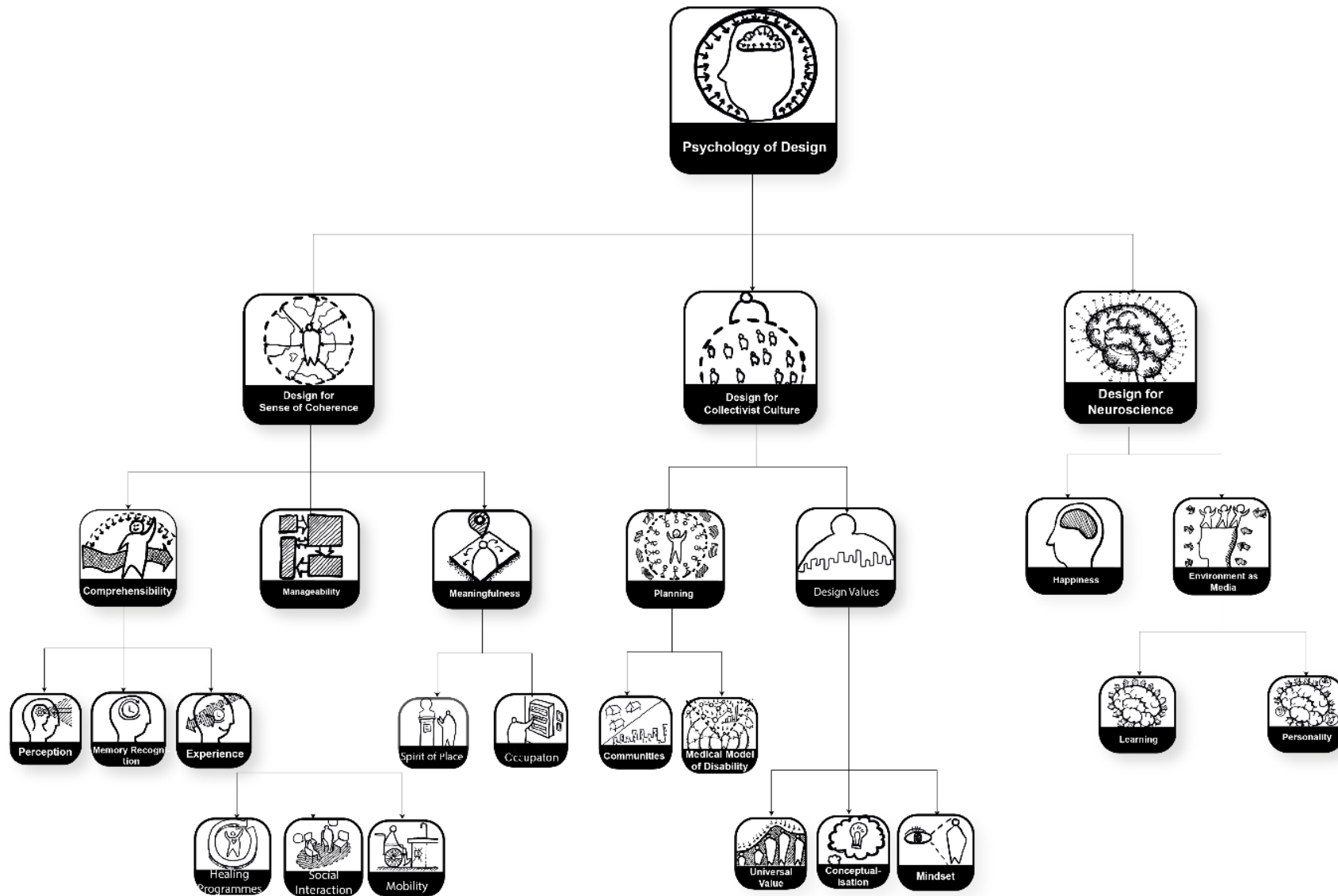
Figure 54 Domains of Design for SOC

5.3.1   Design for Sense of Coherence (SOC)

The first domain, design for sense of coherence (SOC), highlights positive experiences for end users to gain back their sense of control in their environments and pertaining to the idea that the whole of positive experience must be controlled (as shown in Figure 55). The SOC recommends that a dynamic ability to adjust to life's changing circumstances can maintain good emotional, psychiatric, and somantic health (Golembiewski, 2016). As people need to overcome ill health, a physical environment can balance calming reassurance with a constructive stimulation and inspire a positive mindset (Boscherini, 2017). However, the research findings extended the design for SOC domain to include a designed environment that allows end users to select spaces and cues. As a result, such a positively embraced environment can strengthen body processes against future challenges based on user experiences. Therefore, this shift in thinking brings forward both place and placemaking, which are gradually formed by users when becoming involved in their spaces and taking greater control over their designed purposes which intentionally consider its objectives, function, economics, socio-cultural factors, and aesthetics.
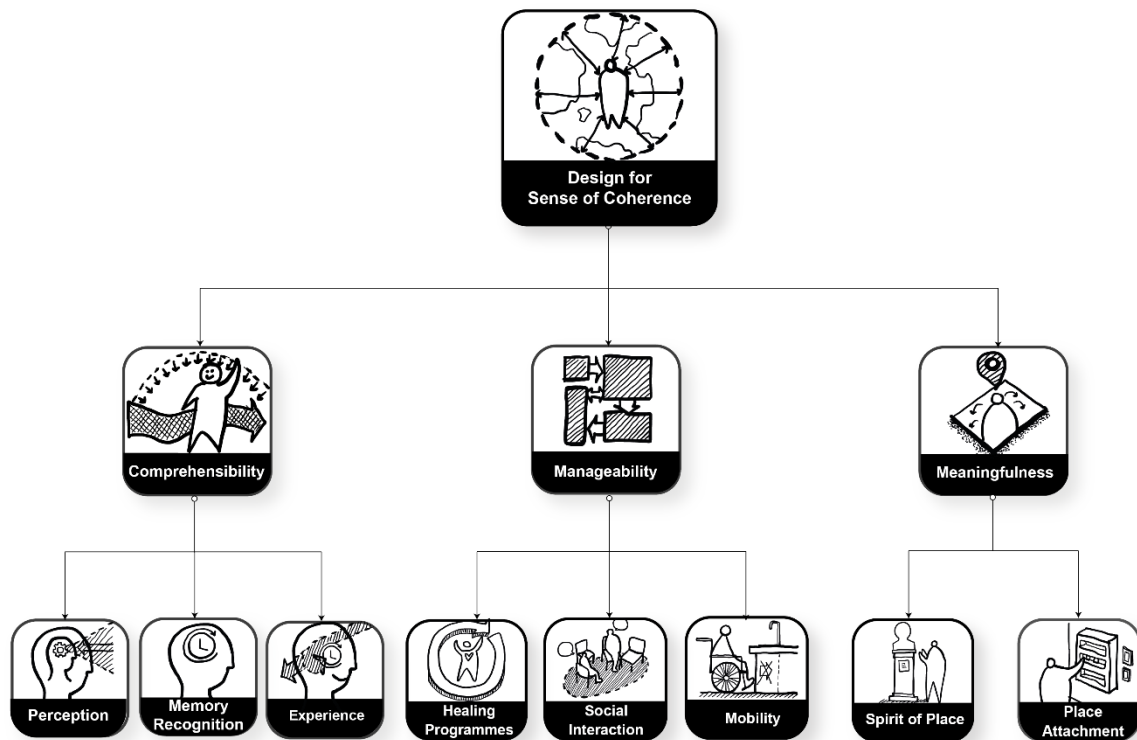
Figure 55 Domain of Design for Sense of Coherence

With sensory perception as a design framework, this domain presents three themes, as previously stated. Comprehensibility focuses on how people cognitively process environmental stimuli and leads toward certain behaviours. Manageability illustrates how certain environments can spur positive, healthy behaviours in users. Finally, meaningfulness involves the translation and creation of meanings from the environment.

5.3.1.1 Comprehensibility

According to Antonovsky (1991), comprehensibility is how an individual perceives the surrounding environment and what is happening in the world as coherent (Super *et al.,* 2016). The environments are logically perceived as making sense of ordered, consistent, and structured events (Chater and Loewenstein, 2015). In terms of design, comprehensibility is intended as a comforting strategy offering order and familiarity (Boscherini, 2017). However, perception and sensation work seamlessly together not only to allow people to experience the world through the five senses, but also to combine resources from the environment that enhance learning and help people choose appropriate behaviours. In this case, how the human brain works requires a review of the journey from human perception to human experience. This involves providing not only positive resources but also the mechanism inside these resources to operate smooth user experiences and to form positive behaviours. The comprehensibility of the environment should be involved in this entire, continuous process. As illustrated in Figure 56, three sub-themes of this concept include perception, which clarifies how people see the world and the priorities of the human perceptive process. Next, recognition memory explains the selection of environmental stimuli that memory can trigger. Finally, experiences indicate positive feelings that directly affect behaviours. When people with dementia relocate to an unfamiliar environment, some signs or memory cues that relate to their past experiences must be present to help them acclimate.
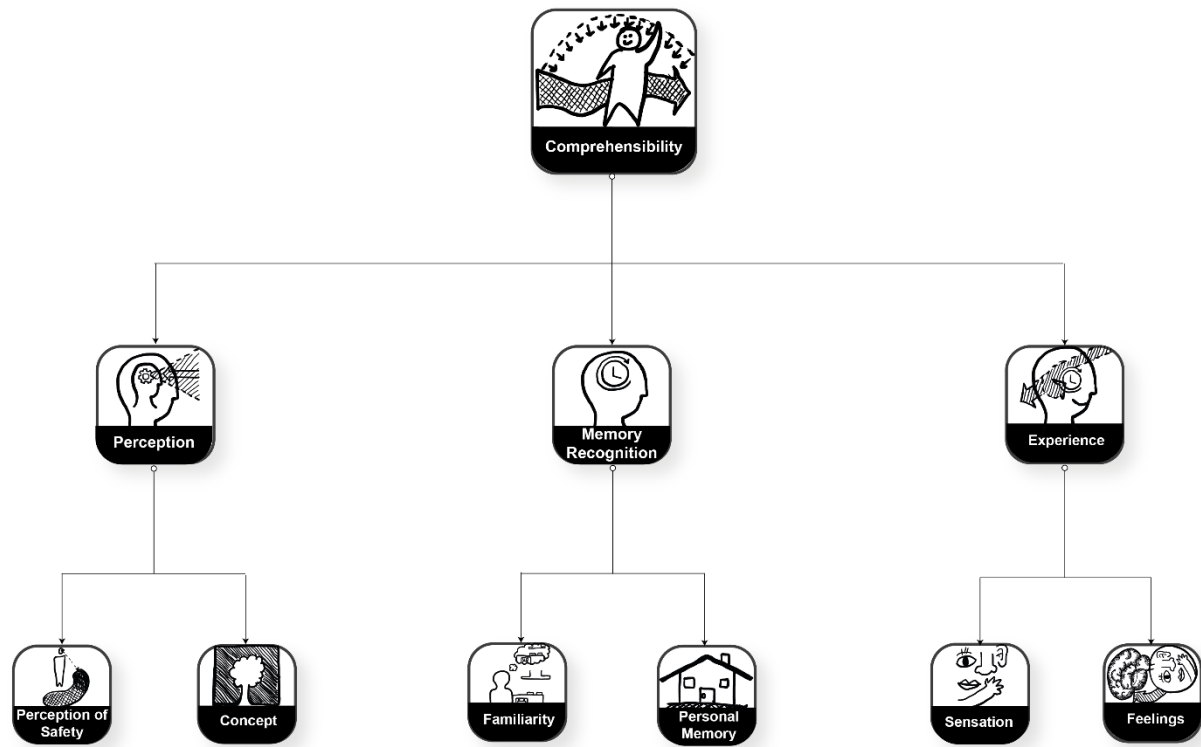
Figure 56 Theme of Comprehensibility

5.3.1.1.1 Perception

Through human senses that generate input signals from the environment, human perception deals with different ways in which graphics and images are seen and interpreted. Ou (2017) defines perception as a process of recognising (being aware of), organising (gathering and storing), and interpreting (binding to knowledge) sensory information. However, multi-sensory inputs are reduced in people with dementia's ability to interpret, such as visual concepts or other sensory cues (Dixon, Ander and Lazar, 2022). As there are many different stages involved in the seeing process, various types and combinations of mistakes could occur with people with dementia. The view of representations recognises the idea of the computational roles of items being determined using only their syntactic properties (Horst, 2003). As a result, defining cognitive processes that operate based on knowledge can result in behaviours that allow perceptual identification that categorises sensory information.

With the problems involved in mental representation, people with dementia may have visual–perceptual difficulties that cause altered spatial perception, such as seeing black colours on the floor as a big black hole or perceiving the world in only two dimensions. As a result, colour

contrast (as shown in Figure 57), lighting and tapes highlighting steps are design interventions that could attenuate the misperception of this plane. In addition, a loss of sensation causes people with dementia to be unable to interpret heat, cold, and discomfort (Fletcher *et al*., 2015). For this reason, the sense of smell was used to signal water temperature for safety concerns. Thus, what these people experience is not a problem with cognition, it is not based on incorrect reasoning or delusional thinking but is the result of damage to the visual cortex.

ห้องทานข้าว

- ควรเป็นพื้นที่อยู่ส่วนกลางบ้าน สมาชิกในครอบครัวใช้ร่วมกัน ควรมองเห็นจากห้องรับแขก
- โต๊ะอาหารควรเป็นแบบกลุ่ม 2-6 คน มีความสูงที่เหมาะสม ประมาณ 90 ซม. รถเข็นเข้าได้
- เก้าอี้มีเบาะพนักพิง และขาโต๊ะไม่เป็นอุปสรรคต่อรถเข็น
- สามารถเห็นวิวธรรมชาติภายนอกได้ และรับแสงแดด
- เฟอร์นิเจอร์เป็นไม้โทนอบอุ่น

ห้องครัว

- ควรเป็นพื้นที่ที่จำกัดการเข้าถึงและมีผู้ดูแล
- ประตูบานเลื่อนที่มีสีโทนเดียวกับผนัง และมีม่านปิด และมีตัวล็อก
- แสงสว่างควรสว่างกว่าพื้นที่อื่นๆ ความสูงของเค้าเตอร์ควรสูง 90 ซม ด้านล่างรถเข็นเข้าถึงได้
- เฟอร์นิเจอร์ไม่มีเหลี่ยมมุม และมีกันกระแทก มีการติดป้ายบอกอุปกรณ์เครื่องใช้ต่างๆมีการติดตั้งอุปกรณ์ตัดแก๊ส ตัดไฟ ตัดน้ำอัตโนมัติ
- เก็บของให้เป็นระเบียบ ของมีคม สารอันตรายควรเก็บในตู้ที่สามารถล็อกได้

ห้องนั่งเล่น

- ประตูที่ไม่ได้ใช้ควรมีสีกลมกลืนกับผนัง และมีม่านปิดพรางตา
- สีห้องโทนเย็น เช่น สีเขียว สีพื้นแตกต่างกับผนัง
- ขนาดพื้นที่รองรับ 4-6 คน
- เฟอร์นิเจอร์เห็นได้ชัดเจน แข็งแรง ความสูงที่เหมาะสม สามารถนั่งเห็นวิวภายนอกได้ชัด อยู่ในตำแหน่งรับแสงธรรมชาติ
- จัดพื้นที่ที่ส่งเสริมกิจกรรมกับคนในบ้าน เช่น งานศิลปะ การอ่านหนังสือ มีการตกแต่งประดับด้วยของใช้ผู้ป่วย เช่น รูปภาพ ของใช้เดิมที่ผู้ป่วยชอบใช้ และมีราวจับที่มั่นคง
- มี "ผนังความทรงจำ" เป็นการกระตุ้นเตือนความจำแก่ผู้สูงอายุ

Figure 57 Brochure of Design for Dementia (Tuaycharoen, 2018)

It is vital to know the 'concepts' of objects. Fodor (1998) argued that no existing theory answered the question of what a concept is. In his view, concepts are whatever the mind locks onto or resonates with when presented with prototypical instances. Moreover, Tulvig (1972) introduced the concept of semantic memory to describe a long-term memory system containing the organised knowledge a person possesses about words and verbal responses. On a related note, designers interpret architectural elements as universal languages of forms (e.g., doors, windows, rooms, buildings, and fences). As a result, architecture is a source of materialism and is attached to memory. That is, objects themselves have agency through their shape, texture, colour, and size. In addition, the concept of home can be interpreted through the material nature of objects. This statement shows that most designers try to avoid perceptions of institution-like features (e.g., prison-like aesthetics) in their work and promote different types of design (e.g., a hotel-like design). Moreover, concepts are delineated by intention to determine overall design direction (beginning with a connection to nature and

moving to a connection to buildings, home, hospitality, and nature) to set frameworks for what they expect users to perceive.

5.3.1.1.2 Recognition Memory

Recognition memory is the ability to identify as familiar a stimulus or a situation that has been encountered before and allows humans to identify people, places, words, sounds, and objects effortlessly and in a fraction of a second. However, recognition memory tasks of people with dementia involve both long-term memory (i.e., secondary memory) and working memory processes, which are mediated by front striatal systems (Chai *et al.*, 2018). Thus, detecting memory deficits may disrupt both memory systems and particularly effective for the stimulation of recognition memory.

The concept of the need to create a home-like environment for people with dementia is supported by a large amount of literature (Chaudhury *et al.*, 2018; Verbeek *et al.*, 2009). Most participants in this study agreed with the quality of the concept of a home-like environment because it allows the users to be 'familiar' with the environments of their daily activities. In addition, the concept of a home-like environment can stimulate their memories: specific arrangements or zoning can serve as reminders. However, there are differences between recollection and familiarity, which are the two main cognitive processes involved in remembering information (the dual-process framework of recognition memory). Regarding the concept of a home-like environment, room imitations in such an environment can help with recall but cannot induce feelings of complete familiarity, as Participant 13 stated:

> *When the patients see this kind of environment, they can recall their memory by recognising how to use these things. They might recognise and inform procedures of how to use, but still cannot do.* (P13)

This means the participants' own objects take less time to recognise than other objects. As people with dementia have memory problems and often must move to care facilities, their new environments should be arranged as their homes were. For instance, if a person's new kitchen looks like the one that was familiar, that person will be emboldened to use it. On the other hand, if it is too different, that person may refuse to even go into it. Thus, the design of such a kitchen must be functional, convey a clear perception, and imitate the familiar parallel 'setting'.

In sum, these results showed that participants' memories for objects were exceptionally accurate and that they did not extend the contents of their memory. On the other hand, representing their identities and homes can be done by using memory boxes or objects in museums they might remember. In this vein, recognition memory is a process by which one can construct a person's home and other surroundings to be familiar. Instead of constructing a new home, most architects supported the concept of displaying the people's personal objects in their new rooms to recognise their own belongings.

Most people usually recognise a familiar place by remembering salient regions or landmarks that are more attractive or interesting than others. In this study, however, some participants argued that living space design should be neutral, without any orientation or memory touchstones, as Participant 15 argued:

> *I think because the architecture here is modern, it is in the neutral state between Europe and Thailand. And most of our guests here, I think that they are [from] Switzerland. They do not know that they are in Thailand. So, I think that [. . .] it [should be] modern and neutral.* (P15)

Therefore, to what extent such people's recognition memory should be stimulated is debatable. Referring to Day, Carreon and Stump (2000), a neutral design and colour scheme, reduction of stimulation, and consistent daily routines have been shown to reduce behavioural challenges. However, they may lose their identity and oppose ethical issues.

5.3.1.1.3 Experiences

According to Tom Kitwood (1997), the subjective world of dementia depends on personality, defence processes, and the uniqueness of an individual's experience. In making sense of experience, the notions of memory patterns and expectation become factors. Experiences can be created in an atmosphere that includes smell, sound, and objects. Creating relaxation for people with dementia can be enhanced by multi-sensory experiences (Fulkerson, 2014). In this case, relaxation can be created by colours such as warm tones or pale pinks. The setting of a spa-like bathroom can enhance a guest's experience, as can introducing unique images, sounds (flowing water or music), or scents (aromatherapy) to soothe and relax the individual. In particular, the sense of smell has a quality to signify the transitional environment, which Participant 14 discussed in the interview as follows:

Multi-sensory environment and Snoezelen (into a fantasy world and routine as a new experience). Also, I heard that [a] multi-sensory environment could make people with dementia feel relaxed, so we have emphasised [that] the staff [should] take the guests outside as much as possible. (P14)

However, if a scent is too strong or not what someone with dementia prefers, this can match with that person's inner experiences (memory) and can either calm or cause aggression. Moreover, feeling relaxed is linked to the recognition (feeling) of comfort and safety after the recognition has caused the inner experience. The process from sensation to feeling can raise the worldview of the person, becoming a paradigm by an appropriate method to expand understanding of the knowledge of universal experiences. In this case, there must be a combination of sensations and feelings that match with the person's memory for that person to perform good behaviours, as Participant 14 suggested:

They feel more comfortable. If we use showers to pour on them, they will be frightened. To make them familiar with the texture of the cloth. If they feel familiar, they will start to do it themselves. So, if they feel safe, they will be calm. (P14)

After inner experiences, the results of perception and recognition memory can automatically progress into feelings. For example, the feelings of home and the hospital are not the same. As a result, a notion of place can be attached to feelings. Eventually, the term 'home' does not mean only the place where a person once lived. As Participant 15 mentioned:

Going back home, they are feeling anxious (not comfortable) about something. (P15)

Therefore, going back home through recognition is a psychology of place. On a different note, hospitals are embedded with meanings such as death or illness. On the other hand, hotels, resorts, or home are typologies embedded with more relaxing, positive meanings.

5.3.1.2 Manageability

For daily activities, the manageability of the environment is concerned with how users are programmed to behave and find solutions (objectives and goals) to achieve feelings of normalcy. As shown in Figure 58, one sub-theme of manageability is healing programmes, which indicate how designers plan how users will function in spaces. The second sub-theme is mobility, or how users can access the outside environment and surveillance. The third sub-

theme is social interaction, which is the context of a physical and social environment that supports relationships between people with dementia and caregivers. However, people with dementia have difficulties with decision-making and managing their daily activities and may have a low sense of coherence. According to Antonovsky (1991), manageability means how an individual engages with resources to cope with a given challenge or demand. In terms of design, manageability necessitates design that supports the resources availability and a supportive social network (Boscherini, 2017). Even though architectural design is the primary supportive tool in this case, manageability can be interpreted as a form of technology – a set of practices humans use to transform the material world, involving the creation and use of material things (Agar, 2019). Such a narrow view of utility makes it very easy to dismiss the role of function in determining architectural form. However, human behaviours and lifestyles can be mediated by architectural design. Therefore, to manage resources, not only the navigation of spaces but most resources must be available for people to use for operating in various situations.
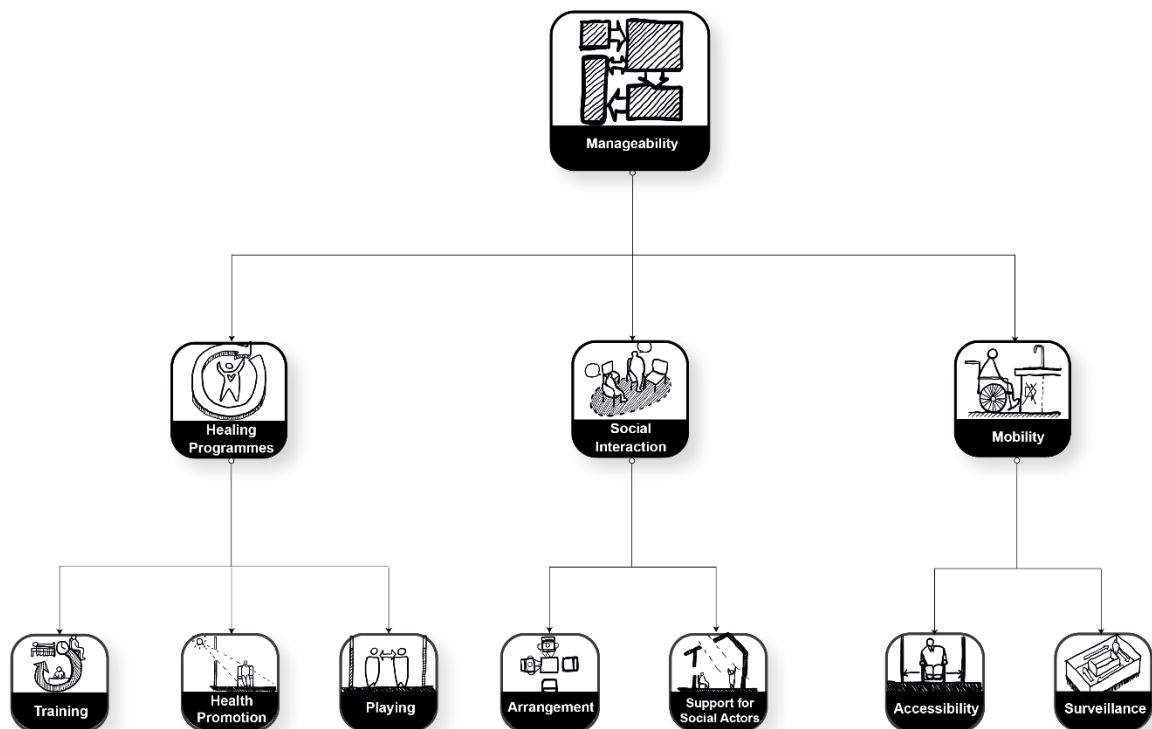
Figure 58 Theme of Manageability

5.3.1.2.1 Healing Programmes

Programming is primarily interpreted as the idea that 'form follows function', a layout, or a sequence of programmes (Hershberger, 2015). Although programming is usually neglected, the methodology behind it should demonstrate the importance of clearly defined project goals and objectives (Faatz, 2009). Like machines, in carrying out simple tasks, the human brain can be described as an information-processing device that can conceive of the user (human) carrying out the programmes. As a result, programmes such as healing procedures aim to provide an environment that can revive a person.

The terms therapy, healing, rehabilitation, and restoration aim to support people with dementia in resuming their normal activities and state of health. By creating a healing space and time (Sage, 2011), the designers establish each re-learning programme and activity for the users. As a result, programming is the primary concern in the big picture, in which activities such as leisure or cognitive endeavours stimulate their brains. These can also include activities of daily living (ADLs), routines, habits, walking, and physical exercise. Moreover, types of therapies such as recreational therapy, speech therapy, cooking groups, art and craft activities, and games are also used for restoration or re-programming users. Accordingly, learning to heal describes the creation and maturing of this medical education, focusing on both cultural and scientific roots. As a result, the term 'training' is used by occupational therapists to set up goals (therapy and training), as mentioned by Participant 2:

> *Thus, the architectural spaces are programmed for changing human behaviours. So, it is more like a place for relatives to train and practice to live with the patients in long-term settings. However, the brief is limited for only two weeks. As a result, the programmes are quite neutral . . . being here for two weeks to train their lifestyles, how to live together, and to monitor the patients' relatives.* (P2)

This indicates that care training can be used as an objective for relatives to understand and heal themselves. The approach of health promotion settings integrates action across risk factors, which involves a holistic and multi-disciplinary method (Wijesinghe *et al.,* 2022). A 'whole system' approach becomes the goal to maximise disease prevention (WHO, 2006). Technologies can be used as sensory controls to imitate nature for healing, such as natural lighting that imitates circadian lighting in indoor spaces. These also include the orientation of sunlight and wind direction and indirect light. To reach optimal health, these methods can involve basic activities, such as sleeping, eating, breathing, oral health, hormone therapy, minimising air pollution, and taking vitamin D. Within the programmed facilities, the quality of

sleeping, levels of cells, gyms, balconies and bedrooms with controlled lighting are all used to meet the objective of promoting active living. As a result, the definition of technology is too structured and programmed by architecture and design. That is, sometimes concepts become rhetorical.

Despite Thai people demonstrating the concept of fun as their sense of individualism in a society that expects a high degree of conformity, the degree of *sanuk* (a Thai word meaning fun) was lacking in the form of healing. Brown (2014) stated that the most powerful healing factor was the unfettered playful interaction between children themselves, as the children in a very real sense may have healed each other while playing. On the other hand, Participant 14, who is an occupational therapist, argued that "playing [is] a medium in healing". Healing programmes in this context mean non-structured forms of learning.

5.3.1.2.2 Social Interaction

Social interaction is essential for health prevention and health promotion for people with dementia and care stakeholders (including family members, medical staff and therapists, and community members) (Anme *et al.,* 2013). The method of communication is often adapted to avoid stress and negative feelings in a person with dementia. This is done by creating a context of the physical and social environment, including constructed and natural aspects, by using support systems of both people with dementia and caregivers.

Unlike art, design relies on the support of the social system. The organisation of communal spaces and the arrangement of furniture can enrich social interaction among users. For example, cohesive spaces used by multiple generations can be shaped by the physical exercise equipment on a children's playground. In contrast, technologies such as telemedicine can be operated physically or virtually to call members and doctors at the same time and, in the case of mental health treatment, to reduce loneliness. One of the architects in this study argued that the physical environment should be programmed to reduce the care workforce and increase the 'social workforce' instead.

In this case, motivation sessions were included in staff training. Moreover, the participants argued that the environment should motivate activity. For instance, environmental psychology suggests that brightness can make people more active. However, such situations depend on individual staff to create social interaction, as one participant emphasised having to approach staff by talking to them initially to address this issue. Consequently, people with dementia are

still able to voluntarily imitate the movement of an object as well as that of a human being. By letting people with dementia take the lead in action, these imitated behaviours stimulate their mirror neurons as well as gradually reduce hierarchy in the physical spaces.

5.3.1.2.3 Mobility

Mobility can refer to wandering, which involves 'disoriented' movement without a real purpose (Cipriani *et al.*, 2014) and different types of challenging behaviours. Conversely, a loss of mobility is common in advanced dementia and has negative consequences on fall risk, loss of independence, and lack of participation in meaningful activities (Burton *et al.*, 2015). Mobility problems from ageing can also lead to disability or mental health problems (Ferrucci *et al.*, 2016). Thus, as designs to stimulate mobility can support and control movement, state authorities have effectively monopolised control over the movement which feeds into the legitimacy of the operations.

The notion that mobility requires ambulation highlights a gap in research and clinical practice regarding the use of wheelchairs to support independent mobility and accessibility. Accessibility to bathrooms is emphasised, such as the position of beds to see bathrooms directly or handrails along corridors to reduce risks of falling. Ramps are incorporated in the design of new buildings rather than after the buildings have been completed. However, inaccessible sinks, tables, and relatively narrow walkways suggest a lack of understanding of ergonomics.

Moreover, behaviour such as wandering is triggered when people with dementia are unable to navigate or attempt to escape an unfamiliar/uncomfortable environment (Tilly, 2015). In some contexts, wandering can be interpreted akin to escaping (Halek and Bartholomeyczik, 2011). Surveillance technologies, as a technological product, is developed to retain people with dementia to be independent and safe (Vermeer, Higgs and Charleswoth, 2019; Shu and Woo, 2021). The circulation plan is designed by positioning the controllers at main entrances to monitor every room. The concept of labyrinth was reminded, which indicate a clear scale of boundaries. In addition, spatial hierarchy and sequences are used for spatial orientation when people with dementia initially approach a site designed to guide them to walk from one point to another according to their lifestyles. Mobility is generally interpreted according to physical limits, but virtual reality (VR) technologies can help people with dementia to walk on a walking track where spatial limitations apply. Additionally, QR codes can be attached to wristbands or other wearable technologies to convey the concept of 'unboundedness' in the Thai context.

The socio-political system is a thick buffer zone without a clear visual boundary (Jiraprasertkun, 2015). However, the boundary is visualised psychologically and functions as idealism and nationalism (Mander and Panagakou, 2016). Within the framework, caring in the Thai culture follows immediate needs and is not rigidly prescribed (Klinchan, 2008). Moreover, Western ethnicity-based influences on the buffer zone often demonstrate a constructed nationalism in the Thai context (Scupin, 1986). Thainess negatively impacted the defined 'Otherness' of the guests (Renard, 2006), adapting Western-based definitions of nationalism (Lecours, 2011) and post-colonialism (Olson and Worsham, 1998). Thus, within these ambiguous boundaries, problems and solutions can be negotiated and compromises found within the power relations.

5.3.1.3 Meaningfulness

According to Figure 59, the theme of meaningfulness is composed of two sub-themes and five sub-sub- themes. The first sub-theme is spirit of place, which can be enhanced by spiritual experiences or the emotional design of the physical environment to increase people's self-esteem and confidence. The second sub-theme is place attachment, which is a sense of flow that stretches one's creativity. Consequently, meaningfulness as a motivational dimension refers to how an emotional purpose, commitment, and dedication of life, are perceived as challenges rather than burdens (Antonovsky, 1991). In the context of occupational commitment, the meaningfulness positively correlates with occupational meaningfulness, where a personal meaning in life is contributed in how they occupy spaces and time (Ivtzan, Sorensen and Halonen, 2013). Therefore, meaningful activities should incorporate with personal factors.
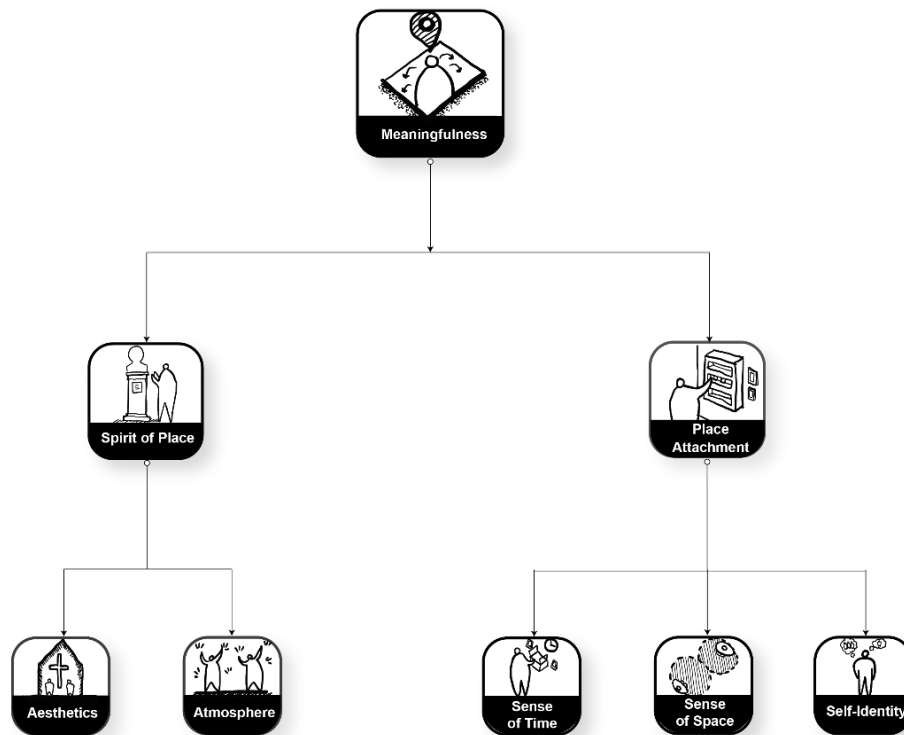
Figure 59 Theme of Meaningfulness

Spirit of place is defined by Güçhan (2008), forms an order of place and its interrelations within the urban context (Rifaioglu and Güçhan, 2008; He *et al.,* 2021). The place and its inhabitants are formed as a dialectic link in the origin of the place's existence (Merrifield, 1993). Through touches and logical experiences between buildings and places, 'spirit' is subjectively given to a place (Spence, 2020). However, motivation can be enhanced by spiritual experiences or the emotional design of the physical environment to increase people's self-esteem and confidence. In this way, design can enhance life motivation.

As shown in Figure 60, the hospice project mentioned by Participant 5 has provoked the use of therapeutic concepts as aesthetics. Like an architecture of hope, Jencks (2015) argued, architecture as a 'place' with a commitment to the other arts, including landscape, brings in constructive means that are welcoming, risk-taking, aesthetic, and life-affirming. The place enlightens self-esteem and confidence and can be improved through an ability to do activities of daily living. Moreover, therapeutic goals and interventions can remind users that there is always hope even in the worst circumstances which available resources are emphasised by human wit and human struggle. These resources are interacting with each other all the time and leading to progress when people find ways of coping. Moreover, it is not only the physical

environment that can provide meaningful occupation, but the research participants also emphasised that this process could fulfil the staff's aspirations. This can eventually lead to hope, which might also be presented in religious activities.

Figure 60 Rendered Image of Ramathibodi Elderly Hospice
(source: https://www.arsomsilp.ac.th/hospice-mu/)

Furthermore, creating a good atmosphere for learning, competitions, and cooperation can increase the motivation of learners (Abdullah, 2017). Attractive, lively, diverse, and competitive environments are important to encourage participation in social activities. For instance, Participant 13 suggested the following:

> *If they are in the same stages, the activities will be limited. Yes, it is easier to monitor. But attraction such as fun or motivation will be lost. This person can get up and stand…. People in different stages or conditions can participate in daily activities. We believe that if we bring this group of people together, it can pull out their capabilities. Or increase their liveliness or fun.* (P13)

In addition, people with dementia were divided into small groups in Case study 1 and Case study 2, which was expected to foster cooperation and healthy competitions between groups. In this case, healthy competition could have a good influence on the success of learners' learning processes. Subsequently, speaking of 'atmosphere' does not simply mean focusing on human emotions. Generally, an atmosphere is an emotional space, which indicates how one's body conceived experientially rather than physically (Griffero and Tedeschini, 2019). In addition, 'atmosphere' implies a certain quality of lived and phenomenal space (Canepa *et al.,*

2019). As a place that enlightens spirit, however, 'place' in Thai language has a static meaning that can cause the possibility of designing a photogenic type of architecture.

5.3.1.3.1 Place Attachment

Place attachment is a process that takes time to recognise the meaning of the environment (Scannell, 2014). Meaningful occupations are defined by doing things in the sense of having a choice (Moses *et al.,* 2015). Based on self-determination theory, people will feel competent and autonomous once right, purposeful, and worthwhile choices are made (Ryan and Deci, 2000). Beyond this, place attachments make people experience a sense of flow, by which participation in occupation comes from complete absorption in an activity that stretches one's creativity (La Cour, Josephsson and Luborsky, 2005). Place attachment is not passive progress and is not a one-sided activity. Therefore, place attachment has three main elements: time, space, and identity.

A sense of time is one of the factors in the occupation process. As Participant 12 mentioned, the term 'occupying' is defined as the 'process' of purposefully or meaningfully taking up space, which frequently occurs in a Snoezelen room (Figure 61). In addition, Participant 2 argued that familiarity does not mean only object attachment but also the authenticity of an action as well as the real-life objects with which people are familiar when they are at home. At that moment, space is open, allowing people to do things that are authentically familiar (to place their belongings down). Furthermore, without rush, the concept of *sabai* or feeling comfortable was emphasised to create a meaningful occupation which requires a relaxing atmosphere and materiality to trigger a past incident of familiarity.

Figure 61 Snoezelen Room, Mahidol University, Thailand (photo by author)

Regardless, a sense of space can remind someone of an example of opportunities or actions. Participant 2 stated this:

> *I do not think familiarity means that we are trying to limit one object to the things that they are familiar with. But it is the real objects that they are familiar with, and we open the spaces for them, which allow things that they are authentically familiar with . . . like their own objects to place them down.* (P2)

Thus, as people with dementia are given opportunities for choosing objects and activities, they will manage to occupy a sense of space through time.

Furthermore, self-identity is important for people to reflect their identity in their space. For example, they may display personal objects and belongings in their spaces (materiality). Moreover, daily activities, hobbies, and occupations can reflect their self-identity, reminding them of what they have done. Likewise, duty and sincerity are actions reflecting what these people value and have already done. Therefore, the conception of self-identity was different from the existing definition of cultural prominence, showing various physical environment that people could experience (Thungsakul and Nilsakul, 2018) reflecting the past of the 'place' or a memorable metaphor and contributing to the society.

5.3.2   Design for Collectivist Culture

Collectivism is defined as putting great emphasis on social norms and duty to serve the views, needs and goals of the in-group and of the individual self (Bhawuk, 2017). As a culture, an in-group is a social category or group which marks its identity communicatively by the distinctive language and speech styles it creates and uses, the dress code it adopts, and the festivals and pageants that highlight its unique traditions and rituals (Giles and Giles, no date). In contrast, Triandis (1995) defined individualism as a social pattern of an independent of collectives. Moreover, individualism normally prioritise personal goals over the goals of others. The relationship between individualism and societal well-being has valued more highly in cultures that are more individualistic (Okely, Weiss and Gale, 2018). However, individualism's association with societal well-being can be generalised to more collectivist-themed kinds of well-being (Krys *et al.*, 2019). As shown in Figure 62, the domain consists of two main themes – planning and design values – and consists of five sub-themes – communities, the medical model of disability, universal values, conceptualisation, and mindset.
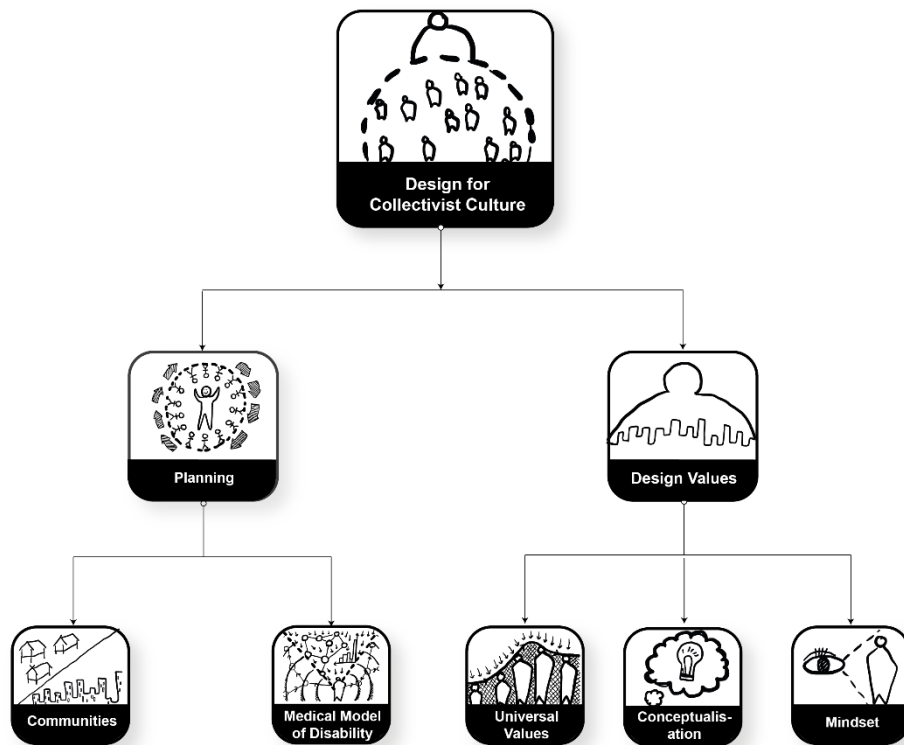
Figure 62 Domain of Design for Collectivist Culture

5.3.2.1 Planning

Planning is required before the design process. Evidence has shown that a well-planned enabling environment can substantially impact the maintenance of people with dementia's independence and their quality of life (Barnes and the Design in Caring Environments Study Group, 2002). The trajectory of the cultural concept and a clear understanding of the history influences planners (Booth, 2011) to understand and analyse its common usage and be more conscious of how they use it themselves. However, the critical problem is the tendency to see culture as a thing, or a set of attributes, something concrete that can be measured, compared, and manipulated. This derives from a strong European tradition of externalising culture as an object and treating 'it' as an objective fact (Abram, 2016). According to Pym (2004), localisation is a concept that claims different paths before localising into various local complexes and creating new cultural wholes. Therefore, the planning system in the context of Thailand means the translation of foreign planning intertwined with the political culture of representation to maintain power.

5.3.2.1.1 Communities

Communities are social units where commonality is formed. Similarly, the concept of dementia-friendly communities means communities that are working towards supporting both caregivers and people with dementia (Lin, 2017). However, according to the translation, the understanding of a Thai community (or *chumchon)* is derived from the concept of village (or *muban*) (Jiraprasertkun, 2015). However, due to political issues, segregation between rural communities and urban cities (or *muang*) has become a barrier for communities to work as a whole. Thus, a process of community fragmentation has recently led to a transnformation process of Bangkok's local municipalities (Preyawanit, 2002).

Community (or *chumchon*) is a concept of community distinct from *muban* (village) that has similar physical components and social structures, but it is politically different (Phongsiri, Nakham and Meekaew, 2020). As an ideal form of social system, participants agreed that *chumchon* should include an infrastructure system that involves public transportation systems, public toilets, and parking, as well as a public park. The terms 'system', 'communities', and 'environment' were used interchangeably, which included not only physical spaces but also people in the system. As a result, universal design and diversity require the inclusivity of different user groups that affect diverse members of society. This is because some of them have some underlying diseases.

> *. . . like wellness communities to improve their lifestyles. We have a community space, which is a space where they come to eat or get together. Like dining spaces or doing activities together. So, these link to the whole system outside. It is a big picture of the environment. (P3)*

Thus, a community, as a closed system, is a new formation, which requires connection with an outer system. In addition, the goal is to connect with the overall environments (natural and man-made). However, to achieve this ideal goal, a powerful symbolism of a contemporary Thai society illustrates rural-urban divisions that portray a rhetoric of an ongoing political crisis (Vorng, 2011). Paradoxically, conventional understandings of the rural–urban divide in Thailand reflects and contributes the processes of self-imaging and national identification of rural-urban flows of Thai social mobilities (Mills, 2012). Most development (and pace of development) is centralised in Bangkok. Both occupational therapists and architects have depicted the differences in the context of development that influence characteristics and feelings of staff members. Housing typology in rural and urban areas use different vernaculars

due to cultural contexts. As a result, these cannot be accessed by all populations because assessment tools are present in Bangkok but not in rural communities.

As most recent regulations on healthcare building design have adhered to the regulations of the Ministry of Public Health, standard architectural plans for public hospitals have been publicly distributed. Unlike other countries, the recent guidelines have not been frequently revised. Furthermore, as the problem of dementia has not been recognised at the regional level, the state is not responsible for the design guidelines. Indeed, the Thai state focuses on nationhood and national security (the central government in Bangkok has managed to have more control over both the territory and the population). Therefore, there is no specific design for the end users. As a result, there has been a tendency toward sterilised communities, as Participant 2 stated:

> *So, when the patients come out to the society that is friendly for them that have other people involved. Yes, they are obviously getting involved. Because we cannot do sterilised communities. So, if there are some supportive education or knowledge for normal people to understand. I think it will help a lot.* (P2)

Due to the fragmentation of communities, designers have argued that, as the outside communities are not yet ready, going back into the communities would mean conducting further assessments of their capabilities or adaptive design strategies for people within rural communities (as shown in Figure 63).
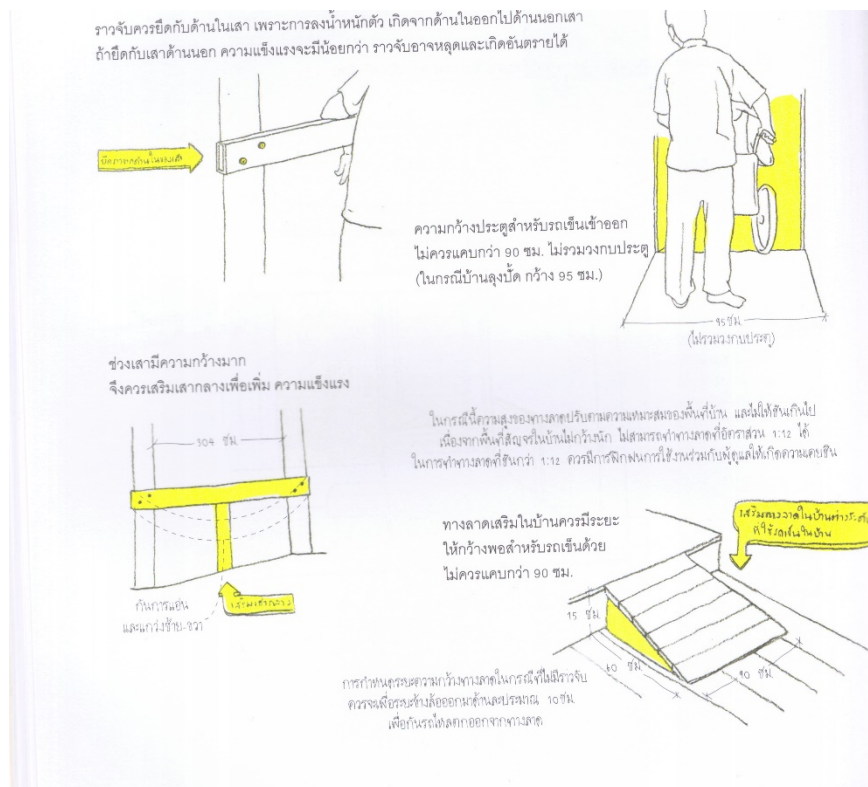
Figure 63 Design guidelines for people with disability
Source: Yamtree, 2016

5.3.2.1.2 Medical Model of Disability

In sociological parlance, a model is a complex, integrated system of meaning used to interpret and understand a part of reality. A medical model is one of the most deeply rooted systems in rationalistic and scientifically oriented Western society, which regards dementia as a disease. However, using this model as a discursive instrument of state hegemony, the ideas, structures, policies, and institutions of Western medicine have shaped new concepts of population and a healthy workforce (Puaksom, 2007). As a result, Thai society is in the middle of a transitional period of changing its perspective towards disabilities but has not yet eliminated its negative stereotypes. Therefore, the medical model is embedded in the design methodology.

The findings suggested that most architects argue there should be a model for establishing designs for dementia care in healthcare projects. An evidence-based design is recommended as a potential data analysis methodology and influence the design process (Alfonsi, Capolongo and Buffoli, 2014). Moreover, examples, case studies or best practices are required to give positive results. Additionally, these designs should be flexible and adaptive enough to apply in every ward of such care facilities. In this vein, models are developed to

emulate the medical tourism market to increasingly favour destinations (Finch, 2014) and various healthcare segments and disciplines such as real estate, wellness tourism or hospitality. In addition, design concerns expenses and budgets as well as locations. The project management and cost management of all building projects have become increasingly important as clients in the public and private sectors demand the highest quality cost-planning services with accurate budgeting and cost control. Furthermore, the planning of feasibility studies and population trends of ageing societies are required to meet the demands by using observation and surveys to prepare. Thus, population trends can clarify the needs of the population. In contrast, a model can cause the limitation of material resources within a certain context. One architect said that it would be better to design by observing and using local material resources:

> *It is located on a steep slope, almost 45 degrees. But the building is drawn as a square box. So, there is a soil adjustment process. In addition, it is a concrete building which they have to carry these materials uphill. But the material resources in the area are various. I think it is a good way of designing by observing and designing by using existing material resources.*

According to the context of Thailand, the model approach has been linked to the medical profession which has been linked to a substantial increase in status mobility (Maxwell, 1975). Historically, the western medicine occurred in the civilisation from the ancient world (Silvano, 2021), and since 1889 influenced public health services for the intellectually disabled in Thailand (Pejarasangharn and Churesigew, 2002), which relates to the different interpretations between doctors and therapists (Pejarasangharn and Churesigew, 2002). Doctors are the leading group who give their opinions on this type of design, and architects usually use doctors' guidelines due to the knowledge resources' limitations. However, the interpretation of disability in Thailand is mainly defined disabled people as "Kon Pi-garn", a category decided by medical professionals and medical model of disability (Hunter, 2015). As the context has the equitable distribution of doctors between rural and urban areas, the significant impact on access to care for people in rural communities has fewer potentials for accessibility. Eventually, it raises the social mobility of medical professionals (Brewster, Lambert and Shelton, 2022).

5.3.2.2 Design Values

Contemporary debates about design and the roles of designers' touch upon issues of materiality and social practice between human and non-human actors (Knobel and Bowker, 2011). For instance, Reckwitz (2002) underlined the active, constitutive parts that things can play in configuring everyday practices and thus in shaping cultural values of use and exchange. It is, however, evident that theoretical debate about the status of objects has immediate consequences for what designers do and for an understanding of the types of values that designers add and reflect what is considered necessary, ethical, and appropriate to the designer. As a result, the cultural relativism perspective has dominated the social sciences, insisting that culture determines values. Thus, there has been no logical basis for claiming that one set of values is better than any other if those customs have persisted within a given social group over time. According to Figure 64, the domain consists of three main themes – universal values, conceptualisation, and mindset – and four sub-themes – Western influence, safety culture, intercultural mindset, and environmental mindset.
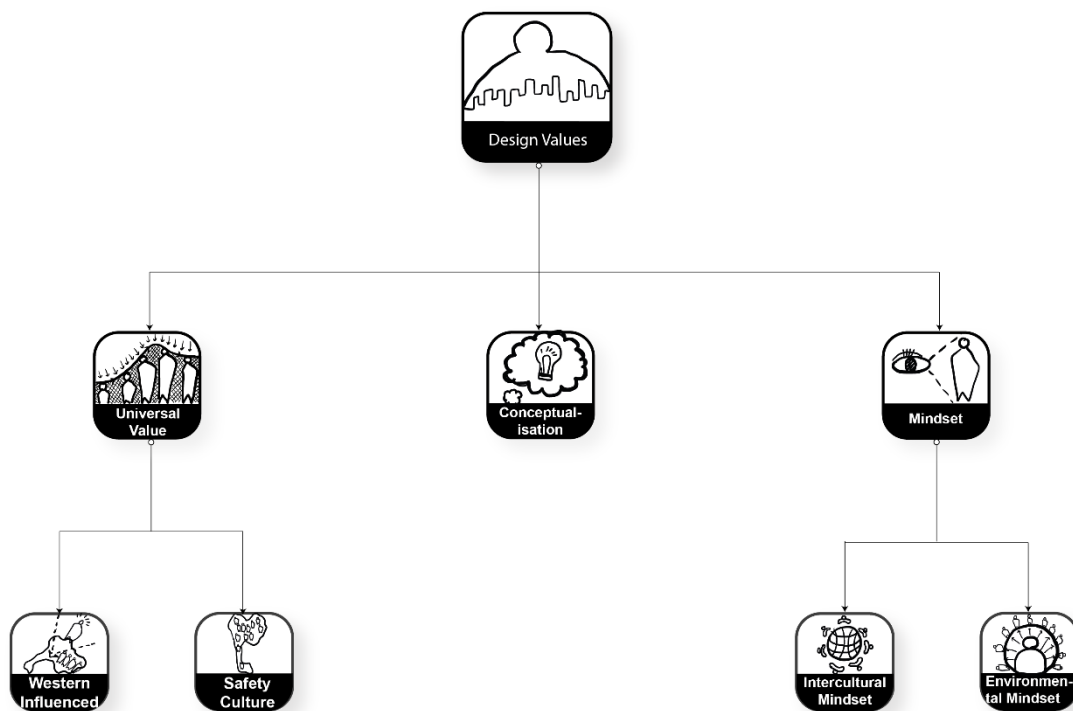
Figure 64 Theme of Design Values

5.3.2.2.1 Universal Values

Universal values as vitally important principles connect an individual with society, creating unity between human beings and the world. These have developed along with the progress

of human civilisations. Universal values are not attached to valuable things themselves, but the goals, results, and effects pursued have been identified by some people as 'the goal pursued by everybody' (Lijadi, 2019). However, universality turns attention to the problem of the translatability of culture. Consequently, values are not constant residuals within intercultural spaces because they are part of a cross-cultural interpretation.

The terms 'quality of life', 'dignity', and 'basic human needs' have been mentioned when users have independence. However, there is no quality of life as a universal value if it is not fulfilled by an individual's partial values. Thai people are pleased with their lives in general and tend to be more satisfied with a personal domain of life rather than environmental domains of life (Leelakulthanit and Day, 1992). Moreover, the term 'sentimental value' emerges when people still have loved ones to consult or visit, meaning when they are respectful of others. Similarly, universal principles need not mandate nor even suggest that everyone has the same experience of beauty. On the contrary, the shift in cultural values indicates that the factors underlying aesthetics predict considerable individual diversity, showing that universals of aesthetics are not homogenous. However, this depends upon the perception of the designer as Participant 7 stated:

> *I think it is too extreme. I think if they are sick, these options can give them more life – if you care for patients. In the UK, they might care about the safety of the surrounding society or their responsibility if someone is lost. If they are sick, we must give them lives even though it can cause any risks.* (P7)

This means that, in the context of Thailand, safety culture is very new, and many organisations have failed to create an influential safety culture. Values guide people on what is acceptable and desirable and what is not. In addition, values are more stable and can be expected to have a more sustainable impact on safety than safety as a priority. Hence, universal values have not yet become embedded in individuals.

5.3.2.2.2 Conceptualisation

The social behaviour of building users is influenced and determined by the physical environment based on architectural social theory (Pfeiffer, 1980). The concept is resulted from an architect's direct social behaviour is shown through their work, which are based on the belief system and its context (Lipman, 1969). At all stages of the design process, assumptions about human behaviours are produced.

Based on such knowledge and beliefs, the designers in this study had different approaches and methodologies for dealing with users, such as occupational therapists' client-centred care approach or architects' co-design approach. Importantly, perceptions and knowledge about dementia and end users are diverse. The term 'older people' means a fragile group of people or patients who represent a diverse perception of the end users. Furthermore, some participants do not think that they can go back into their communities.

Moreover, the Western concepts have shaped people's worldviews, design aesthetics, as well as the architectural profession of space, place, and landscape (Fisher, 2015). An empty space or room (or *teewang* in Thai) is translated as space (Jiraprasertkun, 2015). Linguistically, the abstract or in-depth meanings subsisting in the original terms between English and Thai could not be captured (Narata and Rakpa, 2020). Therefore, the conceptualisation of 'space' and 'place' in Thai context, can be understood in a deeper level (Jiraprasertkun and Makhzoumi, 2015). The concept of space means a symbolic representation that suggests that the materiality of the human world can be imagined in more than one way, whereas the spiritual dimension is the reality of the *Triphumi* spaces (Blaschke *et al.*, 2018). By building and planning for those who are most able-bodied, the discourse between planning for those in need has begun to intensify and are an ensemble of subspaces or fields. Thus, the discourse of Thainess or *kwampenthai* in the built form can be seen as the monarchical grounding which links the space–time continuum of history and the built form (Kongpolphrom, 2018). Hence, the term *sapapwaedlom* (literally translated as 'environment') critically and commonly reflects the perception of Thai people to holistically perceive places rather than empahsising specific features (Jiraprasertkun and Makhzoumi, 2015).

5.3.2.2.3 Mindset

Individuals' implicit theories have explained the ability to self-regulate and to make progress toward goals. A fixed mindset refers to a belief that intelligence and abilities are relatively innate, changing very little over time (Larsson, 2018). Moreover, Guenther (2008) explored the use of whole systems' health principles to reveal opportunities for design teams to link social, technical, and physical systems to a supportive, built environment. Consequently, sustainable design requires a mindset or mental model that facilitates looking at systems in a more comprehensive way.

The perceptions of older people indicate an opposite to the universal intercultural mindset, which is the realisation of cultural conformity by minimising the importance of cultural

differences (Lockenhoff *et al.*, 2009). This includes people's own cultural worldviews and the idea that they are all equal in value. In many Asian cultures, value might be measured by the standard of family or by income. Eventually, the next generation seems to perceive older people as people with no efficiency/capabilities, and this thinking is embedded into the subconscious. In this case, the relationships between beliefs about creativity and creative performance may be specific to divergent thinking tasks. As a result, this may affect levels of expertise and encourage a mindset of fearlessness or confidence, as mentioned by Participant 9:

> *I think it depends on each person. I mean different OTs have different thinking. It depends on their approach and their expertness. It is like doctors who want to use rehabilitation instead of surgery, but another doctor wants to do surgery. So, it depends on their styles. OTs can be a routine job, or you can be creative with innovative solutions. Even working in the same workplace, we are still different.* (P9)

Participant 12, who is an occupational therapist, argued for the importance of education, which includes the promotion of an environmental mindset that involves social interaction, psychosocial environment, and virtual reality. Unlike people with a fixed mindset, people with a growth mindset would be less inclined to ascribe behaviours to personality. Thus, changing personality type depends on the adaptability of their mindset.

5.3.3   Design for Neuroscience

Design for neuroscience concerns human brains' structure and function (Messe et al., 2014), whether in healthy development or when afflicted by injury or disease (Peters, 2006). In this case, the cerebral cortex contains the physical structures responsible for most of what is called 'brainwork': cognition, mental imagery, the highly sophisticated processing of visual information, and the ability to produce and understand language. Recently, knowing the working patterns of the brain and how space affects cerebral functions has helped architects design buildings that improve user behaviours, performance, and well-being. One of the greatest contributions from neuroscience to other fields of knowledge has been the understanding that humans are hardwired to present much more impulsive, instinctive, and emotive behaviours and perceptions than rational and conscious ones (de Paiva, 2018). As a result, architects always consider the messages their buildings send to users. Therefore, design for neuroscience should consider a state in which every individual can realise their abilities and optimise their cognitive, emotional, psychological, and behavioural functioning to

enhance their lives, including happiness and environment as media. Referring to Figure 65, design for neuroscience consists of two main themes and two sub-themes, which will be explained below.
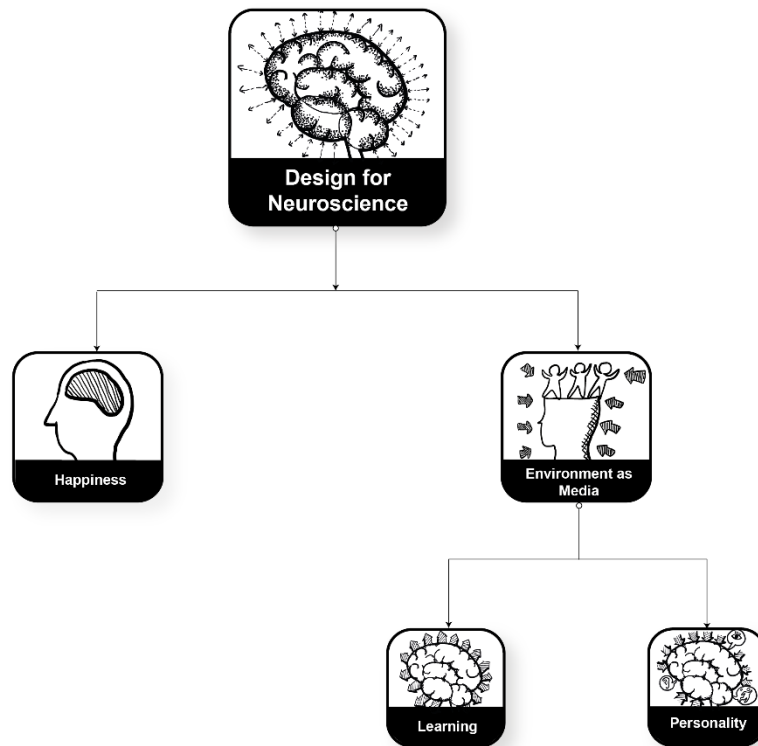
Figure 65 Domain of Design for Neuroscience

5.3.3.1 Happiness

Happiness has been defined as a physical state which uses the terms 'well-being' and 'welfare' to describe the condition of a rational being in a world of one whose existence leans on wish and will (Hill, 2009). However, it has become apparent that a small portion of literature on the emotional experience of individuals with dementia is concerned with positive emotional experience. Even though communication is diminished, people with advanced dementia can still enjoy life. Importantly, they live in the moment while their happiness must be maintained to live lives of pleasure and joy both before and after dementia diagnosis (Banovic, Zunic and Sinanovic, 2018). Happiness is also critical as an assessment for the risks of dementia. If people are at risk, their lifestyles must be changed. Care settings should measure this using an index of happiness and help people enhance their mental well-being.

By supporting daily activities, mental health issues can be managed, and happiness maintained. Even though having low self-esteem is not a mental health problem, self-esteem and mental health problems are interrelated. As a result, low self-esteem might lead to mental health problems because a person must wait for others to receive help, which can cause stress. In addition, the inability to accomplish daily activities can decrease and lower their self-esteem, especially in a transitional environment. To combat this, Participant 12 suggested the benefits of daily activities:

> *Happiness hormones . . . can [be] explain [ed as] DOSE. D is Dopamine, O is Oxytocin, S is Serotonin, E is Endorphin.* (P12)

Thus, these hormones work as neurotransmitters and can be discovered in daily activities to promote positive feelings from sensory environments, especially in the transitional environment.

5.3.3.2 Environment as Media

As shown in Figure 66, the theme environment as media consists of two sub-themes and two sub-sub-themes. The word 'environment' is formulated from the French word *environ*, which means 'surroundings'. Surroundings include biotic factors such as human beings, whereas an environment consists of an inseparable whole system constituted by physical, chemical, biological, social, and cultural elements, which are individually and collectively interlinked. Regarding the built environment, its shape and form can convey the concepts and beliefs of users' everyday lives. As a result, this study's findings indicated that environments as media can still enhance learning based on people's personality traits. Therefore, the environmental design should match learning styles with personalities.
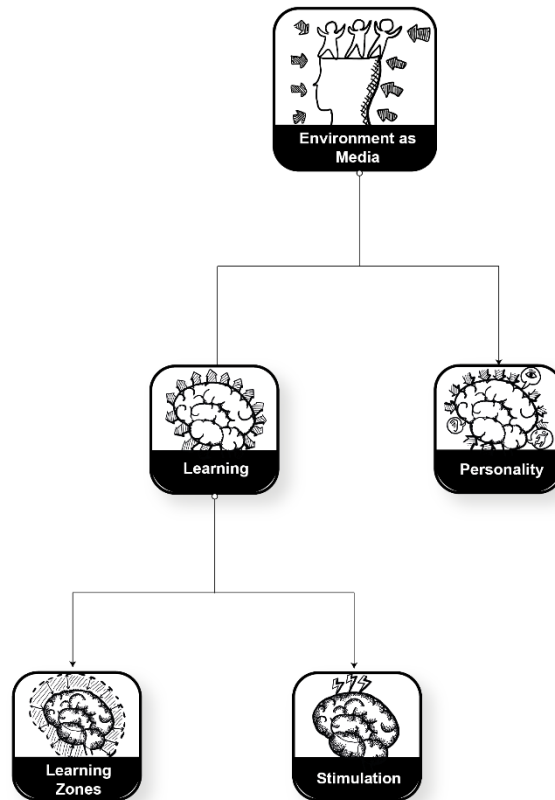
Figure 66 Theme of Environment as Media

5.3.3.2.1 Learning

According to Mashour *et al.* (2020), to learn is to form an internal model of the external world. Learning is grasping a fragment of reality, catching it, and bringing it inside the brain. A mental map is acquired through learning, which encodes knowledge of objects and interactions with them. Consequently, sensory areas ceaselessly compute probabilities, and only the most likely model in each scenario makes it into the consciousness.

One of the occupational therapists in this study argued that the term 'ageing' should emphasise brain ageing. The human brain reaches maturity at 25 years old, which means health promotion should be concerned with the period after this (25–40 years old). Learning zones, or the zone of proximal development (Resnick, 1989), broaden brain capacity, whereas people with fixed mindsets have less potential to transform and are at risk of compassion burnout. That is, they may become unable to develop self-awareness or compassion. This can occur because it has been observed that different people learn the same things in different ways, through unique ways of increasing their knowledge. One plausible reason for this learning capability is differences between people in existing personal knowledge held in the

area in which the knowledge increase happens. Fundamentally, human adaptation and brain development can be adapted when a change such as relocation happens. However, the occupational therapists argued that the monitoring of health conditions of each patient is required, with brain checking as the priority. Brain adaptability implies that self-adaptability is high in a specific environment. Thus, the ability to survive environmental changes is directly due to brain size and function and ability to process and act upon the new information.

Concepts such as productive ageing, successful ageing, positive psychology, active ageing, and brain ageing emphasise the positive attitude of ageing (Pachana, 2016) and how individuals can significantly contribute to their lives and society as a whole (Peters, 2006). Diverse human lifespan examination explores how the design of products, buildings, landscapes, cities, media or systems affects diverse members of society. This is because some of them have underlying diseases (e.g., colour blindness or autism). Nevertheless, the participants understood that dementia is not an ageing disease with other underlying conditions, such as when stroke patients have issues with swallowing due to ageing muscles. As the brain deteriorates (Handerton, 2002), however, dementia can develop from a stroke in some patients because the brain is declining and is not stimulated, as Participant 13 mentioned:

> *If they do not do, they are kind of like shrinking, shrinking, and shrinking their working conditions. We must stimulate them to do. If they are lazy, we still have to stimulate them.* (P13)

ADLs are used to collectively define fundamental skills that are required to independently care for oneself, such as eating, bathing, and mobility. As indicators of a person's functional human status (Edemekong *et al.*, 2020), ADLs can be supported by setting a timetable or maintaining daily activities. If not, people may lose their abilities to do these activities. Furthermore, people with dementia are still able to voluntarily imitate the movement of either an object or a human being by using mirror neurons, which is imitation or empathy. Therefore, this is knowledge – not memory.

5.3.3.2.2 Personality

The concept of personality is an integrating power coordinating all psychological processes, and it is obvious that one cannot talk about the personality of a new-born. Arguably, the personality of a human being is 'produced', created by social relationships into which the

individual enters during their life (Matthews, Deary and Whiteman, 2009). Hence, personality is understood as a culturally and socially determined special organisation that coordinates the entire activity of an individual with their surrounding world.

Prior research has indicated that certain personality influences performance in complex problem-solving tasks (Kipman, 2022). For these, personality constructs can also serve to maintain performance as people move from familiar, well-defined tasks to unfamiliar, ill-defined tasks (Mumford, 2009). This statement was supported by the occupational therapists, who affirmed that the environments should be tailored to people's brains, as Participant 12 stated:

> *I think that [it] needs to promote their learning zones. I am working on cooking and kitchen therapy. But it is a virtual reality. Augmented and VAK exercise and measured with electroencephalographic (EEG). What we have found in patients with dementia are fear, eating phobia and anxiety . . . how can we control lighting and air when they breathe. Control many things because we are interested in SunDowning, as it is a biological clock. (P12)*

The Visual–Auditory–Kinesthetic (VAK) learning styles model presents an elementary way to explain the learning styles of different people. These three senses are stimulated all the time and matched with personality. As personality is the concept that explains the development of the brain into personality traits due to environmental and biological factors, pre-personality (before developing dementia) was studied to investigate what people have learned that has triggered their memories. As a result, activities for these people depend on their interests and preference, their daily activities, their hobbies, previous routines, or what occupations they had done before the onset of dementia. These things were important because knowledge and memory are stored in these places and might have shaped their brain structure. This can be observed in an autopilot or flight simulation, signifying that the brain can learn whatever becomes ingrained in the memory. The neurons that control such memories have communicated so often that they have formed a tight bond.

The following is a summary table of perception of designers. The perception of interviewed architects, interior designers, and occupational therapists are comparable and synthesised.

The Perceptions of Design Stakeholders

The following table is a summary table of the perception of design stakeholders. The perception of design stakeholders, including architects, interior designers, and occupational therapists, are comparable and synthesised. The themes of the design concept were extracted from each group of stakeholders. Key similarities and differences are discussed.

Table 3 The Perceptions of Design Stakeholders

Perceptions of Design Stakeholders	Explanation (from their perceptions)
Perception of Architects	**1. Physical needs of user groups** Different user groups of hospital departments in an early design phase are discussed because of varying curing approaches. The prominent roles of architects are to communicate with various user groups. In this case, infection control becomes the most critical factor when planning hospitals, especially the flow of public/private circulation, which has to be separated between dirty and clean. Moreover, handrails and ramps are installed along the way to bathrooms inside wards, which allow them to be more independent and have a lower risk of falls. **2. Atmosphere of psychosocial and healing environment** The atmosphere of the psychosocial and healing environment are essential concepts for architects. The conceptual design of healthcare settings has to be familiar, have a home-like environment, and feel like home. In addition, the physical environment should be experienced differently from standard hospitals; for example, wayfinding strategies are available, decorated with colorful interiors or designed for human scale.

	3. Budget
	Budget is an essential factor for architects to decide on their designs. Architects frequently design based on the calculated cost and feasibility study. However, the budget also depends on locations and contexts because the cost of materials in each context differs.
	4. Existing regulations, education, and culture
	As the deterioration of brains may be delayed by the concept of design more than staying at home alone, the design regulation can increase people with dementia's quality of life by increasing human interaction. Design regulation may improve dementia education to talk and interact with each other. In this case, the objectives of educating the group of people might be the priority for the government to inform the public for help and support the user groups.
Perception of Interior Designers	**1. Methodology and Safety (in furniture scale)**
	Interior designers regularly think about choosing furniture and selecting colours or various finishes where dementia wards require design features that are not the same as other wards. Moreover, there are some concerns about whether selected furniture can be used or not. The roles of interior designers have to consider the weight of furniture (whether they are too heavy or light in case of fall risks or escaping). Consequently, medical professionals such as doctors were the first-hand resources for interior designers to discuss design details and negotiate them in the design process.

	2. Personal factors
	Interior designers consider clients' factors. The design should be flexible and adaptive by following doctors' guidelines. The design should be multiplied in every ward because the users can initially start the design of the concept of home and personalised design.
	3. Public factors and activities
	Colours are concerned by interior designers to use in the design of healthcare settings currently, for example, the general guidelines are natural wood colours, warm white, warm grey and other light colours. In contrast, in inpatient wards, some colours were chosen for furniture upholstery and had to be decided before the construction based on the existing research. The roles of interior designers are to discuss with doctors and ask for advice from doctors—for example, the chosen colours which can make them feel relaxed. Because of limited literature, interior designers chose the colour (pale pink) based on doctors' advice.
	4. Government and budget
	The roles of interior designers are also based on government regulations and budgets, which promoting health issues in urban and rural Thailand is equally essential. So, the perception of interior designers on design is based on knowledge and education that support locals to recognise and acknowledge more about the design impact on healthcare settings.

Perception of Occupational Therapists	1. Physical Function of Patients
	In terms of occupational therapy disciplines, organised activities depend upon the objectives. For people with dementia, it depends on their interests and preferences and how individuals' personalities can be reflected. Occupational therapists observe and train functions with repeated actions towards the goals, depending on the people with dementia's function. However, different occupational therapists have different ways of thinking, depending on their approach and expertise. In contrast, occupational therapists can be a routine or a creative/innovative solution. **2. Types of Therapy (physical)** Various types of therapy, e.g., speech therapy, may be provided for people with dementia in healthcare settings. For the severe stage, people with dementia who are bedridden require emphasising caregivers. For people with dementia who are in late stage or bedridden, most of them are dying from complicated diseases. Group activities and therapeutic sessions can be arranged and adjusted by occupational therapists and other stakeholders such as psychiatrists, art therapists, and psychotherapists. In this case, rooms are separated based on their functions and types of activities inside the rooms. These activities also support sensory stimulation. People with dementia may not be stimulated during the day. The main goal is to encourage them to do activities. The interior decoration can stimulate

	their mental status, whereas the physical environment design can make them feel warm and secure to meet basic human needs. The main question is how these needs and interests to their capabilities can be adapted. **3. Psychological Needs** The prominent role of occupational therapy is to arrange the physical environment in ways similar to where they used to be. Because people with dementia have memory problems or familiarity by, setting the environment to be similar to their homes as much as possible, but if they stay at home, the aspects of safety should be emphasised. The occupational therapists are also responsible for ADLs, training them to swallow and use the equipment. The main intention is also to improve their self-esteem because they often become stressed if they can return to normal and become independent. **4. Social Factors** People with dementia might need support from caregivers, both safety and security, because their physical mobility may require specific needs or equipment, and their moods often fluctuate.
Similarities	**1.Physical aspects** The main similarities are the design for accessibility and toilets. The physical aspects depend on culture, as Thai people do not want to wake up their relatives (who are in the room), and it can reduce fall risks. Safety comes as the

	priority, as circulation and handrails for all stakeholders. Also, inside the patient wards, there are handrails along the way to the bathrooms.
	2. Atmosphere (psychosocial support) The atmosphere of the care facilities is the main similarity inside since the first concept because most designers want the hospitals to be familiar or home-like and should be homier than a standard hospital. For example, none of the walls should be white. **3. Budget and government support** The budget also includes care expenses, lifestyles, construction costs, and living costs in particular locations.
Contradictions	**1.Design methodology (workflow)** Architects are the ones who design the main structure of architecture. The roles of architects are to inform the concept, such as the main concepts of a place for healing and maintaining health. On the other hand, interior designers' main objectives of the hospital require the design to recover in terms of palliative care. However, they would like places to support health for older people, like their homes, to make them feel relaxed and relieved. The roles of interior designers are to follow those concepts. However, OTs work on the adaptation of the built environment.

	2. Tasks and goals (in OTs)
	The main objective of occupational therapists is to evaluate and assess clients for tasks and goals. In OTs disciplines, functions are observed and trained with repeated activities towards the goals. However, architects and interior designers often focus on metaphors or concepts.
	3. Personal factors (between OTs and designers)
	The design should be flexible and adaptive, as the doctors say that the design has to be used in every ward because the concept of home may be initially started. However, the perception of design for occupational therapists often adapts the built environment to match clients' factors.

Summary Table of Perception of Designers

Table 4 Summary Table of Perception of Designers

Summary Table of Perception of Designers				
Domains	**Architects**	**Interior Designers**	**Occupational Therapists**	**Synthesis**
1.Design for Sense of Coherence (SOC)	Architects significantly highlighted about the importance of design for sense of coherence (SOC) in physical environment to enhance and support the mobility of people with dementia and their independence.	Interior designers highlighted the smaller scale of layouts or how to encourage people with dementia to be more independent by focusing on the design of human scales.	The occupational therapists highlighted psychosocial aspects, such as their lifestyles or current capabilities (from the human scale).	A sense of coherence (SOC) between all stakeholders are positive experiences for end users to regain their sense of control in their environments and pertain to the idea that the whole positive experience must be controlled. The main similarities of design for a sense of coherence (SOC) between all stakeholders are positive experiences. However, architects and interior designers are quite

				similar, whereas occupational therapists focus on how a sense of coherence and their current lifestyles are operated.
1.1 Comprehensibility	Comprehensibility in the perception of architects means how an individual perceives the surrounding environment and how can the built environment enable users' lives to be more coherent with the environment.	Comprehensibility in the perception of interior designers means how the design of the built environment is focused on the scale of interior design (e.g., furniture and room arrangement), which can support their capabilities, especially ADLs.	Comprehensibility in the perception of occupational therapists often means how the design of the built environment can be adaptable according to the client's needs.	Comprehensibility for all design stakeholders is how an individual perceives and aims to design the surrounding environment into the flow state and the users' environment to be coherent based on their capabilities and needs. However, the main contradictions between the perception of design professionals are how they tackle the design issues based on scales and how they view the perception of

				a home-like environment, for example, architects perceive it as physical aspects, interior designers perceived design as the atmosphere, and occupational therapists perceive design as how users can occupy in spaces efficiently. Hence, professional disciplines lead to the understanding of the comprehensibility of spaces.
1.1.1 Perception	Most architects perceive safety in terms of people with dementia, who may have visual–perceptual difficulties that cause altered spatial perception, such as seeing dark colours on the floor as a	In terms of layout and space planning in a dementia unit, interior designers designed the position of beds, which can directly see bathrooms. The main objective is how to put	Occupational therapists know functions for patients' safety. The function is observed, which muscles they are less active in, or which gestures lead to functions. The main tasks are	The main similarities are all stakeholders perceive design as the highest priority for safety. Architects and designers consider perceptions as the functionality of the provided programmes.

	large black hole or perceiving the world in only two dimensions.	furniture in for people with dementia to be able to sit still, and the nurses can still see and monitor them. In addition, the homey atmosphere is perceived by stakeholders as the colours that interior designers use currently. The general guidelines are natural wood colour, warm white, warm grey and other light colours. But some colours for furniture upholstery were selected in inpatient wards.	emphasised oral care or swallowing because most people with dementia are connected to tubes. So, occupational therapists have to train. In hospitals, doctors primarily assess occupational therapists and have to determine what to train. The perception of occupational therapists also relates to a medium to heal. For occupational therapists, activities are used as the primary medium to heal. For some people, one person might have the same symptoms, but different healing approaches. It depends upon how occupational	The main contradictions of safety are that occupational therapists use activities as the primary medium to heal users.

			therapists choose procedures to heal patients or to persuade them as much as possible.	
1.1.2 Memory recognition	In terms of memory recognition and familiarity, most architects in this study agreed with the concept of a home-like environment because it allows the users to be 'familiar' with the environments of their daily activities.	Interior designers focus on objects for keeping as an alternative when they come to heal or live. They can bring their personal objects. Their personal belongings can be unpacked and put in rooms.	OTs mentioned the use of photographs and objects for memory recognition.	The main similarities are familiar objects and belongings are mentioned by all professionals, which can bring back their memories. The main contradictions are each person's memories and preferences, which enhance memory recognition by occupational therapists.
1.1.3 Experience	Creating sensation and relaxation for people with dementia can be enhanced by multi-sensory experiences. A	Interior designers focus on feeling design like hotels, resorts, or homes. Warm tones or pale pinks can create sensation (colours)	Occupational therapists mainly focus on multi-sensory experiences. The setting of a spa-like bathroom can enhance a	All design stakeholders suggested that there is a similar expression of feeling at home, such as a warm colour tone. A

	study states that a healing environment can help with feelings. For example, the sound of flowing water from the natural environment can help them to relax. Natural sunlight also helps support. The repetitive atmosphere makes them 'hide' from their daily lives. In addition, place attachment is a significant theme for architects because people with dementia do not want to relocate to other places. If people with dementia accept or agree to relocate to new places, they must feel comfortable and happy to resemble the old places.	and relaxation. It does help in terms of making them feel comfortable and better participating in curing procedures. Occupational therapists mainly focus on multi-sensory experiences. The setting of a spa-like bathroom can enhance a guest's experience, as can introducing unique images, sounds (flowing water or music), or scents (aromatherapy) to soothe and relax the individual. A warm colour tone at home can help for a homey feeling. OTs feel like home means colours, which can create relaxation. It is homey even though they are in nursing homes. Thai	guest's experience, as can introducing unique images, sounds (flowing water or music), or scents (aromatherapy) to soothe and relax the individual. A warm colour tone at home can help for a homey feeling. OTs feel like home means colours, which can create relaxation. It is homey even though they are in nursing homes. Thai people believe that in the morning, people should walk in the grass with bare feet in gardens.	homey feeling can be expressed and experienced when they are at nursing homes. On the other hand, the sensation is different in terms of scale. Architects mostly use natural environments to provide relaxation; for interior designers, colours or textures make users feel relaxed. For OTs, the whole environment is enhanced as a multi-sensory environment.

		people believe that in the morning, people should walk in the grass with bare feet in gardens.		
1.2 Manageability	Architects focus on the arrangement of programmes. The manageability of the environment for architects' perception concerns how users are programmed to behave and find solutions to achieve daily activities.	Interior designers focus on furniture arrangement and functional spaces. Within the spaces, the manageability of the environment is concerned with how users are programmed to behave and find solutions to particular activities.	OTs focus on the adaptation of the built environment for mobility. The manageability of the environment is concerned with how users are programmed to behave and find mobility solutions.	The main similarities are that all professionals think about architectural programmes of the care facilities to heal or enhance the users to take control. The main contradiction is how these professionals see things differently, e.g., OTs perceive manageability as how users perceive and use spaces rather than how others design for them.
1.2.1 Healing programmes	Healing programmes mean health promotion (Nature). Different leaves	Interior designers tend to look and review for details such as the 'original of life',	Healing programmes for occupational therapists can include activities of	The main similarities are architectural programmes and sequences mentioned

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	or textures of the natural environment might help heal children with Autism. For architects, the outdoor spaces or landscapes in some parts of patient wards, some windows can see through these outdoor spaces or see rooftop gardens which can connect patients to the natural environment from research to an environment such as a healing garden. Sometimes, a virtual world for leisure purposes is used.	which focuses on nature. They tend to observe the environment and acknowledge how they can live. Healing programmes occur inside the building, interior designers support common areas in outdoor spaces, and gardens are nearby for patients with dementia.	daily living (ADLs), routines, habits, walking, and physical exercise.	by all professionals. Daily activities and natural environments are the means of these healing programmes for the end users. The main contradictions are that the concept of healing between architects, interior designers, and OTs differs. For OTs, healing is more about routines, habits, and training to become standard, not only about physical green spaces or natural environments.
1.2.2 Social interaction	Architects in the research study argued that the physical environment should be programmed to	In the context of interior designers, design serves as the perception of functions. Behaviours	By letting people with dementia take the lead in action, occupational therapists imitated	The main similarities are the intention to enhance the users' participation in group activities. The main

	reduce the care workforce and increase the 'social workforce' instead.	have characteristics of a cluster, which can form in group activities. Moreover, interior designers argued that the physical environment should motivate activities. Motivation sessions were included in staff training.	behaviours to stimulate their mirror neurons and gradually reduce social hierarchy in the physical spaces.	contradictions are the approach. OTs concern social interaction as im3itating the mirror effect of caregivers and people with dementia, not only about physical aspects.
1.2.3 Mobility	Architects prioritised accessibility to bathrooms is emphasised, such as the position of beds to see bathrooms directly or handrails along corridors to reduce risks of falling.	Interior designers start the design process with the inclusivity of healthcare facilities, which should provide accessible toilets and ramps.	OTs suggested the built environment to be adaptable, e.g., inaccessible sinks, tables, and relatively narrow walkways, which indicate a need for more understanding of ergonomics.	The main similarities are the intention to encourage accessibility to spaces of care facilities. The main contradictions are the OTs and designers' approaches, including the designers' purpose-built approaches but OTs' approach to design as a modification.

1.3 Meaningfulness	Architects associated meaningfulness with the spirit of place and occupation (e.g., Natural environment).	Interior designers associate meaningfulness with how clients bring personal belonging and build spaces.	For OTs, meaningfulness is associated with actions and occupations.	Meaningfulness for all stakeholders is defined as how people's occupations have contributed to designing the physical environment and personal meaning of life. The main contradictions are that the meaningfulness of designers is more likely in physical aspects, whereas the OTs perceive it as the action of reciprocity.
1.3.1 Spirit of place	The hospice project mentioned by architects has provoked the use of therapeutic concepts as aesthetics. Like an architecture of hope, Jencks (2015) argued, architecture as a 'place' with a commitment to the	The ward is initially started from the concept of home. The design should be flexible and adaptive, as the doctors say that the design has to be used in every ward. So, the initial idea is for them to bring	Therapeutic goals and interventions can remind users that there is always hope, even in the worst circumstances, where available resources are emphasised by human wit and struggle. It is not only the physical environment	The main similarities are using hope or spirituality in the design of care facilities. The main contradictions are how these professionals differ regarding physical aesthetics (for architects

	other arts, including landscape, brings in constructive means that are welcoming, risk-taking, aesthetic, and life-affirming.	their furniture or can adjust by themselves.	that can provide meaningful occupation, but the research participants also emphasised that this process could fulfil the staff's aspirations. The design perception can eventually lead to hope, which might also be presented in religious activities.	and designers) and OTs as programmes or actions.
1.3.2 Place Attachment	Architects argued that familiarity does not mean only object attachment but also the authenticity of action and the real-life objects with which people are familiar when at home. At that moment, space is open, allowing people to	For interior designers, self-identity is essential for people to reflect their identity in their space. For example, they may display personal objects and belongings in their spaces (materiality).	As occupational therapists mentioned, 'occupying' is defined as the 'process' of purposefully or meaningfully taking up space, frequently occurring in a Snoezelen room.	The main similarities are that familiarity does not mean only object attachment but also the authenticity of action and real-life objects. The main contradictions are the perception of spaces. The term 'occupying' is defined as the 'process' of

	do authentically everyday objects.			purposefully or meaningfully taking up space.
2. Design for Collectivist culture	For architects, collectivism is associated with how it can connect to local communities. The design perception also supports how the user groups can be socially included in the communities.	Interior designers suggested that collectivist culture means education and training in the communities. Besides the physical factors, cultural and educational factors are essential.	Occupational therapists stated that collectivist culture means the gap between urban and rural areas. Hence, occupational therapists work as facilitators to bridge the gap.	The main contradictions are that collectivism is a great emphasis on social norms and duty to serve the views, needs and goals of the in-group in place of the individual self. The main contradictions are that design professionals come from different disciplines in values.
2.1 Planning	Architects think about the planning of communities and the plan for the medical model of disability.	For interior designers, planning relates to the regulation and the education about dementia care in the context.	Occupational therapists required planning, communities, and a medical model of disability in regulation and education.	The main similarity is planning, which is required before the design process. Evidence has shown that a well-planned enabling environment can

				substantially impact the quality of life of people with dementia and their ability to maintain their independence for longer. The main contradictions are that the model of belief systems, such as design, often follows the medical model of disability, and OTs follow the social model of disability approach.
2.1.1 Communities	Architects want people with dementia to have a normal lifestyle, and architects may design an environment where users can reminiscence their memories. If they live in the community, local	As a closed system, a community is a new formation that requires a connection with an external system. In addition, the goal is to connect with the overall	As the problem of dementia has not been recognised at the regional level, the government is not accountable for the design guidelines.	The main similarities are that the understanding is based on perception and education. The terms 'system', 'communities', and 'environment' were used interchangeably by architects, including

	communities have to understand the nature of people with dementia because it is not everybody that can understand people with dementia.	environments (natural and artificial).		physical spaces and people in the system. The main contradictions are that the occupational therapists' approach often means the refurbishment of the existing communities. In contrast, by the definition of designers, the communities focus on purpose-built communities.
2.1.2 Medical model of disability	For architects, Thai society is in the middle of a transitional period of changing its perspective towards disabilities but has not yet eliminated its negative stereotypes. Therefore, the medical	Interior designers are concerned with designing with expenses, budgets, and locations. All building projects' project management and cost management have become increasingly important as clients in the	Because of different views and approaches, some architects disagreed with the modelling concept because they thought the design would need to be more personalised for the users.	The main similarities are in the context of Thailand. The approach of the medical model of disability is one of the most professionals value. The main contradictions are because of different views and approaches. Some

	model is embedded in the design methodology.	public and private sectors demand the highest quality cost-planning services with accurate budgeting and cost control. Furthermore, the planning of feasibility studies and population trends of ageing societies are required to meet the demands by using observation and surveys to prepare.		architects disagreed with the modelling concept because they thought the design would need to be more personalised for the users.
2.2 Design values	Architects offer design values recommended for universal design values and mindset of architects. Design values offer an understanding of the types of values that designers add and reflect what is considered necessary,	Interior designers recommended design perception as universal design values and mindset. However, medical principles and architects' design values often outline design values.	Occupational therapists recommended universal design values and mindset. The design values of each occupational therapist are based on their work experiences, mindset, creativity, and belief.	The main similarities are, however, evident that theoretical debate about the status of objects has immediate consequences for what designers do and for an understanding of the types of values that designers add and reflect what is considered

	ethical, and appropriate to designers.			necessary, ethical, and appropriate to the designer. The main contradictions are that each discipline has its different values.
2.2.1 Universal values	The terms 'quality of life', 'dignity', and 'basic human needs' have been mentioned when users have independence.	Bathrooms are an example which can be shown quite clearly; for example, people with dementia cannot remember where their bathrooms are. They will feel better because it is the fundamental dignity which everyone should have. Interior designers aim to enhance their self-esteem because they cannot go to the toilet on time. So, they are fundamental that they should not.	Safety culture is new, and many organisations must create an influential culture. Values guide people on what is acceptable and desirable and what is not.	The main similarities are that all professionals think of a wholeness approach. The main contradictions are that each discipline has its different values.

2.2.2 Conceptualisation	Based on such knowledge and beliefs, the architects in this study had different approaches and methodologies for dealing with users, such as occupational therapists' client-centred care approach or architects' co-design approach. Importantly, perceptions and knowledge about dementia and end users are diverse.	Interior designers think about conceptualisation. Based on knowledge and beliefs, the designers in this study had different approaches and methodologies for dealing with users, such as occupational therapists' client-centred care approach or architects' co-design approach. Importantly, perceptions and knowledge about dementia and end users are diverse.	Occupational therapists think about the conceptualisation of client-centred care. Based on such knowledge and beliefs, the designers in this study had different approaches and methodologies for dealing with users, such as occupational therapists' client-centred care approach or architects' co-design approach. Importantly, perceptions and knowledge about dementia and end users are diverse.	The main similarities are based on such knowledge and beliefs. The designers in this study had different approaches and methodologies for dealing with users. The main contradictions are that each discipline has a different theory and approach to concepts (theories).
2.2.3 Mindset	Mindset includes people's cultural worldviews and the idea that they are all equal in value. In many Asian cultures, the value	Interior designers perceive the design of dementia based on education and a sterilised/autonomous environment.	Occupational therapists argued for the importance of education, including promoting an environmental mindset	The main similarities are the importance of education, which includes promoting an environmental mindset

	might be measured by the standard of family or by income.		that involves social interaction, psychosocial environment, and virtual reality.	involving social interaction, psychosocial environment, and virtual reality. The main contradictions are the education and expertise of everyone (background).
3. Design for Neuroscience	Architects recommended the design for neuroscience, which concerns the structure, function and sensory environment of the built environment that can affect the human brain.	Interior designers think about cognitive abilities that concern the function and sensory design of how users perceive the products.	Occupational therapists think about neuroplasticity. Design for neuroscience concerns the structure and function of the human brain, whether in healthy development or when afflicted by injury or disease (Peters, 2006).	The main similarities are that the design for neuroscience concerns the structure and function of the human brain, whether in healthy development or when afflicted by injury or disease. The main contradictions are that occupational therapists view it as a lifetime environmental issue which affects cognitive abilities.

3.1 Happiness	By supporting daily activities, mental health issues can be managed, and happiness maintained. Even though having low self-esteem is not a mental health problem, self-esteem and mental health issues are interrelated.	The inability to accomplish daily activities can decrease their self-esteem, especially in a transitional environment.	Occupational therapists think about happiness in terms of hormones. Happiness hormones can [be] explained [ed as] DOSE, including Dopamine, Oxytocin, Serotonin and Endorphin. Thus, these hormones work as neurotransmitters and can be discovered in daily activities to promote positive feelings from sensory environments, especially in transitional environments.	The main similarities are that mental health issues can be managed by supporting daily activities and maintaining happiness. The main contradictions are that the inability to accomplish daily activities can decrease and lower their self-esteem, especially in a transitional environment.
3.2 Environment as Media	Architects suggested that environments as media could enhance and project the use of dementia care facilities. Therefore, the environmental design	Interior designers suggested that environments as media enhance and stimulate their sensory and behaviours.	Occupational therapists suggest findings indicate that environments such as media can still enhance learning based on people's personality traits. Therefore, the	The main similarities are environments, as media can still enhance learning based on people's personality traits. The main contradictions are that occupational

	should match learning styles with personalities.		environmental design should match learning styles with personalities.	therapists view design as a lifetime environmental issue which affects cognitive abilities. Therefore, the environmental design should match learning styles with personalities.
3.2.1 Learning	The architects understood that dementia is not an ageing disease with other underlying conditions, such as stroke patients who have issues with swallowing due to ageing muscles.	People with dementia are still able to voluntarily imitate the movement of either an object or a human being by using mirror neurons, which is imitation or empathy.	The occupational therapists in this study argued that the term 'ageing' should emphasise brain ageing. The human brain reaches maturity at 25, so health promotion should be concerned with the period after this (25–40 years old). Learning zones, or the zone of proximal development (Resnick, 1989), broaden brain capacity, whereas	The main similarities are all professionals perceive positively about the (growing) learning environment for people with dementia. The main contradictions are perceived in different points of view that occupational therapists are more concerned with the learning environment (from a young age).

			people with fixed mindsets have less potential to transform and are at risk of compassion burnout.	
3.2.2 Personality	Architects suggested that activities for these people depend on their interests and preference, their daily activities, their hobbies, previous routines, or what occupations they had done before the onset of dementia.	Based on interior designers' perceptions, sometimes factors are too personal, and their preferences are not the same. So, the checklists should not be an assumption or judgement by the managers. It should not be focused on only designers and architects to know what kind of capabilities people with dementia have.	Prior research has indicated that certain personality constructs influence performance in complex problem-solving tasks. For occupational therapists (OTs), personality can also maintain performance as people move from familiar environment.	The main similarities are that activities for these people depend on their interests and preference. The main contradictions are that personality constructs can also maintain performance as people with dementia move from familiar environments. Hence, it should not be focused on only designers and architects to know what kind of capabilities people with dementia have.

5.4 Conclusion

In summary, regarding an enabling environment (based on the capabilities approach and the salutogenic approach) for dementia care, the designers who participated in this study agreed to establish factors in three major domains. The main research findings were these domains: design for sense of coherence, design as collectivist culture, and design for neurosciences. Together they have seven sub-themes and 15 sub-sub-themes ranging from perception to personality. These findings illustrated that the designers perceived the design of the physical environment for dementia care as a homogenous whole or total design but, at the same time, integrating the heterogeneous parts. As a culture, an in-group is a social category which marks their identities communicatively. Therefore, the gestalt psychology principles of perceptual organisation reveal how designers form perceptions, and how, as a result, designers make meaning – based on existing knowledge and ways of making meaning from experience. The next chapter will explore stakeholders' perceptions of care regarding the design of the physical environment for dementia care.

6   PERCEPTION OF CARE STAKEHOLDERS

6.1   Introduction

This chapter explores stakeholders' perceptions of care regarding the design of the physical environment for dementia care (as illustrated in Figure 67). The care environment was the designed transnational dementia care facilities. There is evidence to suggest that design can enhance the quality of care, especially salutogenic design, which is a design process that combines three domains (including, manageability, comprehensibility, and meaningfulness) by addressing through the past experiences (Antonovsky, 1987). Transnational dementia care bolsters the recognition of temporality in transnational care, which differentiates it from routine forms of caregiving. The design may provide mental maps of individual and collective cultures, which can profoundly influence the re-envisioning of post-colonial histories and link the distribution of power to emotional evocations and experience. Consequently, stakeholders' perceptions of care are based on how the quality of care is enhanced by design in Thailand. The chapter presents the results of semi-structured interviews with 36 care stakeholders. Content analysis was used to analyse the semi-structured interviews.
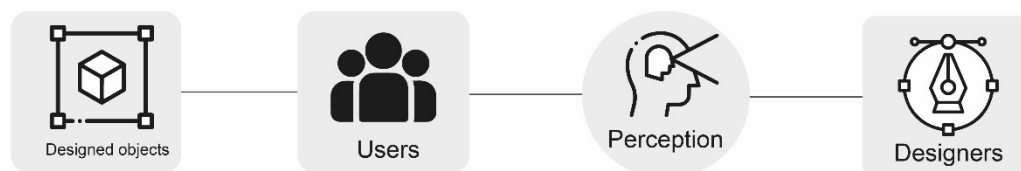
Figure 67 Perceptions of Care stakeholders

6.2   Methods

Semi-structured interviews were conducted with three groups of research participants including seven care managers, 14 care professionals, and 15 caregivers. All participants work in the four selected case studies in Thailand (as shown in Table 3). Each interviewee was recruited following recommendations by gatekeepers at each case study. The interview questions were developed from data in the existing literature to explore how designers perceive dementia care facilities' design. As shown in Figure 68, the analysis of interviews followed a thematic analysis method based on the SCEAM tool. The interview transcripts were coded by convergent thinking method. The codings were themed in NViVo11.
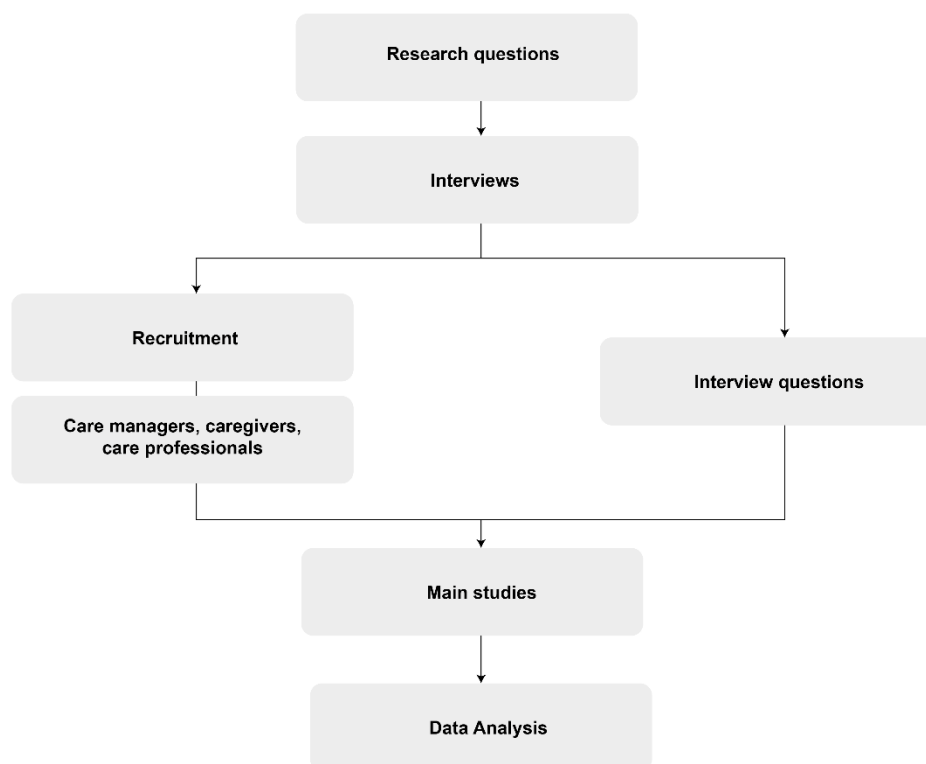
Figure 68 Research Methodology Flowchart

Table 5 Research Participants

Participant Group 1 – Care Managers (including care managers and deputy care managers)

Participant No.	Occupation	Gender	Nationality	Age	Case Study	Interview
1	Care Manager (Discipline: Business)	Male	Swiss	36-55	Case Study 1	Face-to-face Interview
2	Deputy Care Manager (Discipline: Hospitality)	Female	Thai	36-55	Case Study 1	Face-to-face Interview
3	Care Manager (Discipline: Hospitality)	Male	British	56+	Case Study 2	Face-to-face Interview
4	Deputy Care Manager (Discipline: Nursing)	Female	Thai	18-35	Case Study 2	Face-to-face Interview
5	Deputy Care Manager (Discipline: Nursing)	Female	Thai	36-55	Case Study 3	Face-to-face Interview
6	Care Manager (Discipline: Nursing)	Female	Thai	56+	Case Study 4	Telephone Interview

| 7 | Deputy Care Manager (Discipline: Nursing) | Female | Thai | 56+ | Case Study 4 | Face-to-face Interview |

Participant Group 2 – Care Professionals (including nurses, physical therapists, and occupational therapists)

Participant No.	Occupation	Gender	Nationality	Age	Case Study	Interview
8	Nurse	Female	Bangladeshi	36-55	Case Study 1	Face-to-face Interview
9	Nurse	Female	Thai	18-35	Case Study 1	Face-to-face Interview
10	Occupational therapist	Female	Thai	18-35	Case Study 1	Face-to-face Interview
11	Occupational therapist	Female	Thai	18-35	Case Study 1	Face-to-face Interview
12	Nurse	Female	Thai	18-35	Case Study 2	Face-to-face Interview
13	Nurse	Female	Filipino	18-35	Case Study 2	Face-to-face Interview
14	Physical therapist	Female	Thai	18-35	Case Study 2	Face-to-face Interview
15	Nurse	Female	Thai	18-35	Case Study 3	Face-to-face Interview
16	Physical therapist	Female	Thai	36-55	Case Study 3	Face-to-face Interview
17	Nurse	Female	Thai	18-35	Case Study 4	Face-to-face Interview
18	Physical therapist	Female	Thai	18-35	Case Study 4	Face-to-face Interview
19	Physical therapist	Male	Thai	18-35	Case Study 4	Face-to-face Interview

Participant Group 3 – Caregivers

Participant No.	Occupation	Gender	Nationality	Age	Case Study	Interview
20	Caregiver	Female	Thai	36-55	Case Study 1	Face-to-face Interview
21	Caregiver	Female	Thai	18-35	Case Study 1	Face-to-face Interview
22	Caregiver	Male	Thai	18-35	Case Study 1	Face-to-face Interview
23	Caregiver	Female	Thai	36-55	Case Study 1	Face-to-face Interview
24	Caregiver	Female	Thai	18-35	Case Study 2	Face-to-face Interview
25	Caregiver	Female	Thai	18-35	Case Study 2	Face-to-face Interview
26	Caregiver	Female	Thai	18-35	Case Study 2	Face-to-face Interview
27	Caregiver	Female	Thai	18-35	Case Study 2	Face-to-face Interview

28	Caregiver	Male	Thai	18-35	Case Study 3	Face-to-face Interview
29	Caregiver	Male	Thai	18-35	Case Study 3	Face-to-face Interview
30	Caregiver	Female	Thai	18-35	Case Study 3	Face-to-face Interview
31	Caregiver	Female	Thai	18-35	Case Study 4	Telephone Interview

6.3   Emerging Domains and Themes

The interview findings can be grouped into three main domains: comprehensibility of architectural languages, manageability of hospitality, and perceptions of place. As illustrated in Figure 69, the first domain, **comprehensibility of architectural languages**, is defined as how a work environment of care stakeholders is structured, consistent and clear to enable supportive lifestyles of people with dementia (Sturge et al., 2020). This domain consists of three main themes, which are comfort (with four sub-themes: safety, personal spaces, memory stimulation, and natural environment); functionality (with three sub-themes: social interaction, activities, and mobility); and aesthetics (with two sub-themes: pleasure, and well-being).

The second domain, **manageability of hospitality**, describes how employees perceive those adequate resources as being available to cope with the hospitality demands of their workplaces. This domain consists of two main themes, including resilience, with two sub-themes: flexibility and perception. The second theme is caring, which includes two sub-themes: the ritual of care, cultural hybridity, and emotion.

The third domain is **perception of place**, which describes how a destination image has framed a work situation and is seen as worthy of commitment and involvement. This domain consists of three main themes: expectation (with two sub-themes: lifestyles and privilege), destination satisfaction, and identity.

As illustrated in Figure 69, the interview findings indicate that an individual's SOC plays a supporting role in improving physical and mental health, increasing care stakeholders' ability to provide an enabling environment, promoting health, and minimising health risks (Kumar and Preetha, 2012). A greater resilience to stressors is associated with a higher sense of coherence, which more positive health behaviours, and overall health across the lifespan are accomplished (Mittelmark, 2022).   Essentially, the optimal end of the health continuum requires a strong SOC by using a global orientation to view the world (Lindstrom and Eriksson, 2006). Consequently, good health status can be facilitated by Thailand's context by acquiring

generalised resistance resources (GRRs), therefore strengthening users' SOC. Vogt, Jenny and Bauer (2013) stated that interactions between individual characteristics (an employee's personality and experiences) and the work environment's characteristics, influenced by perceptions of comprehensibility, manageability, and meaningfulness (Jenny *et al.,* 2022; Cecon *et. al,* 2022). However, sense of coherence can be interpreted as a cross-cultural concept, which culture is the main factor that defines appropriated resources (Braun-Lewensohn and Sagy, 2011). Instead, personal identity expression (Roskams and Barry, 2019) was still neglected for the meaning of place. Through design, employees' sense of purpose is reinforced by ensuring mundane work activities are congruent and personally meaningful (Dik *et al*., 2014). Thus, ritual performance is demonstrated by design perception to integrate with the external world with an authentic experience and to facilitate the link between memory, habitus, and embodied practice (Zhu, 2012).

The following sections will discuss the three domains which include three overarching themes: comprehensibility of architectural languages, manageability of hospitality, and perceptions of place. The following sections will analyse these domains, themes and sub-themes that comprise the essential elements of the design perception.
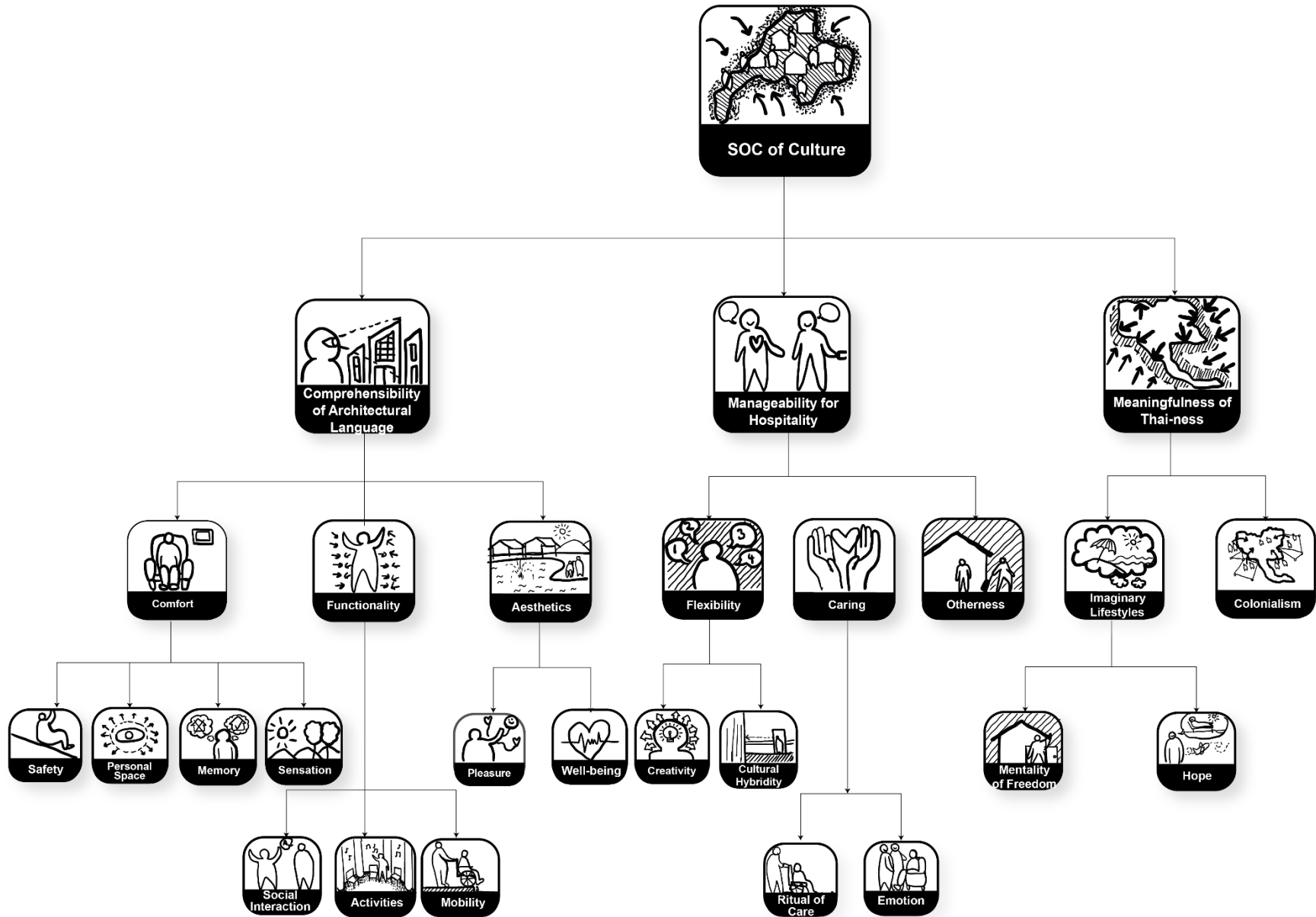
Figure 69 SOC of Culture

6.3.1 Comprehensibility of Architectural Languages

Comprehensibility describes a work environment as structured, consistent, and clear concept of the cognitive component (Vogt, Jenny and Bauer, 2013). The structure of cognitive dimension can be conveniently for users to understand the context and responsibility (Caputo, Carrubbo and Sarno, 2018). Although languages of different cultures differ in structure, vocabulary, and grammar, the language of architecture has common systematic features with natural language and its distinctions related to the material being handled by the architect (Remizova, 2015). Thus, architectural language is an artistic sign system linked to the asymptotic relation between the three Vitruvian prerequisites of design (firmness, utility, and delight) (Vitruvius, no date). The language questions the possibility of an architectural theory that can evaluate how existing design and architectural works can be described and designed (Panin, 2007).

As illustrated in Figure 70, the first sub-theme is comfort, which means that users feel secure in care facilities. The theme includes four sub-themes – safety, personal spaces, memory stimulation, and natural environment. The second theme is functionality, which comprises three sub-themes – social interaction, activities, and mobility. The third theme is aesthetics, which includes two sub-themes – pleasure, and well-being.
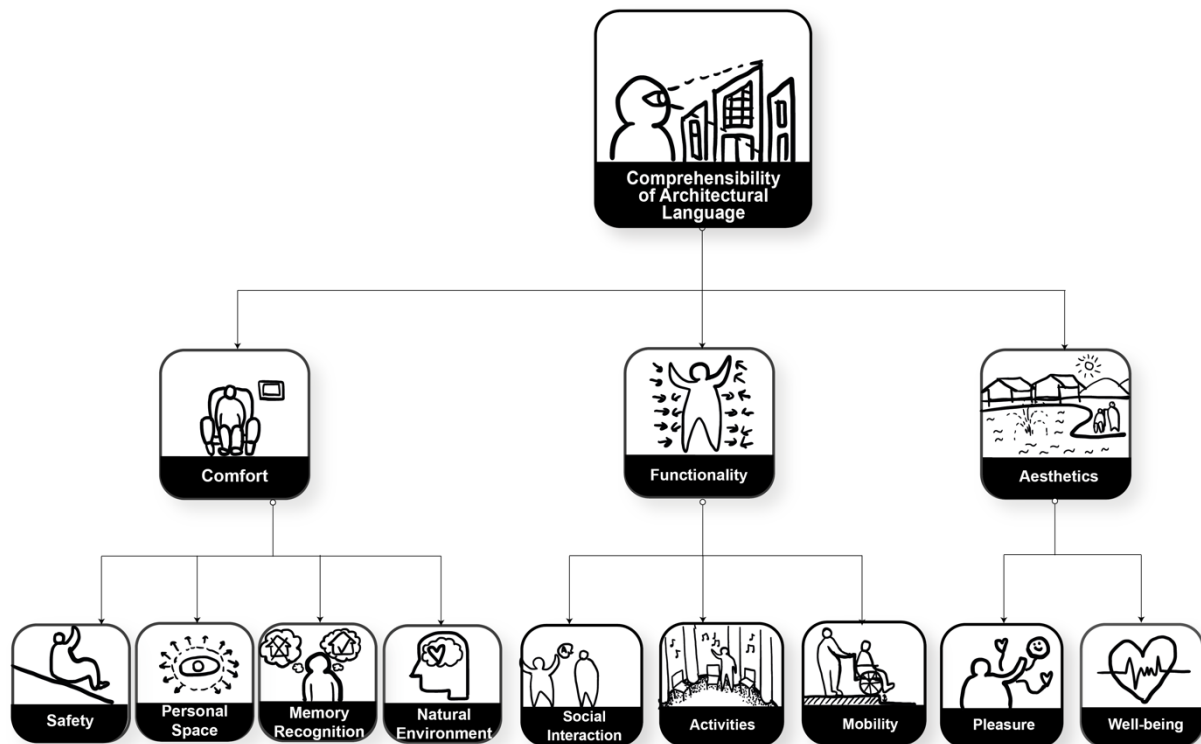
Figure 70 Domain of Comprehensibility of Architectural Languages

6.3.1.1 Comfort

Like Vitruvius' *firmitatis*, which means 'durability' – to stand up robustly and remain in good condition – this definition can be interpreted further by encompassing the stability of users' feelings. In the context of dementia care, comfort can be defined as optimising the quality of life for people with dementia and their relatives by giving families new hope and encouraging less pain (Alonzo, 2019). In addition, ergonomics and comfort are strongly connected (Mokdad and Abdel-Moniem, 2017). Accordingly, ergonomics is a crucial discipline for optimising an environment to arrive at an experience of comfort (Vink, 2004). Hence, the design activates optimal sensory stimulation for end users on a sensory scale and later results in personalised levels.

As shown in Figure 71, the four sub-themes of this concept include safety, which explains how people see the world and the priorities of the human perceptive process. Next, personal spaces explain the selection of environmental stimuli that memory can trigger. Third, memory stimulation indicates positive feelings that directly affect behaviours that some signs or memory cues must relate to past experiences to help people acclimatise. Finally, natural

environment is how sensory experiences can stimulate the users' emotions as dementia progresses.
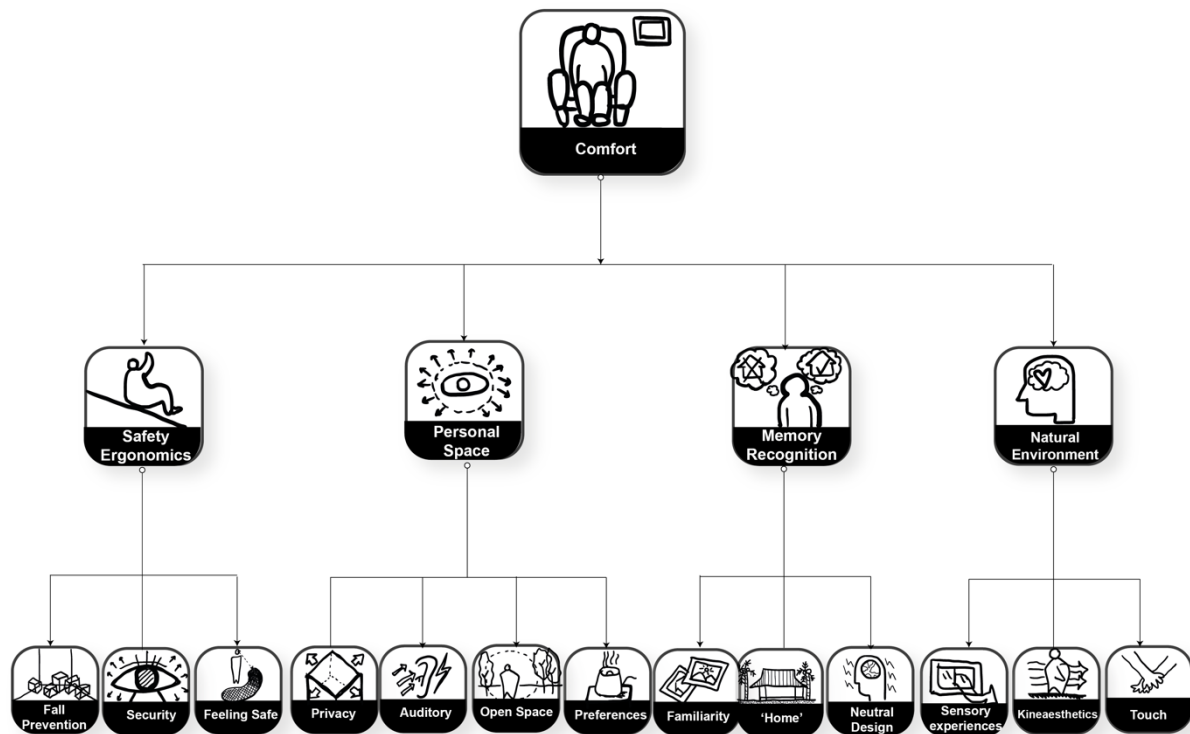
Figure 71 Theme of Comfort

6.3.1.1.1 Safety

Dementia symptoms, including confusion, memory loss or disorientation, which can result in limited mobility, coordination, and adaptable environment and emphasised on safety (Duong, Patel and Chang, 2017). Safety concerns such as driving, meal preparation, finances, and medications are likely to present additional risks to safety when dementia progresses. In this case, human nature, personality, and perception are involved in the definition of 'safe', which is the reciprocal of risk aversion (Williams, 2007). Within the study's dementia care settings, a most important risk management policy aims to keep people safe (George, Long and Vincent, 2013). Thus, safety is a relational approach to help caregivers feel safe in their environments and allow activities to occur.

This theme consists of three sub-sub-themes – ergonomics, security/surveillance, and perception of safety. Morris *et al*. (1987) stated that older people with neurocognitive disorders have long been identified as having a high risk of falling. Fall risk factors, for example, medical,

environmental, physical, and sensory, cognitive, and psychological components – directly impact gait performance, resulting in an increased risk of falls in people with dementia (Zhang *et al.*, 2019). Due to illusions and misconceptions caused by dementia, visual factors such as clear rooms or the precise positioning of handrails can support stability. Non-slip flooring, recommended by care professionals and caregivers, may have a shiny or wet-looking surface (Kerr, 2007), which can incite fear of such flooring. Arranging adequate lighting can reduce visual difficulties. Furthermore, exercise and active lifestyle interventions have demonstrated the potential to reduce falls (Lach, Harrison and Phongphanngam, 2017).

The second sub-sub-theme, security, is an evaluation of the quality of the care setting. Security was emphasised through occupational therapists assessing, planning, inspecting, and surveying to ensure that these places are suitable. The main objective is to broaden destinations or accessibility to an appropriate community, which encourages the users to feel safe and less bored. Moreover, the level of care was arranged by separating units based on their dementia stages. The design must be adapted, and the residents were assessed to identify who could go outside because the outdoor environment had not yet been prepared or controlled. As a result, planning for enclosed circulation layout (e.g., circular form) in both interior and outdoor environments can enhance a robust secure environment. However, perception of design should not be too apparent because further manipulation or obvious locks may trigger people with dementia, as Participant 8 stated:

> *I think it would have helped if the fence [were] a bit higher. I don't know. But I like the fact that it is low also. Because it does not make them [people with dementia] feel trapped. You know this kind of fence you can look out. They feel safe as well as open. It does not feel trapping them.* (Participant 8, Nurse, Case Study 1)

According to people with dementia, safety seeking behaviours such as proximity and closeness seeking behaviours can influence how emotional bonds with others are made. The findings also indicate that proximity can increase controlled surveillance systems and feelings of safety in such an environment. Technical equipment such as nursing alarms were applied in the case studies, which allowed the residents to be more independent and caregivers to be trusted. In addition, anxiety regarding such bonds can be reduced by design. However, it can be argued that all of these interactions are influenced by the patient's attachment's history (Miesen, 2016). Otherwise, this depends on the trust building within physical environments, which must be altered to make them feel safe and relaxed by recognising environmental cues.

6.3.1.1.2 Personal Spaces

As dementia develops, people with dementia are living in a space where the world keeps closing in because a person's lived space is reduced (Forsund *et al*., 2018). The claim can be supported by Wiersma and Dupuis's (2010) research that the absence of personal possessions from women's handbags in care homes reflects a loss of privacy and sense of home. Especially in transitional environments, there is a lack of resident access to 'personal' private spaces, as even bedrooms are subject to intrusive personal routines. They also lack privacy inside their rooms and their peripheral environments, including when with their families. Thus, because people with dementia are susceptible to their environment, they require spaces that reduce distraction, fit their body dimensions, and allow them to exercise their self-identity.

When people with dementia first arrive at a care home, orientation spaces are required to guide them. As a space for adaptation, strategies such as zoning and relocation can introduce people with dementia to open spaces to make them feel relaxed because they took time to adapt. This is important because some people affected by Alzheimer's and dementia do not like being around new places or people, as Participant 8 stated:

> *He is familiar with the way he orientates his head when sleeping in this direction, so when we relocate him to Building 4, he is not familiar. [Thus], he turned his head to the feet side and his feet to the head side. This is because he is strange to the place. [This is] the way he orientates his body when sleeping.* (Participant 8, Nurse, Case Study 1)

Auditory factors are also crucial. For instance, the arrangement of rooms in a 12-room pavilion should have flexibility with privacy so that one's friends can be integrated into one's life. Dementia and hearing impairment present immense challenges, and their intersection in the auditory brain remains poorly understood and difficult to assess (Hardy *et al*., 2016). Too much auditory stimulation can cause confusion because senses are affected by dementia. Dementia, finally, alters how a person perceives external stimuli, such as noise and light. Therefore, rooms with good acoustics exhibit a high quality of speech, as only a few reflections create disruptive external noises superimposed on the primary sound, making them difficult to identify. Ample open spaces are required to make them feel relaxed and maintain their privacy.

Privacy is created by functionally dividing rooms. Personal spaces must provide the opportunity for personalisation and must be user adaptable (Barrett, Sharma and Zeisel, 2018). In this case, room size can vary with cost according to residents' resources and

requirements or by providing a connecting door designed to allow families to live with the people with dementia. In dementia care facilities, a range of room sizes should be provided to accommodate the varying events/activities that will occur in the building, as well as to provide a level of flexibility because interests and programmes change over time. Privacy can also involve how guests' families are able to integrate into these areas – for example, a private zone where their families come to sit and chat. Beyond this, personal spaces can facilitate conversations between caregivers and residents, as Participant 4 stated:

> *Physical environment . . . [y]es, I totally agree. We could ask them, what is this[?] Because they are the citizens of their countries, then in their rooms, there will be something interesting that we have seen before, so we can ask them what it is. So, it can create the conversation.* (Participant 4, Deputy care manager, Case Study 2)

The term 'room' can be interpreted as representing its user's identity or identities in the research context. For example, in case study 4, some residents in a shared room have different environmental preferences. Curtains were drawn down for people who do not like bright lighting. Moreover, wall colours are critical, based on functionality and user subjectivity. In addition, odour or aromatherapy may be employed, depending on each resident's personal preference. Thus, the development of user-centred design solutions provides an improved personalised experience (Jacob, 2014).

6.3.1.1.3 Memory Stimulation

Alzheimer's disease and related dementias significantly change how people perceive, hear, taste, feel, and smell (Dixon, Anderson and Lazar, 2022), however, the changes are highly individual and in constant flux (Lucas *et al.,* 2022). Additionally, the pharmacological and non-pharmacological management of memory loss facilitates people with dementia to seek sensory care (Mileski *et al.,* 2018). As a result, a treatment which can optimise their remaining cognitive resources are required by people with dementia and their families (Budson and Solomon, 2015). However, the under- and overstimulation of people with dementia can cause confusion, illusions, frustration, and agitation. Thus, stimulating the proper senses of a person with dementia has many positive benefits, such as mood enhancement or increased socialisation.

Being familiar with a specified environment can make people with dementia feel more comfortable through recognition. For instance, a well-known song or sound can stimulate

them. Because they sometimes cannot remember people, photographs of people in familiar pictures can stimulate their memories. If people with dementia live in places with which they are familiar, they can be more confident; it can be challenging when someone with dementia cannot remember their own family or close friends. Besides, memories can be triggered by green spaces. There has been increasing recognition that ensuring familiarity in long-held routines and preferences is a critical way to help people feel at ease, as Participant 7 mentioned:

> *Can you imagine . . . [i]f the[ir] physical environment [differs from] when they were at home before, it is not okay. But if we model/replicate that similar environment, [this] can [stimulate] thoughts [of] or [remind them of] the[ir home] environment, which reminds [them of] sadness/affliction or . . . previous situations. It depends on the patients. It should not be measured if it is home-like or not.* (Participant 7, Deputy care manager, Case Study 4)

However, the term 'home' can be perceived as a place of violence and fear in some contexts and societies (Fox, 2002). Such situations depend on one's home environment; that is, whether the environment back home is acceptable. Subsequently, acknowledging personal family background and background information regarding people with dementia's childhood home is helpful due to memory loss (Norberg, 2019; Vezina *et al.,* 2013).

Concept and building typologies can stimulate memory, and resort-like and palliative care or being in a 'normal' residential room are preferred. In this study, there is an interrelationship between the perception of patients and guests. People with dementia, as guests, thought that they were at a resort and were more relaxed. Thus, hotel settings are more pleasurable than conventional nursing homes for such treatment. As dementia is progressive, living within neutral designs is essential for people with dementia (van Buuren and Mohammadi, 2022). However, when patients are at a severe stage of dementia, they are not interested in their environments. Instead, they are living in their own worlds; they have their own images of reality. In this study, one of the care managers argued that there is no reason for people with dementia to look back into the past because they cannot remember it. They can often remember only a specific time, such as their childhood.

6.3.1.1.4 Natural Environment

As dementia progresses, a loss of sensation occurs, which causes the experience of a progressively shrinking world (Morris, 2010). When their cognitive abilities reduce, people with dementia can sense the surrounding world but cannot integrate all these signals to understand contexts (Hugo and Ganguli, 2014). There is a strong connection to the natural environment which enhances emotional well-being and alleviates feelings of social isolation. Sense of touch is essential for nonverbal communication and may be linked to the embodied experiences (Pallasmaa, 2017).

Multi-sensory environments (MSEs) or Snoezelen rooms for people with dementia have been used in a specific purpose by employing an eclectic range of equipment (Jakob, 2017). However, the care stakeholders claimed that natural environments could reduce stress and alter the emotions of people with dementia and caregivers. Benefits of nature-based environments include the development of mood, social interaction, and motivation for residents and job satisfaction for care staff (Evans, 2019). Clear, light, airy and high-ceilinged rooms allow for maximum natural sunlight, making residents feel active. Within the temperature modality in this study, people with dementia more often developed a dislike of cold (rather than warm) environments. Consequently, context affects what type of buildings are required, and one must also consider economic reasons and various types of construction based on accessibility to the natural environment.

In addition, aspects of walking for people with dementia involve tactile experiences such as sensing their movements and their exposure to weather conditions. As with other cardiovascular exercises, walking boosts endorphins, reducing stress hormones, and alleviating mild depression.

Even though intellectual functions have developed typically, dementia can cause continuously reduction (Cipriani *et al.,* 2020). In this case, sense of touch becomes a powerful tool for positive emotions when an individual's emotional ties to the physical patterns of social touch (Tjew-A-Sin and Koole, 2013). As a result, human touch has been suggested to maintain good relationships in society. Moreover, tactile stimulation can contribute to trust, improve communication, promote relaxation, and ease pain (Skovdahl, Sørlie and Kihlgren, 2007).

6.3.1.2 Functionality

People with dementia are more vulnerable to functional decline when hospitalised, and such occurrences may apply to cognitive functioning (Fog *et al.*, 2018). Encouraging people with dementia to maintain their quality of life involves remaining physically and socially active throughout later stages of the health conditions (Yates *et al.,* 2019). People without dementia need to remember that although the brain of the person with dementia is damaged, it remains active and is in charge of that person's behaviours. Overall, the brain's purpose is to make a person an active agent in managing behaviours and personal well-being. If caregivers of people with dementia ignore their roles as active agents, the people with dementia may live entirely in another world. Thus, caregivers in such care facilities must perform active roles in physically supporting the people with dementia to feel included on many levels, for example helping them to places where they can see others or be at the centre of actions. As shown in Figure 72, the theme is composed of three sub-themes: social interaction, activities, and mobility.
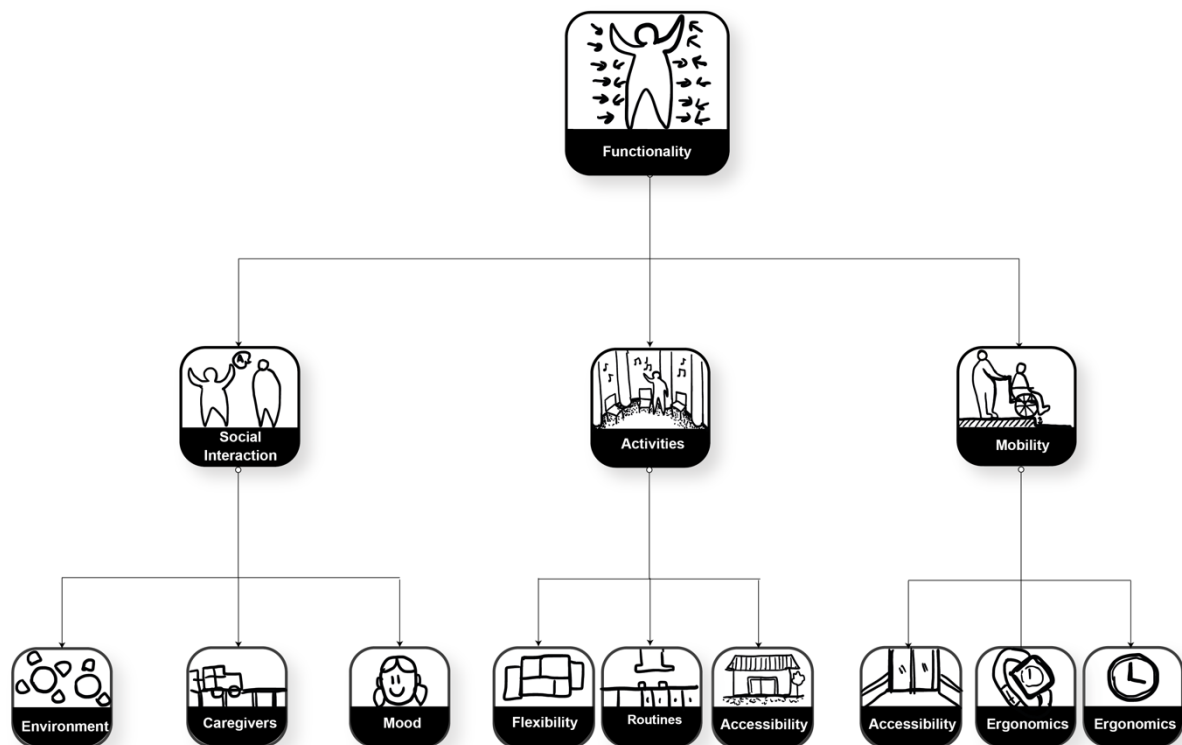
Figure 72 Theme of Functionality

As people with advanced dementia are often excluded from the social world (Ellis and Astell, 2008), benefits and positive effects of communication are highly desireable. Interpersonal processes partially determine and affect the behaviours of people with dementia and the course of the degeneration process (Bährer-Kohler, 2009). As a result, people with dementia may be isolated and withdrawn. Consequently, their participation in group activities is essential, assessed, and encouraged. However, social contact is avoided because some people with dementia may feel overstimulated and exhausted by attending an excessive stimulus (Morris, 2010). As a result, caregivers should examine environmental assessments for motivating environments.

Behavioural outcomes can be improved by individuals' physical functioning, emotional well-being, and social interaction (e.g., wandering, agitation, and aggression), which are shaped by the design of a physical environment (Chaudhury, Cooke and Cowie, 2017). The physical environments can enhance social interactions, including factors such as privacy and room layout, which significantly contribute to residents' quality of life (Chaudhury *et al*., 2018). To emphasise social interaction in care settings, tables and chairs in living areas can sometimes help. For instance, the flexibility of eating spaces can allow people with dementia to eat with other residents so that they can interact after eating. Beyond this, various activities can provide more chances for social interaction because form and arrangement can encourage social exchanges. For example, the activities were arranged only in the circular form of the *sala* (means pavilion) in case study 1 and case study 2.

By following the concept of narrative care (Berendonk *et al.,* 2020; Puto *et al.,* 2022), people with dementia should be treated as human beings and not as impaired patients defined generally by the disease (Villar, Serrat and Bravo-Segal, 2019). People with dementia sometimes tell their stories or their past experiences when they experience environments that seem familiar, that remind them of the past.

In addition, mood changes, such as apathy, depression or anxiety can be early cognitive symptoms of dementia (Lee-an Fenge and Brown, 2017). People with dementia may exhibit symptoms of forgetting, but they may also receive intervention for symptoms of psychiatric disorders. Other predominant mood disturbances are anxiety, fear, irritability, anger, and the like. Emotional lability, explosive emotional outbursts, weeping or laughing may also occur. Moreover, people with dementia may show a deficit in the retention of facial information (1982)

– visual cues such as body language, facial expression, and voices can be used for communicating with people with dementia.

Due to mood fluctuation, loneliness becomes one of the significant risk factors for all-cause dementia, which can be progressive, especially for Alzheimer's (but not for vascular dementia) (Sundsrom *et al.,* 2020). The importance of subjectivity among people with dementia can implement as potential intervention strategies to reduce loneliness. Nevertheless, numerous people with dementia yet live in their worlds as dementia progresses and may interact more with their familiar surroundings than with other human beings (Norberg, 2019).

6.3.1.2.2 Activities

Due to their functional limitations, people with dementia often have increasingly less contact with their communities. Whether living in one's own home or a dementia care facility, people with dementia are retain a desire for human interaction that is personally significant. Engagement in meaningful activities by people living in residential care facilities has long been recognised as an essential factor in their quality of life. Due to a cognitive impairment, self-care skills and social skills in activity engagement of people with dementia re diminished and lacked (Wanchai and Phrompayak, 2019). Staff-led activities are crucial for maximising people's quality of life in some dementia care settings (Kuhn, 2004). For people with dementia, high overall well-being levels are reached by activities, which are specifically designed and facilitated by well-trained volunteers and staff members to incorporate a 1:1 staff ratio activity session (Lokon, Sauer and Li, 2016).

Flexible spaces and activities are beneficial for caregivers to organise activities. Inside a pavilion, there is a front entry area, usually called the common area or living area (illustrated in Figure 73). Various choices of activities are available in such spaces, such as dining or cooking. In addition, such spaces can be used as wellness facilities, including spas or salons, to change the atmosphere. With these things in mind, dementia specialists must decide on a room or facility layout, as explained by Participant 5:

> *Currently, in my opinion, I would like to improve and modify rooms or spaces for physical exercises. This is because we don't have spaces for the patients to use for physical exercises or for group activities. It [the building] may be a bit too small.* (Participant 5, Deputy care manager, Case Study 3)

Both high and moderate levels of physical activity are inversely related to dementia, suggesting that walking is associated with reduced dementia risk (Wang, 2021). The spatial planning of the activity spaces promotes active lifestyles, and this is enhanced by walking from one destination to another.

In contrast, the decline ability to perform daily living activities can characterise disability and result in a growing of caregiver burden and the eventual care needs for alternative care or nursing home placement (Chenier, 1997). Consequently, routines and a sense of familiarity of people with dementia can be promoted in the daily structure and a home-like environment (Forsund *et al.,* 2018), which can decrease challenging behaviours, such as aggression, restlessness, and agitation (Ooi *et al.,* 2018). As a result of such a structure, a caregiver will experience less stress and give better care.

Figure 73 Activity Space in Case Study 1

Figure 73 illustrates the shared space of case study 1 by depicting zoning, clustering, and group activities, which people with dementia's quality of life have the capabilities to develop (Woodbridge and Sullivan, 2018), demonstrating a practice that can be used to optimise group

dynamics. Within the same buildings, people with similar preferences were grouped according to assessments and monitoring strategies. In this case, care stakeholders will observe the occupational therapy guidelines.

6.3.1.2.3 Mobility

Disability increases a severity of cognitive impairment (Lisko *et al.,* 2021), and the impaired cognitive function exacerbates the rate of progression to disability (McCollum and Karlawish, 2020). In addition, a decline in cognition is associated with a decline in mobility, regardless of whether a physical task requires significant cognitive input or not (Tolea, Morris and Galvin, 2016).

Accessibility is related to the spatial dimension of social exclusion and raises the role of place and location (Lopes, Ribeiro and Remoaldo, 2019). Accessibility must be focused on opportunities, not behaviours, that express the distinction between accessibility and mobility. Furthermore, accessibility varies depending on the perceptions of caregivers. The term 'barrier-free design' describes removing physical barriers from the built environment to accommodate the disability. Traditionally, barrier-free design (on an urban scale) has been focused more on designing for a disability type or satisfying physical legislation than the social, physical, and psychological needs of all users. Consequently, the dynamics of practice (smoothness and flow of space) through movement and spaces have been emphasised. For instance, if a garden is wheelchair accessible, residents can access plants and flowers by themselves, allowing them to participate in activities. The relationship between accessibility for people with cognitive disability, functionality, and usability also reinforces circular loops inside the pavilions, as Participant 2 suggested:

> *Also, if you notice, inside there is the circulation/corridor is quite wide and can walk around, as a square (form/shape). Why is that . . . This is because from the research, people who affected from dementia or Alzheimer's if they have symptoms or panic, they cannot walk back. Normally, the way they express is by walking. For example, if we know they are going to walk, yelling 'Do not walk!' will make them more resistant to us.* (Participant 2, Deputy care manager, Case Study 1)

Cues also relate to maintaining people with dementia's orientation by using clocks or other types of orientation cues. To form a functional circulation, environmental interventions of wayfinding can be implemented, such as the design of floor plan typology and environmental

cues (Devlin, 2014). The latter comprise signage, furniture, lighting, and colours. In this case, the continuous process of walking or wandering behaviour is a kind of failure in a psychologically confused and unstable person searching for a destination. However, strategies for orientation in people with dementia have not yet been established in these case studies. For instance, one case study suggested colour systems in which existing pavilions had the same colours and forms. Moreover, lighting is another visual tool that can help navigate the desired destination by using continuous handrails with lighting underneath them.

Significantly, surveillance systems can help people with dementia feel safe in their environments (Mulvenna et .al, 2017). In the four case studies, technical equipment such as nursing alarms were applied to environments, allowing residents to be independent and caregivers to be trusted and supported.

6.3.1.3 Aesthetics

Aesthetic responses associated with viewing visual art have recently been shown to affect people with dementia positively (Schneider, 2018). The term 'aesthetics' conveys the sensory perceptions that a concept of forms is pertained (Lind, 1992). Thus, an aesthetic approach involves highlighting elements of reality to uncover meanings, possibilities, and values that might be overlooked at the pace of everyday encounters (Hughes, 2014). It may be that the aesthetic approach is a way to unify the dichotomies that can complicate intellectual discourse and provide the holistic response that clinical practice requires (Legault et. al, 2018). Aesthetic pleasure can arise from the perception of an object, both from the mental image of the object and from recognising the aesthetic qualities of the object (Bonasio, 2014). Thus, in this study, the aesthetic experience was considered a complex emotion since this notion has played a central role in the so-called empathy-based theories (Mastandrea, 2011). As shown in Figure 74, the theme consists of two sub-themes: pleasure and well-being.
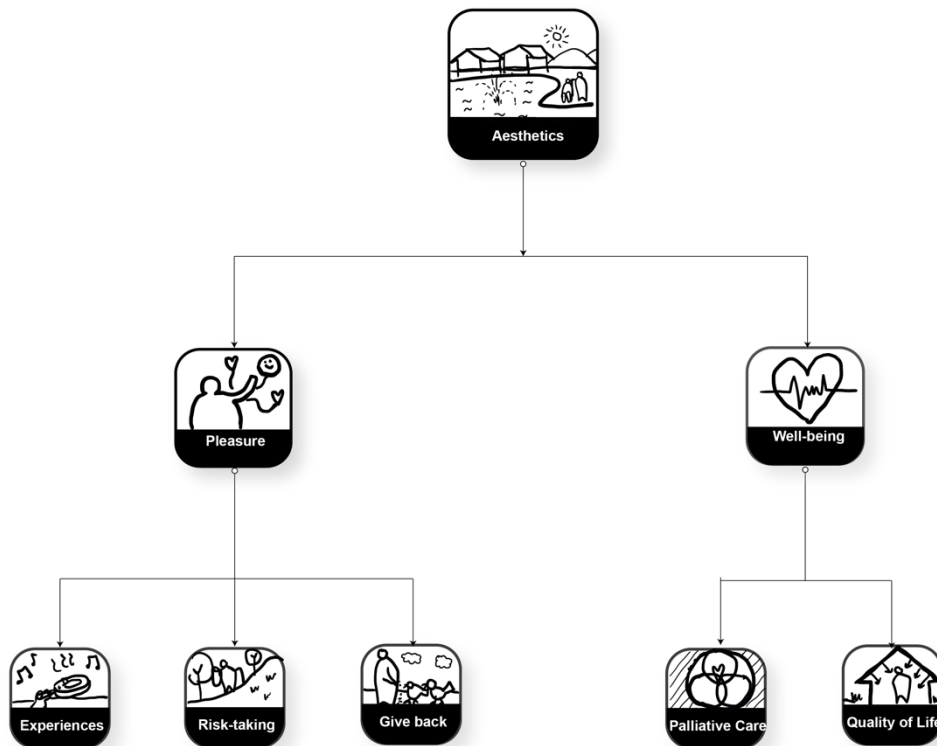
Figure 74 Theme of Aesthetics

6.3.1.3.1 Pleasure

Although people with dementia do not craft these pleasurable conditions themselves, they are active in accepting the invitations offered and showing their appreciation (Driessen, 2018). Pleasure is a relational achievement and is contagious for those who let themselves be affected (Cohen-Mansfield *et al*., 2012). In the same way, care professionals craft conditions that invite residents to take pleasure in various activities (Tak *et al.,* 2016), for example, dancing or bathing. As art objects produce emotion, people can also have fun and feel joy at things like the colour combination of a painting, which can lead to action as well as giving back for pleasure.

Ehrenzweig's (1967) stages of creativity were used when Schaverien (1992) situated aesthetic experience within the art therapy relationship. Such residents are searching for something aesthetically satisfying (when they are emotionally able to do so), even though they may be unable to reintegrate what they find. The search for aesthetic pleasure in places such as cinemas, libraries, lounges, and music stations can provide an opportunity for art therapists to engage with clients who are in the later stages of dementia (Deshmukh, Holmes and Cardno, 2018). However, embodied experience can also be observed, as Participant 1 mentioned:

Good food is the main pill for happiness. So even…let's say you have a small room, and not a perfect layout. (Participant 1, Care manager, Case Study 1)

In addition, these experiences can enable positive risk-taking for people with dementia. Positive risk taking are provoked in the media, and a spirit of adventure is perceived as commendable within Western culture (Fisk and Overton, 2020). As a result, on the whole, society respects each person's decisions regarding risk-taking activities (as shown in Figure 75). People expect to be free to assert their independence and choices (Przeworski, 2004). Therefore, older people who live in long-term care facilities are subject to a diverse cultural attitude – one of protectionism and risk aversion (Croft, 2017).

Hence, the designers balance concepts of protectionism and health and safety with those of independence, autonomy and healthy risk-taking by using their decision-making skills and their experience. The two main factors to consider when designers are seeking a balance between protectionism and independence are the physical environment and the person. When facing adversity in the care environment with hope and a willingness to adapt, creative solutions to problems posed by the physical environment can be found, innovative practices inspired and structural barriers removed (Biglieri and Dean, 2021). As most people with dementia live in the moment (Eriksen *et al.,* 2020), most dementia care approaches have to contribute to the design of life-critical systems (Stroud, 2021) and adaptability where tactics can be developed to satisfy demand in dementia care facilities (Riquelme-Galindo and Lillo-Crespo, 2021). The second factor is the person. Care training is required for formal caregivers to improve confidence in decision-making in dementia care. Through education, a new care culture can be constructed (Innes, Smith and Bushell, 2021) and the creativity of caregivers enhanced to solve problems (Robertson and McCall, 2018).

Figure 75 Views from a Lakeside Pavilion at Case Study 1

These positive feelings are reflected in biology. In the research study of Moll and colleagues at the National Institutes of Health (2006) discovered that regions of brain associated with pleasure, social connection, and trust, creating a 'warm glow' effect, are activated when people give to charities (Moll *et al.,* 2006).

6.3.1.3.2 Well-being

Subjective well-being and subjective quality of life includes how positions of life are perceived and is referred to the valuations people give rise to their lives (Camfield and Skevington, 2008). However, the value of judgements is central to concepts (Matthew, 2012), which leaves the concept virtually indistinguishable (Slater *et al.,* 2020). Without entering the debate about the different uses of these terms found in the relevant literature, this study adopted the concept of well-being used by Liang, Luo, and Liu (2020). This distinguishes between cognitive well-being (examples include life satisfaction and self-esteem) and affective well-being, sometimes referred to as subjective well-being (Pinquart and Sörensen, 2004).

The idea of active and healthy ageing, which incorporates preventive, primitive, corrective, and rehabilitative parts of well-being, should be promoted among older people. Healthy ageing should balance the disease prevention and injury with the promotion of behaviours and environments in a way that maximises functioning and well-being across the lifespan (Albert,

2010). Rather than an unmitigated process of loss, people with dementia can experience 'relative well-being', such as agency and hope (self-respect).

Moreover, managing pain and symptoms are involved in palliative care (Wilkie and Ezenwa, 2012), which is a type of care for people diagnosed with a life-limiting illness (Radbrunch *et al.,* 2020). However, the term 'palliative', similar to its Latin root, means 'cloak of warmth', or a holistic environment in which the emotional and spiritual preparation of people with dementia, family, and staff are sustained. The natural environment's potential benefits were highlighted by deputy care managers in Case Studies 2, 3 and 4 to promote healing spaces for people with dementia and their relatives (as shown in Figure 76). Moreover, only Case Study 1 included respite care for relatives and offered staff welfare services, such as staff facilities (as shown in Figure 77).

Figure 77 Space for Religious Ceremonies at Case Study 3

Figure 76 Staff Facilities at Case Study 1

6.3.2 Manageability of Hospitality

Manageability describes the adequate resources which are available for an employee to cope with workplace demands (Jenny et al., 2022). Rather than environmental factors (Roskams and Barry, 2019), one area of interest is national character related to modern nation-states' political systems. Older people's cultural values and beliefs about dementia care may differ in different contexts. The intersection of culture with person-centred dementia care provisions currently lacks clarity (Brooke, 2018). In this case, national character is defined by Snefjella, Schmidtke and Kuperman (2018), as the endured personality characteristics and patterns that are modal among members of a society. It can be epitomised by dominant or typical and representative institutions concerned with politics and economics (Inkeles, 2014). In the context of dementia care, the concept of hospitality is used among staff, which may play crucial

roles in creating a person-centred climate for quality of care. Hospitality in the research context intends to express the current user experience. Thai hospitality approaches and practices are greatly influenced by their historical and cultural backgrounds, creating a pool of natural-born service workers (Panmunin, 1993). Thus, the concept of hospitality can be related to Thai identity and cultural competence, which is a critical way to develop communication strategies to create notions of national harmony and unity in Thailand.

As illustrated in Figure 78, this domain presents two themes. Resilience focuses on how caregivers cognitively process environmental stimuli to facilitate resources/interventions. Caring illustrates how specific environments can spur positive, healthy behaviours in users.
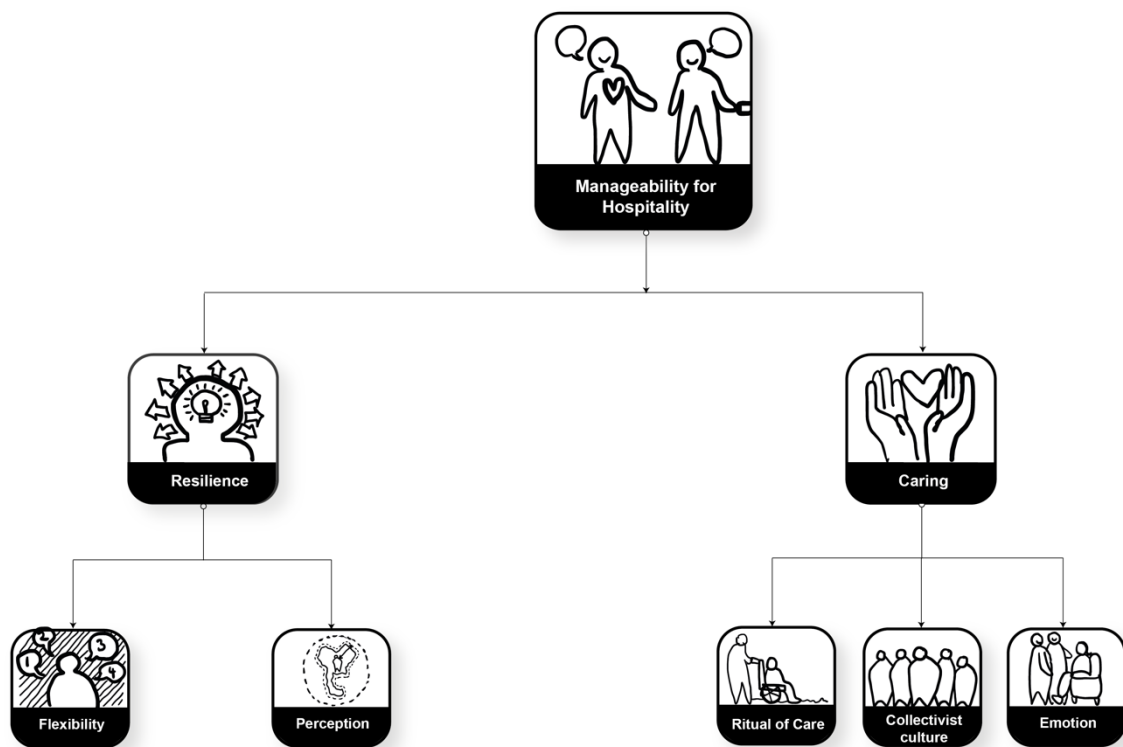
Figure 78 Domain of Manageability of Hospitality

6.3.2.1   Resilience

The absence of resources may indicate poor outcomes or further caring challenges (Kruk *et al.,* 2018). The process of negotiating, managing, and adapting to significant sources of stress or trauma can be described as resilience, considering the framework (Joling *et al*., 2016).

Resilience is defined as a positive personality characteristic, which enhances individual adaptation (Wagnild and Young, 1993). Resilience facilitates individuals' resources and interventions to ensure that strength-based, person-centred and reciprocal social interactions are enabled (Bowman, 2013). Hence, cultural resilience can help individuals and communities overcome adversity through cultural background. As illustrated in Figure 79, two sub-themes are emerged including flexibility and perception.
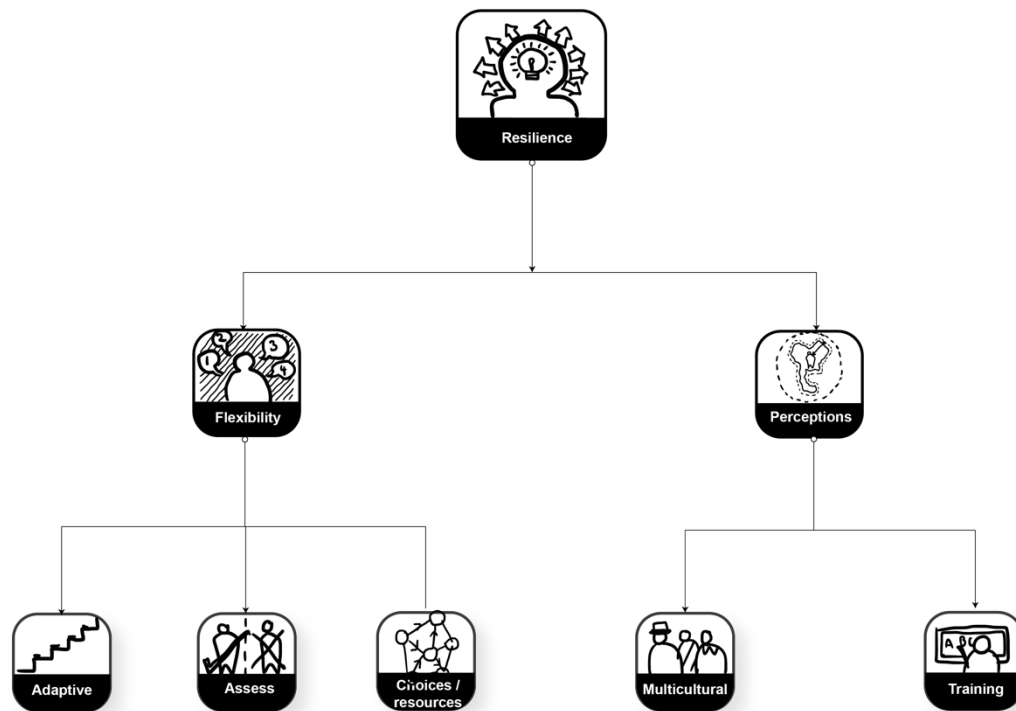
Figure 79 Theme of Resilience

6.3.2.1.1 Flexibility

In the Western context, care staff and care managers have obvious perceptions of job role boundaries (Abrams *et al.,* 2019). Nevertheless, adaptability and flexibility are routinely required in the end-of-life care (Funk *et al.,* 2022) and modified in dementia care (Allen et. al, 2003). In the context of Thailand, people characteristics are flexible and situation-oriented (Lenzo *et al.,* 2020). This value consistently scores high in Thai people's cognition, regardless of different backgrounds and groups (Komin, 1990). Consequently, flexibility in motor creativity in the research study predicted perception of task difficulty, whereas originality was a significant predictor of persistent behaviours. According to Saengpanya *et al.* (2021), Thai

children have higher divergent thinking scores, high levels of flexibility, improvisation, and creativity. Additionally, self-efficacy and mindsets determine how people regulate themselves when facing a challenge within an existing framework.

A creative society begins with individual creativity, which can be innate and further developed through formal and informal learning experiences. In this sense, creativity goes beyond artistic ability; it is more about equipping people with the skills that they need to respond creatively and confidently to new situations in all areas of their lives (Hawkins, 2020). However, creativity might require an exceptional environment or resources (sensory experiences) to enrich this quality, matching one's living conditions to that person's room decoration every day according to end users' capabilities. Moreover, Thai caregivers in this study used posture or body language to communicate with their clients, showing that caregivers are searching for alternative resources/solutions to communicate with end users, as Participant 2 has mentioned:

> *Sometimes, we cannot communicate [with] each other. As you know, most Swiss speak German. Some cannot speak any English. But we smile and sa[y] "Sawasdee ka" [, which] can make them feel relaxed. In my opinion, the main core part of Thai caregivers is the people and our culture.* (Participant 2, Deputy care manager, Case Study 1)

In the process of adapting to European style, cultural hybridity refers to the mixing of *cultural* elements. Beyond this, it is employed in various ways to conceptualise and critically engage with relationships between notions of purity and impurity from a *cultural*–historical perspective (Frello, 2012). Thais believe that they may be able to interact with foreign influences without diminishing the role of their own culture and that their history shows that they have successfully achieved this balance in the past. That is, their culture is resilient enough to incorporate or accommodate any foreign influence.

6.3.2.1.2 Perception

In many contexts, the main barriers to the early detection of dementia are poor perception and understanding of dementia (Tan *et al.*, 2012). Religion and spirituality can affect knowledge and perceptions in different ways (Villani, 2019). The cultural or spiritual belief that one could be partially responsible for 'bringing it upon oneself' could also explain the less positive attitude (Litonjua, 2016). Finally, their future to 'destiny' tends to resign in practitioners of these

religions. A reluctance to actively alter one's destiny could also explain a predilection to shy away from wanting to know the diagnosis of dementia or make plans (Tan *et al.,* 2012).

In geography and moral philosophy, the tension between partial ethics of care and impartial ethics of justice is often mapped onto a spatial distinction between responsibilities to draw others closer and responsibilities to 'distant others' (Barnett, 2016). In this vein, Thongchai's geo-body discussion argued for delimitations and was partly characterised by perimeters and peripheries (Connors, 2011). The *farang* was used to define the others. Following the writing on the emergence of nationalism in Thailand, Winichakul (1994) described the concept of 'geo-body' – a term he coined to refer to the totalising and organic entity encompassing a geographic area, people, and culture. Moreover, Case Study 1 used the terms 'guest' and 'patient' interchangeably to define 'away from home', those privileged with services, or non-active users. Furthermore, Case Study 4 used the term 'patient' to signify a need for medical care.

Unlike colonialism, 'foreign domination' and semi-colonialism have been interchangeable political experiences in East Asia and Indochina. Locally, participants in Case Studies 1 and 2 highlighted specific qualities of Thai people, such as hospitality and respect. However, they have had to improve their professional standards in terms of staff training and speaking English. As a result, cultural characteristics have been managed against the scarcity of resources and developed into spatial labour organisation). In Thailand, the family usually functions as the basic unit facilitating childhood learning about hierarchical relationships and respect patterns (Nakkula *et. al*, 2018). Moreover, due to the gradations within the Western community, Westerners occupy a higher global status than Thai people. Thus, the distribution of Westerners throughout the global class structure looks as follows:

> *Like the case, which is hard, it is like . . . [we] only have to follow them. If they told me to go right . . . I [would] go right. If they said left . . . I [would] go left.* (Participant 16, Caregiver, Case Study 1)

In contrast, the mentality of independence of older Thai people remains passive. Similar to Oxenham and Buckley (2015), research has shown that older people in Thailand are concerned with declining health status, loss of independence, financial insecurity, and the effects of urbanisation on the family unit. The level of social support should be high enough for older people to maintain their self-esteem so that they can live happily without being a burden to family and society.

6.3.2.2 Caring

Swanson (1991) proposed five themes in relation to caring, including knowing, being with, doing for, enabling, and maintaining belief. Other contemporary caring discussions in healthcare include interest and concern, liking, giving care, compassion, and commitment. However, caring and consideration comprise the core value, which psychologically indicate the most profound qualities for smooth and pleasant interpersonal interactions (Strauss *et al.,* 2016). A Thai culture-laden value and an essential means to maintaining or preserving one another's feelings and egos (to preserve oneself) was observed (Sirikanchana, 2018). As illustrated in Figure 80, the theme consists of three sub-themes: ritual of care, collectivist society, and emotion.
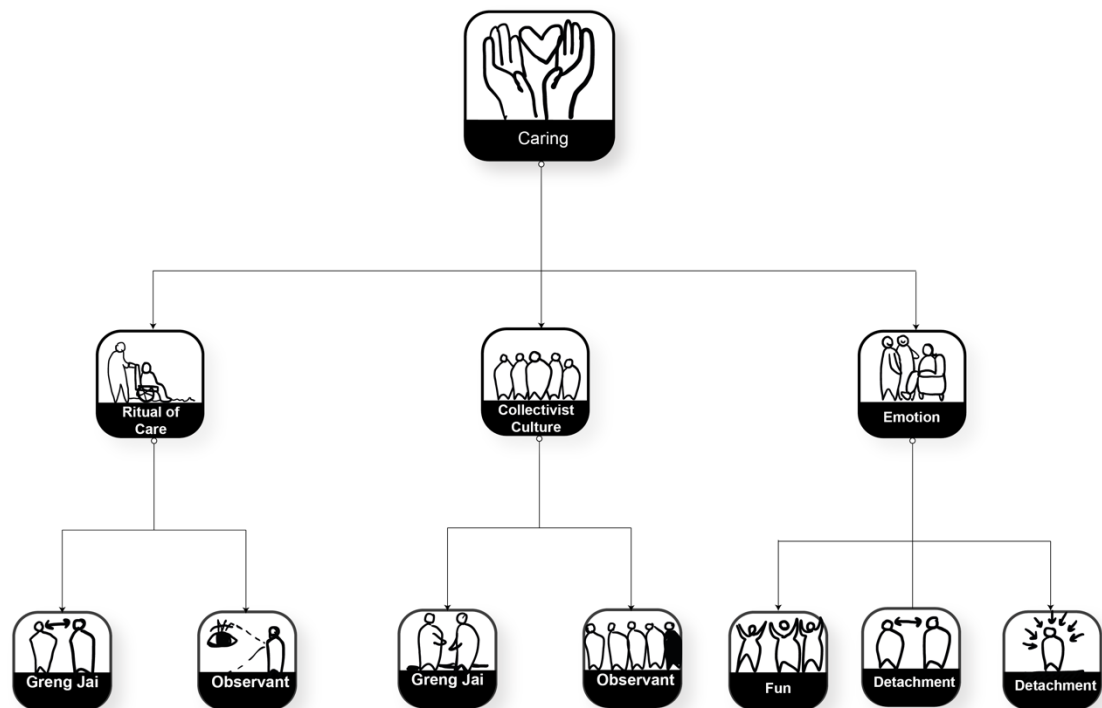
Figure 80 Theme of Caring

6.3.2.2.1 Ritual of Care (Self)

Scholars have found a good clarification in scriptural Buddhism that everybody is individually responsible for karma and that there is no direction to turn to other than toward the self (Griffiths, 1982). Loose structure, Buddhism, and elusive individualism reinforced each other in one study, leading one team member to proclaim, similar to Mulder (2011), that Thai society

may travel on the brink of social chaos. On the other hand, conversational frameworks within ethical theory can help one investigate how one can make sense of ethical action when one is always already partly using the other. For many in Northern Thailand, the answer is an ethical and hauntological choreography; rather than relying only on rational frameworks for determining right actions or cultivating individual ethical dispositions, people seek to assemble optimal elements. Other people, beings who have become components of themselves, material objects infused with ethical force – into scenes where the residual karmic 'stickiness' can be unmade. This unmaking is achieved through a form of forgiveness and kindness that moves beyond individual agency.

First, the Thai people know their own personalities and preferences. With great observation skills, Thais notice exactly what each person prefers, as Participant 20 stated:

> *During the time we push wheelchairs . . . we know from the patients . . . how each individual like [s to] be . . . like are they heavy or are they [afraid] of [something] . . . like that. Like each staff [member] knows [what] each guest is like.* (Participant 20, Caregiver, Case Study 1)

The intention is to preserve one's ego. The cognition involved in Thai social interaction projected by a group of social smoothing values is as follows: at all times, one shall be careful not to hurt another person's feelings ('ego'), even if they are contrary to one's feelings. Moreover, the fun activities and ambience in this study were significantly related to both engagement and constituent attachment but not to staff turnover rates.

6.3.2.2.2 Collectivist Society

In Thailand, family patterns cover a wide spectrum. In rural agricultural communities, the kin group remains the basic integrative force of people's lives. The traditional Thai family system is that of an extended family, with at least some relatives living in the same compound. A rural community is like one big family, in which non-blood-related villagers address each other as 'brother' and 'sister'. Mutual assistance and obligation are the basic norms and cultural values (Krongkaew, 1995), and respect for seniority is crucial among Thais.

When older people in a Thai family become too old to take care of themselves, younger family members are morally required to care for them. In terms of teamworking, collectivists comprise a closed group that fosters internal cooperation and works toward shared objectives. However,

such a team values the skills and talents of team members. In a traditional model, a team is a relatively closed group that fosters internal cooperation and works toward shared objectives. Members of collectivist societies have traditionally embraced teamwork and been comfortable being part of a team. However, in an individualist society, a team will value a wide array of skills and talents among the various team members. In Case Study 1, a person-centred care approach was used by the team. A collectivist approach to the nature of problem-solving involving Participant 2 mentioned the following:

> *If there is something, we will call out "come to help me", like helping each other out. For example, the European guest has a big body size, [so] if one caregiver cannot hold [that guest], they will just call out for help.* (Participant 2, Deputy care manager, Case Study 1)

In contrast, the specialist skills of team members and partnerships were emphasised by the research participants, including experiences, professional skills, stakeholder interests, and international co-working partnerships. Thus, these members were only 'specialists' in terms of providing care and supported by the Thailand Board of Investment (BOI). Facility location in the research context means that the business opportunities arising from a certain location should enhance forces such as supply and demand, which demonstrate social and economic exchanges between authorities. In a similar manner, resources of staffing signify the systems in place that empower and value staff in relation to the number of staff members employed at a specific time. However, staffing can also refer to finding the right person for the right job with the right qualifications. As a result, this is an effective way to manage people on a global level, allocating qualified workforces according to localised cultural-specific characteristics to support the quality of care (as well as business gains). The diversity of employees in a care organisation is improved by including international employees, outsourcing related partnerships, and co-working with foreign doctors.

6.3.2.3 Emotion

Straightforwardly, the expression of emotion is a cultural issue (Lim, 2016). In Thailand, a person considerably loses face if anger is openly expressed. Instead, Thai people will simply wait for strong feelings to fade away, believing strongly that one should at least try to make everything in life fun. Along these lines, many Thais have noticeable senses of humour. Thai culture endorses the view that life should incorporate copious amounts of fun and joy and not

be taken too seriously, even in the context of work. Moreover, they prefer to have activities that create a lively atmosphere, as Participant 30 stated:

> *Also, these can provide activities so that we can talk to them more. They will not be lonely because here, there are not many things to do. We normally talk to them quite frequently, like "How are you today? How is your mood? Are you in the good mood?" Talk to them to reassure [them] if they are sad . . . but we don't have activities to do with them personally.* (Participant 30, Caregiver, Case Study 3)

Noticeably, Thai people value the everyday routine pleasures of life with a happy carelessness (Klinchan, 2017), not letting troubles to trigger (Cooper, 2019), and viewing life as an enjoyable and manageable journey (McFadden, 2010; Snee, 2016). In addition, *sanuk i*s the main principle (means to have fun, to enjoy oneself, and to have a good time) (Bernardes *et al.,* 2022). In this case, other stakeholders such as gardeners or housekeepers naturally become caregivers, as Participant 20 stated:

> *When the housekeeper comes, she talks to the [other] housekeeper or gardeners. So she still has friends to talk with [which] is kind of relieving her loneliness. When she goes into her room, there is a cat . . . something like that. [Thus], it is like she is making herself [at] home.* (Participant 20, Nurse, Case Study 2)

Such practices of *care* serve continually to reproduce societal *values* inherent in the concept of face, even when people might explicitly state they do not support such ethical terms. Since the ego of the Thai is so important, the Thai naturally utilises the 'avoidance mechanism' to fend off unnecessary clashes (Komin, 1990). Furthermore, all parties involved the mechanism in an interaction (Allern *et al.,* 2020), which is delicately and keenly observed (Komin, 1990). However, using the 'Buddhism-explains-all' approach – that Buddhism teaches non-self, avoidance of emotional extremes, detachment, and so forth – might avoid quite a bit of reality.

6.3.3   Perception of Place

Significantly, home is often perceived as a place of belonging and a key for living a meaningful life (Førsund, 2018), so most people with dementia are believed to stay at home for safety reasons (Lord *et al.,* 2020). In the research context, meaningfulness can be combined with national identity, which is defined as an ideology recognised through individual engagement with discourse, made manifest in a personal narrative, constructed, and reconstructed throughout one's life, and scripted in and through social interaction and social practice. Choi *et*

al. (2007) (as cited in Greaves and Skinner, 2010) mentioned that destination image plays an influential factor in a traveller's decision-making process. Leading countries in medical tourism have begun launching international advertising campaigns, and a growing trend of advertising is the use of emotional appeals (Kemp, Williams and Porter, 2015). Thus, the concept of 'Thainess' reflects an attempt by the Thai state to hold onto its cultural and political hegemony, to control the signification of 'Thainess' amidst the flux of globalisation and commodification. In this way, the country maintains and reasserts its official nationalist authority over an increasingly fluid and complex society and culture (Souchou, 2000). Face, in the Thai context, is a concept of person and culture and is a socially constructed reality. Two themes are presented in this domain (as illustrated in Figure 81). First, expectations focus on how people cognitively process environmental stimuli. Second, satisfaction illustrates how certain environments can incite positive, healthy behaviours in users.
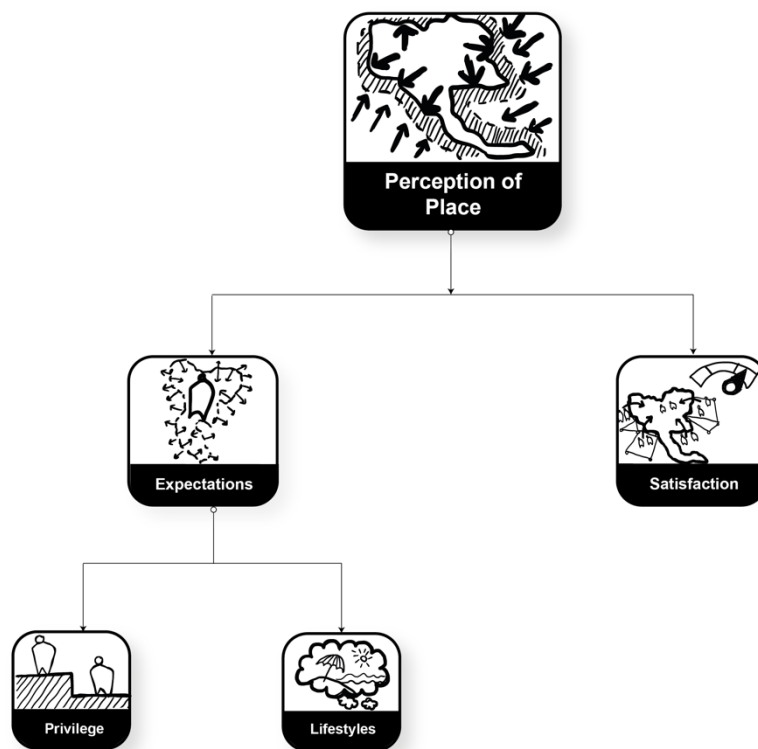
Figure 81 Domain of Perception of Place

6.3.3.1 Expectations

The loss of function, independence, uncertainty about the future, and fear of being a burden are general explanations of the concept of dementia (Lindeza *et al.*, 2020). Healthcare

stakeholders are required to support, identify their needs, and how they can maintain connectedness to their pre-diagnosis life (Pereno and Eriksson, 2020). To empower people with dementia, available information should be provided to them and their families to supportively construct their advanced care plannings. In the research context, it is how they project their images out. As shown in Figure 82, the theme consists of two sub-themes which include lifestyles, and privilege.
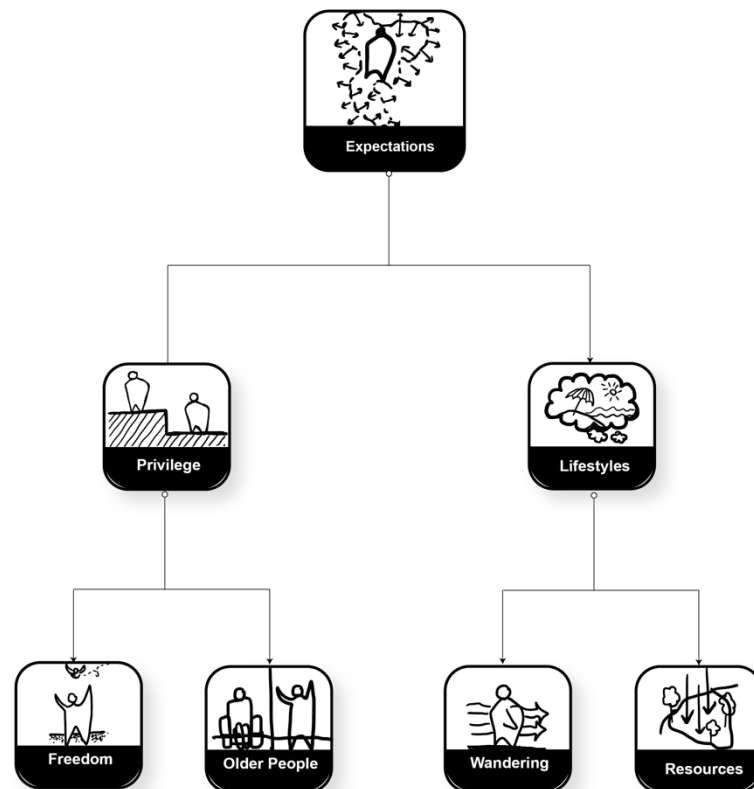
Figure 82 Theme of Expectations

6.3.3.1.1 Lifestyles

Sobel (2013) stated that lifestyle is defined as any distinctive and therefore recognisable mode of living. A lifestyle consists of expressive behaviours that are directly observable or deducible from observation (leisure and work). By portraying later-life migrants as hyper-mobile subjects, migrant experiences of belonging, mobility, or dwelling may be contingent upon an ability to fit governmental imaginings. Thus, 'settings' are the main factors in the health promotion project in parallel with a pension. Apart from promoting refashioning among the elites, the popularity of Western accoutrements has also served to support the *siwilai* mission. The term *siwilai* was introduced by the Siamese court from the English term 'civilised', which demonstrated Siamese adaptation to and imitation of Western values and lifestyles (Posrithong, 2011).

Contextually, participants in Case Study 1 emphasised the management of budget and pension. Nonetheless, these factors must be managed based on individualised pension to create an affordable perception of luxury. Moreover, in Western countries, the term 'wandering' tends to have a negative label. Wandering is a distinct form of ambulation or locomotion. Mobility has also been related to the socio-economic movement of Westerners to a fantasy and non-Western world. On this subject, Participant 2 stated the following:

> *The Swiss said you have to stay only inside of your home. So, the family decided to send them [people with dementia] here because there are people who [need] full . . . care. [This] is also okay because if they are [restrained], they will have no freedom and cannot do anything.* (Participant 2, Deputy care manager, Case Study 1)

6.3.3.1.2 Privilege

One consequence of the extensive database on the lived experiences of people with dementia has arguably been a dichotomisation into 'tragedy' or 'living well'. The risk of discrimination against those who cannot or do not chase neoliberal pursuits post retirement (Soederberg, 2005). All people with dementia have aged 'unsuccessfully' is one of the presumptions, which are deeply disconcerting (Beard, 2017; Latimer, 2018). This has also extended into different contexts, and Thailand is a complex mixture of both its own original culture and Western influences. Thus, because of their dependence on Western capitalists, agent capitalists in Thailand have also depended on Thai rule to gain protection and privileges, and to stay active as much as possible.

6.3.3.2 Destination Satisfaction

In the context of dementia care, caregivers can perceive a care burden and experience satisfaction simultaneously (Elmståhl, 2005). In this case, satisfaction is associated with enhanced caregivers' well-being. As a result, understanding the satisfaction of caring is more than of theoretical interest and should be included in assessing the caregiver's global circumstances. Satisfaction has various dimensions and stakeholders, including people with dementia, their relatives, and care stakeholders (Casey *et al.,* 2020). However, a sense of identity of people with dementia and caregivers is often neglected (Cruise and Lashewicz, 2022).

The first sub-sub-theme is place satisfaction. A needs-based system was emphasised by healthcare and economic advantages to seal an absence between cost and needs (Asadi-Lari, Tamburini and Gray, 2004). The participants pointed to the benefits of cognitively stimulating activities. Moreover, when a cared-for person lacks capacity, relatives often act as personal consultees, making best-interest decisions on their family member's behalf (Mental Capacity Act, 2005). Although such family members are no longer the main carers for the cared-for person, they often report similar feelings of distress and burden to those providing care at home (Sury *et al.*, 2013) and experience continuing emotional upset (Ryan and Scullion, 2000). Thus, people with dementia and their relatives are relational which some might stay to test if all stakeholders are satisfied. However, one might encounter budget issues in reality.

The basic psychological needs for autonomy and competence can be fulfilled and related to the self-determination theory (Martela and Riekki, 2018), which was hypothesised to play an important role in identity formation, multiple dimensions of exploration and commitment (Martela and Riekki, 2018). In this case, life satisfaction might mean selfhood and autonomy of the residents. However, especially in Case Study 1, the term 'guest' and 'patient' were used to project an image of inactive participants.

On the other hand, the identity of caregivers was concerned to ensure if they are satisfied with their work. One of the caregivers in Case Study 1 mentioned that, when a person with dementia sees someone eating, that person starts eating. However, at a restaurant, the caregiver cannot eat with that person because it would be improper. It can be inferred that this occurs due to caregivers' duties and citizenship to completely do daily activities for the residents.

Summary Table of Care Stakeholders

Table 6 Summary table of care stakeholders

Domains and Themes	Case study 1	Case study 2	Case study 3	Case study 4	Synthesis
Comprehensibility of architectural language	Although languages of different cultures differ in structure, vocabulary, and grammar, the language of architecture has common systematic features with natural language and its distinctions related to the material being handled by the architect (Remizova, 2015).				
1.1 Comfort	Case study 1 has an approach of palliative care, which gives new hope to families and the promise of less pain for people with dementia through optimising the quality of life. In this case, private rooms are available for personal comfort. Familiar objects are arranged	Case study 2 is a renovation project, which is not suitable for wandering and walking. Hence, not many features support comfort, which can be interpreted as accessibility, surveillance, and monitoring of people with dementia.	Case study 3 resonates with some of the themes. Not many design features are specifically designed for comfort. Case study 3 also has only private rooms. However, there are few familiar objects arranged within the spaces. Limited objects or activities with sensation were	Case study 4 resonates with some of the themes. Some objects or activities with sensations were arranged within the care facilities. In addition, familiar objects are arranged within the spaces. Comfort is interpreted in case study 4 as a safety issue.	Most case studies describe the definition of user comfort based on familiar objects arranged within the spaces. In this case, some objects or activities with sensory stimulation were arranged within the care facilities. However, limited objects or sensory

	within personal spaces.		arranged. Thus, many care stakeholders have suggested some ideas about comfort.		activities were arranged in some case studies. Thus, some comfort qualities in case studies 3 and 4 have yet to be achieved by users, and some care professionals have some suggestions about comfort.
1.1.1 Safety	In case study 1, the concept of safety, such as ergonomics, is managed in case study 1. Accessibility of case study 1 focuses safety and security of the end users. For case study 1, safety is a significant theme, for example, surveillance	In case study 2, accessibility of case study 2 has some issues regarding the site renovation and the typology.	In case study 3, the concept of safety is managed in case study 3 by physical accessibility. Accessibility and safety are restricted in case study 3 in terms of space limitation.	In case study 4, safety is managed in case study 4, but in terms of accessibility and handrails. Accessibility and safety are mostly restricted in case study 4 regarding space limitation and design values.	In most case studies, safety is a significant theme, which includes surveillance layout, handrails, and wheelchair accessibility. However, the main contradictions for different case studies are case study 3 and case study 4 have an

	layout, handrails, and wheelchair accessibility.				issue of space limitation, which restricts by safety issues. Some case studies also restrict users' mobility due to safety reasons.
1.1.2 Personal space	Case study 1 also has only private rooms, with choices for spatial orientation. In addition, there are room choices of flexibility for users to adapt and choose from.	Case study 2 also has only private rooms, with room types and orientation choices.	Case study 3 has only private rooms without choices for orientation but based on budget.	Case study 4 has choices of private rooms and shared rooms. However, the decision-making for positions is based on relatives and their budgets.	Most case studies have private rooms with choices for spatial orientation. However, the decision-making for their positions or room choices is based on their relatives and budget.
1.1.3 Memory	In case study 1, the concept of home or the concept of the resort are enhanced. Familiar objects are arranged within the	In case study 2, concept of home or concept of resort are enhanced. Familiar objects are arranged within the spaces.	In case study 3, familiar objects are arranged within the spaces. Being familiar with a specified	In case study 4, familiar objects are arranged within the spaces. Being familiar with a specified	Familiar objects are arranged within the spaces. Being familiar with a specified environment can

	spaces. Being familiar with a specified environment can cause people with dementia to feel more comfortable through recognition. For instance, a well-known song or sound can stimulate them.	Being familiar with a specified environment can cause people with dementia to feel more comfortable through recognition. For instance, a well-known songs or photographs can stimulate them.	environment can make a patient feel more comfortable through recognition. However, there is a limited budget and availability on this. Photographs are used for memory rehabilitation in case study 3. However, there is no evidence in the design of physical environment.	environment can make a patient feel more comfortable through recognition. However, there is a limited budget and availability on this. In addition, cultural objects are used in case study 4.	cause people with dementia to feel more comfortable through recognition.
1.1.4 Natural Environment	Objects or activities with sensation were arranged within the care facilities. Multi-sensory environment was expressed through the natural environment.	In case study 2, multi-sensory environment was expressed through the natural environment. Location of case study 2 is closed to scenery and views.	In case study 3, multi-sensory environment was expressed through the natural environment. However, there are some limitations within the care	In case study 4, multi-sensory environment was expressed through the natural environment. However, there are some limitations within the care	Most case studies enhance objects or activities with sensation were arranged within the care facilities. However, the main limitations of natural

	Location of case study 1 is closed to scenery and views.		facilities regarding natural environments. Location of case study 3 locates in urban area. So, natural environment is in rooftop garden.	facilities regarding natural environments. Location of case study 4 locates in urban area. So, natural environment is in rooftop garden.	environments are locations and space limitations.
1.2 Functionality	Functionality of the design of care facilities in case study 1 has been encouraged by social interaction by common spaces in both indoor and outdoor spaces. Various activities were supplied in dementia care facilities. Activities and programmes are promoted in case study 1.	Functionality of the design of care facilities in case study 2 has been encouraged by social interaction by common spaces in both indoor and outdoor spaces. Various activities were supplied in dementia care facilities. Activities and programmes are promoted in case study 2.	Functionality of the design of care facilities in case study 3 has been encouraged by social interaction by common spaces in both indoor and outdoor spaces. Not many activities were offered in dementia care facilities. However, not many activities are supported in case	Functionality of the design of care facilities in case study 4 has been enhanced by social interaction by common spaces in both indoor and outdoor spaces. Not many activities were offered in dementia care facilities. However, not many activities are supported in case study 4 due to its care policy.	Most case studies argue for the importance of the design of the physical environment of the dementia care facilities. Social interaction by the function of common spaces in both indoor and outdoor environment were occupied with various activities. However, not many activities are supported in case

			study 3 due to limited caregivers.		study 3 and case study 4. The main reasons are the limited number of caregivers.
1.2.1 Social interaction	Social interaction in case study 1 has been encouraged by care stakeholders, activities, and the understanding of ADLs. Languages and group exercises are enhanced.	Social interaction in case study 2 has been enhanced by care stakeholders, activities, and the understanding of ADLs. Languages and group exercises are enhanced.	Social interaction in case study 3 has not been enhanced by care stakeholders and the understanding of ADLs. However, not many social interaction activities are offered.	Social interaction in case study 4 has not been enhanced by care stakeholders and the understanding of ADLs. However, not many social interaction activities are offered.	The social interaction in some case studies has been encouraged by care stakeholders, available activities and dementia knowledge. Languages and group exercises were enhanced in case study 1 and case study 2. However, only a few activities for social interactions are offered in case study 3 and case study 4.

1.2.2 Activities	Activities in case study 1 are provoked in daily schedules of people with dementia. The activities are flexible and can be personalised.	Activities in case study 2 are provoked in daily schedules of people with dementia. The activities are flexible and can be personalised.	Activities in case study 3 are enhanced in people with dementia's daily routines. However, most of the activities are structured by the care managers.	Activities in case study 4 are enhanced in people with dementia's daily routines. However, most of the activities are structured by the care managers.	Activities in all case studies are enhanced in people with dementia's daily routines and other ADLs. However, in some case studies, the activities are structured by care managers and the care policy.
1.2.3 Mobility	Mobility in case study 1 has been developed in the physical environment, especially wandering. Handrails and ramp are applied.	Mobility in case study 2 has been developed in the physical environment, especially wandering. Handrails and ramp are installed. However, some ramps are not proportional.	Mobility in case study 3 has been enhanced in the physical environment, especially wandering. It is a corridor type.	Mobility in case study 4 has been enhanced in the physical environment, especially wandering. It is a corridor type.	All case studies suggested that mobility should be enhanced in the design of the physical environment, especially for wandering. Equipment such as handrails and ramps should be applied. However, in case

					study 3 and case study 4, the circulation is designed as a corridor type.
1.3 Aesthetics	Case study 1's design was also enhanced by pleasure. The concept of well-being was also supported by the natural environment.	Case study 2's design was also enhanced by pleasure. The concept of well-being was also supported by the natural environment.	Case study 3's design was not enhanced by pleasure. The concept of well-being was not very supported by the natural environment.	Case study 4's design was also enhanced by pleasure. The concept of well-being was not very supported by the natural environment.	The intention of pleasure enhanced most designs of case studies. However, the concept of well-being was supported by the natural environment in some cases due to the design values.
1.3.1 Pleasure	Case study 1's design was also enhanced by pleasure and the design aesthetics. Care professionals craft conditions invite residents to take pleasure in various activities. For	Case study 2's design was also enhanced by pleasure and the design aesthetics. Care professionals craft conditions that invite residents to take pleasure in various activities. For	Case study 3's design was focused on functionality The context and mindset don't allow it to do. The stakeholders did not value much about pleasure in leisure	Case study 3's design was focused on functionality The context and mindset don't allow it to do. The stakeholders did not value much about pleasure in leisure	The concept of pleasure was understood differently in most case studies. Care professionals craft conditions to invite residents to take pleasure in various activities—for

	example, these could include dancing or bathing.	example, these could include dancing or bathing.	activities or design aesthetics.	activities or design aesthetics.	example, dancing or bathing
1.3.2 Well-being	The concept of well-being was largely supported by the natural environment in Case study 1.	The concept of well-being was largely supported by the natural environment in Case study 2.	The concept of well-being was also supported by the natural environment. However, the case study does not present this quality.	The concept of well-being was also supported by the natural environment and the community. However, the case study does not present this quality.	The concept of pleasure was understood differently in most case studies. Care professionals craft conditions to invite residents to enjoy various activities—for example, dancing or bathing.
2.Manageability for hospitality	Manageability describes a measurement, which an employee perceives required and available resources to cope with workplace demands. In this case, cultural values and beliefs about older people and dementia care may differ in different case studies. The intersection of culture with person-centred dementia care provisions currently lacks clarity.				
2.1 Resilience	Case study 1 has a flexible layout. Also, it recruits flexible people for the creativity of care. As	Case study 2 has a flexible layout. Moreover, it recruits flexible people for the creativity of care. As	Case study 3 does not have a flexible layout. Also, it recruits flexible people for the creativity of care. As	Case study 4 does not have a flexible layout. Also, it recruits flexible people for the creativity of care. As	Flexibility, such as flexible layout and people, was applied to the creativity of care. However, in

	the space is flexible, creativity occurs. In addition, care stakeholders in case study 1 are both Thai and foreigners which can enhance cultural hybridity.	the space is flexible, creativity occurs. In addition, care stakeholders in case study 2 are both Thai and foreigners which can enhance cultural hybridity.	the space is flexible, creativity occurs. In addition, care stakeholders in case study 3 are only Thai which can enhance cultural hybridity. But this depends on each person.	the space is flexible, creativity occurs. In addition, care stakeholders in case study 4 are only Thai which can enhance cultural hybridity. But this depends on each person.	case study 3 and case study 4, care stakeholders are only Thai who can have the quality of cultural hybridity, but it still depends on each person.
2.1.1 Flexibility	Case study 1 recruits' flexible care stakeholders for the creativity of care. As the space is flexible, creativity occurs.	Case study 2 recruits' flexible care stakeholders for the creativity of care. As the space is flexible, creativity occurs.	Case study 3 does not have criteria for recruiting However, the space is not flexible for care stakeholders to adapt.	Case study 4 does not have criteria for recruiting However, the space is not flexible for care stakeholders to adapt.	The ideal quality of flexibility is enhanced in all case studies. However, in some case studies, the space is not flexible for care stakeholders to adapt.
2.1.2 Perception	Care stakeholders in case study 1 are both Thai and foreigners which can enhance cultural hybridity.	Care stakeholders in case study 2 are both Thai and foreigners which enhanced cultural hybridity in care culture.	Care stakeholders in case study 3 are only Thai which does not enhance cultural hybridity and perception.	Care stakeholders in case study 4 are both Thai and foreigners (Japanese) which can enhance cultural	All case studies aim to provoke cultural hybridity in care organisations. However, some case studies with only one

				hybridity and perception.	nationality cannot enhance the cultural hybridity and perception of the care professionals.
2.2 Caring	Case study 1 has a ritual of care based on Thai culture. Also, the ritual of care also supports the emotion of people with dementia.	Case study 2 has a ritual of care based on Thai culture. Also, the ritual of care also supports the emotion of people with dementia.	Case study 3 has a ritual of care based on Thai culture. Also, the ritual of care also supports the emotion of people with dementia. However, it is more with medical model of care.	Case study 4 has a ritual of care based on Thai culture. Also, the ritual of care also supports the emotion of people with dementia. However, it is more with medical model of care.	All case studies have a ritual of care based on Thai culture, as it supports the emotion of people with dementia. However, the contradiction is that it depends on each care organisation's care model.
2.2.1 Ritual of care	Case study 1 constructs their own ritual of care, which is based on traditional Thai culture of collectivism and	Case study 2 has a ritual of care based on Thai culture. A good clarification in scriptural Buddhism that everybody is individually	Case study 3 has a ritual of care based on Thai culture. The care is based on medical model of care, which dominates by social	Case study 4 has a ritual of care based on Thai culture. The care is based on medical model of care, which dominates by social	All case studies have constructed their ritual of care. However, it depends on the model of care. For example, the care is based on the

	Buddhism, which focuses on the self.	responsible for karma and that there is no direction to turn to other than toward the self.	hierarchy and organisational policy.	hierarchy and organisational policy.	medical model of care, which dominates by social hierarchy and organisational policy.
2.2.2 Collectivist culture	The collectivist culture helps to enhance the sense of community for people with dementia in the care facility. The concept of family-oriented care influences the culture of care in case study 1 by thinking about the collective goals rather than the individuals' goals.	Even though collectivist culture is family-oriented care, which is the main goal of case study 2, the individualistic view of each client and relative is still the primary care approach.	Even though collectivist culture is family-oriented care, which is the main goal of case study 2, the individualistic view of each client and relative is still the primary care approach.	Even though the primary mission of case study 4 is a family-oriented care approach (to care like families), the individualistic view of each client and relative is still the primary care approach (based on the medical model).	Family-oriented care influences the culture of care in all case studies. However, some case studies mainly focus on the medical model of care.
2.2.3 Emotion	Case study 1 integrates hospitality services which can also influence the	Case study 2 integrates hospitality services, which can also influence the	Without appropriate dementia care training, emotion is attached to people	Case study 4 integrates dementia care training, which detaches emotion	Only case study 1 and case study 2 integrate the hospitality services,

	culture of care to detach emotion from caring to set professional boundaries. A sense of otherness creates a distance when caring due to dementia care training.	culture of care and emotional support for people with dementia and their relatives. However, without proper dementia care training, the emotion of care staff is attached to people with dementia and may cause a care burden.	with dementia and their relatives. This can cause care burden and care stress.	from caring to set boundaries of the profession. This can enhance the sense of otherness, creating a distance between caregivers and care recipients.	which can also enhance the sense of otherness because of western caregivers. However, without an appropriated dementia care training, emotion is attached to people with dementia and their relatives in case studies 3 and 4. Emotion should have been discussed during the interviews.
3.Perception of Place	Perception of place is considered as people with dementia to stay at home and within their own homes. Concept of home is often perceived as a place for sense of belonging to live a good and meaningful life (Førsund, 2018).				
3.1 Expectations	Case study 1 has a branding and advanced care planning strategy that supports care	Case study 2 has a branding strategy that supports the personalised routines of people with	Case study 3 does not have a branding strategy that supports the lifestyle and	Case study 4 does not have a branding strategy that supports the lifestyle and values the care	Only case study 1 and case study 2 have a branding strategy that supports the lifestyle and

	standards, the quality of care, and lifestyle. Quality of life and happiness is the highest goal of the care facility.	dementia. However, there is no exact planning for individuals.	values the care expectation.	expectation. The care strategy is separated from the design of the physical environment.	values the patient's expectations. In contrast, case study 3 and case study 4 supports only the medical outcomes of people with dementia. Most care strategies are separated from the design of the physical environment.
3.1.1 Lifestyles	A lifestyle in case study 1 is one of the main concepts. Based on observation, most programmes are tailored personally to users' lifestyles.	A lifestyle in case study 2 is one of the main concepts. However, they used the term 'routine' instead. Most programmes are tailored personally to users' lifestyles.	Due to limited spaces and perception of dementia care, facilities of case study 3 do not support activities based on individual's lifestyles. Most programmes are structured.	Due to limited spaces and perception of dementia care, facilities of case study 4 do not support activities based on individual's lifestyles. Most programmes are structured.	Most programmes are structured. Case study 1 and case study 2 offer most programmes tailored to users' lifestyles. However, the facilities and care policy of case studies 3 and 4 do not support activities

				based on individual's lifestyles.
3.1.2 Privilege	As most guests are foreigners (mainly from western countries), the care staff treats them with a sense of hospitality and can be interpreted as privilege.	As most guests are foreigners (mainly from western countries), the care staff treats them with a sense of hospitality and can be interpreted as privilege.	As most care stakeholders and guests are Thai or Asian, the hierarchy seems equal but has some differences in patient-medical professionals' manner.	As most care stakeholders and guests are Thai or Asian, the hierarchy seems equal but has some differences in patient-medical professionals' manner.	Case study 1 and case study 2 follow neoliberal pursuits in post-retirement and the presumption. However, case studies 3 and 4 do not show this because most care stakeholders and people with dementia are Thai.
3.2 Destination Satisfaction	Case study 1 is owned by western entrepreneurs, and most residents are from western countries. The available facilities are planned to meet the	Case study 2 is owned by western entrepreneurs, and most residents are from western countries. The available facilities are planned to meet the	Case study 3 is owned by a Thai entrepreneur; most residents are locals and Asian. Due to the business planning, the care facility does not aim to target itself as a destination.	Case study 4 is owned by a Thai entrepreneur; most residents are locals and Asians. Due to the business planning, the care facility does not use design to attract	Case study 1 and case study 2 have available facilities, which are planned to match the destination's satisfaction. However, case studies 3 and 4's

	tourist destination's satisfaction.	tourist destination's satisfaction.		customers' destination satisfaction.	available facilities are not planned to meet the destination satisfaction.

6.4   Conclusion

In summary, regarding an enabling environment (based on the capabilities approach and the salutogenic approach) for dementia care, the designers in this study agreed to establish factors in three major domains. The main research findings included these domains: comprehensibility of architectural languages, manageability of hospitality, and perceptions of place. Together, these have nine sub-themes and 15 sub-sub-themes, ranging from perception to personality.

The findings indicate that an individual's sense of coherence plays a role in supporting higher levels of physical and mental health, increasing their abilities to provide healthy workplaces as well as promoting health and minimising the risk of disease. It was found that the perceptions of comprehensibility, manageability, and meaningfulness are influenced by the interaction between individual characteristics (an employee's personality and experiences) and the characteristics of the working environment (work-related structures). Importantly, culture can define appropriated resources to understand how the SOC works (Deger, 2018). Instead, personal identity expression was still neglected for the meaning of place. Thus, design perception demonstrates ritual performance integrated with the external world, gives rise to a performative experience of authenticity, and facilitates a deep understanding of the link between memory, habitus, and embodied practice (Andrade and Richards, 2022). The next chapter will present an ethnographic study of dementia care facilities which aimed to investigate the use of space by end users, including people with dementia, caregivers, and care stakeholders.

7 ETHNOGRAPHY

7.1 Introduction

This chapter presents an ethnographic study of dementia care facilities which aimed to investigate the use of space by end users, including people with dementia, caregivers, and care stakeholders (as shown in Figure 83). The design of dementia care is often seen as a type of specialised design that causes stigmatisation because the perception of space and how it is used is different, especially for people with dementia. However, the salutogenic design enables people with dementia to engage with the environments and applies as an embodied experience in parallel with aesthetics (Golembiewski, 2010). Therefore, how people with dementia utilise these spaces is explored by observing how the design of an enabling environment can support their capabilities and the quality of care. Ethnographic studies comprise four main research methods: ethnography, POE, behavioural mapping, and autoethnography.
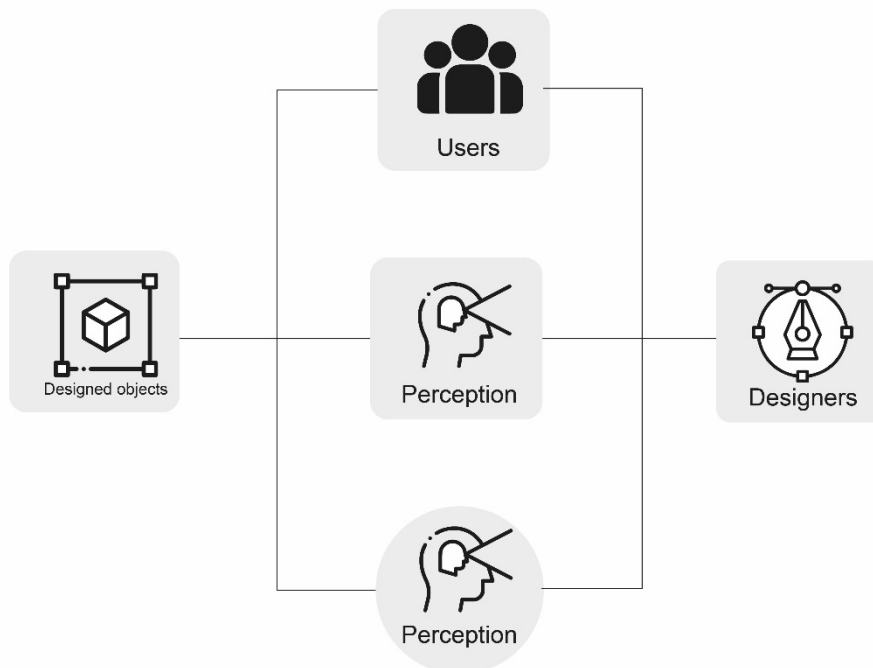
Figure 83 Perception of Researchers

The findings of this chapter demonstrate the pattern of space usage, which encompasses culture, meaning, representations, bodies, and their sensory issues based on environmental psychology. Three main domains emerged including normalness, atmosphere, and perception. In this sense, normalness shows how the design can enable mobility and the capabilities of people with dementia; atmosphere attracts the users' behaviours; and, finally, perception defines the person-centredness of individuals. The following sections will analyse these domains, themes, and sub-themes that comprise the essential elements of the use of space.

7.2 Methods

The ethnographic studies include four main research methods: ethnography, behavioural mapping, POE, and autoethnography, all of which were conducted in the four selected case studies in Thailand, which were selected by using criteria such as transnational clients and salutogenic design settings (as illustrated in Figure 84). The first research method, ethnography, was conducted by using fieldnotes, photography, and in-situ sketches to record the relationship between end users' behaviours and the designed physical environment. The second, behavioural mapping, was conducted by recruiting two pairs of residents and caregivers as participants and observing them from 9 am to 4 pm, which was arranged by the gatekeepers of each case study (as shown in Figure 84). The third research method, POE, developing from existing design tools and literature reviews, was used to evaluate the design of the physical environment for dementia care. The fourth, autoethnography, uses drawings and sketches to illustrate the researcher's perception and experience towards the dementia care facilities. The ethnographic findings were analysed by thematic analysis. The ethnographic data such as photographs, POE, and autoethnographic analysis was put into a comparable analysis table (as shown in Figure 84). The written descriptions were coded and themed according to the developed themes from semi-structured interviews.
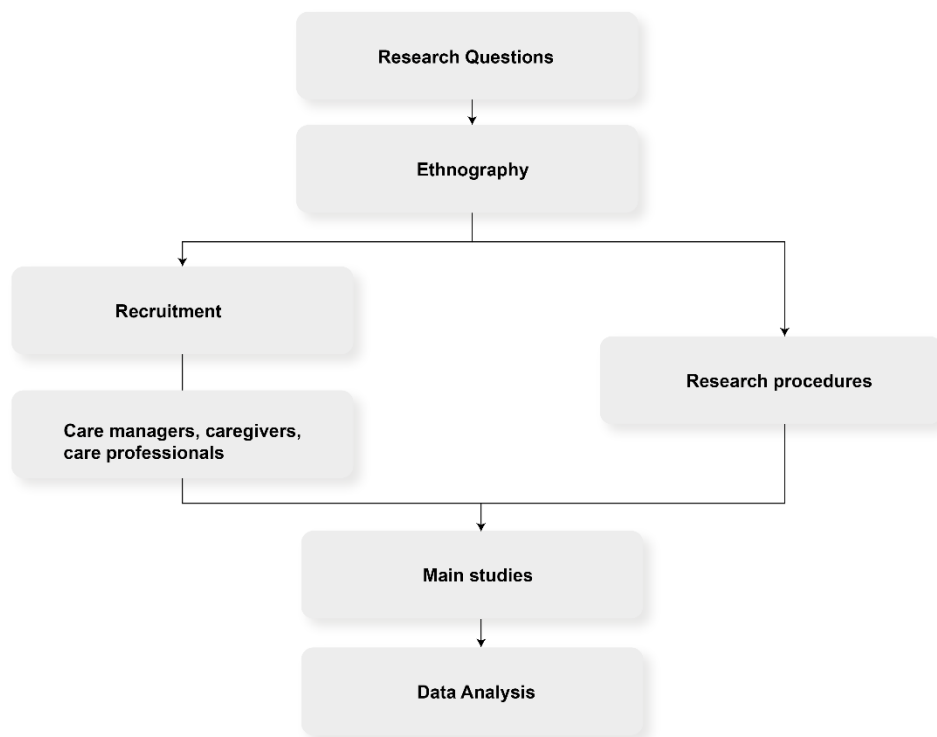
Figure 84 Research Methodology Flowchart

Figure 85 Analysis Table

Table 7 Research Participants

Participant No.	Occupation	Gender	Nationality	Age	Case Study	Background
1	Resident	Female	German	36-55	Case Study 1	Active but have symptoms of dementia
1	Caregiver	Female	Thai	18-25	Case Study 1	-
2	Resident	Male	Swiss	85	Case Study 1	Wheelchair but can still walk
2	Caregiver	Female	Thai	18-25	Case Study 1	-
3	Resident	Female	American	65	Case Study 2	Late-stage dementia and wandering
3	Caregiver	Male	Thai	18-25	Case Study 2	-
4	Resident	Female	British	80	Case Study 2	Wheelchair and cannot walk
4	Caregiver	Female	Thai	18-25	Case Study 2	-
5	Resident	Male	Chinese	70	Case Study 3	-
5	Caregiver	Male	Thai	18-25	Case Study 3	-
6	Resident	Male	Chinese/Thai	70+	Case Study 3	Deft
6	Caregiver	Female	Thai	18-25	Case Study 3	-
7	Resident	Male	Japanese	70+	Case Study 4	Deft
7	Caregiver	Female	Thai	18-25	Case Study 4	-
8	Resident	Female	Japanese	75	Case Study 4	Violent behaviours, mood disorders
8	Caregiver	Male	Thai	18-25	Case Study 4	-

7.3   Findings

The findings indicate that the users' utilisation of space as tactics can project the new image of dementia and means of the power dynamics between the care stakeholders and people with dementia, which can be translated into **three main domains: normalness, atmosphere, and perceptions.** The first theme, normalness, comprises three themes and seven sub-themes. The second theme, atmosphere, has two themes and four sub-themes. The third theme, perceptions, is composed of two themes and four sub-themes (see Figure 86).

The first domain is **normalness**, which often refers to how communal spaces are designed around the programme and functions of a village – such as theatres, supermarkets, and restaurants – to simulate the normality of their daily lives. Moreover, the normalness of the environment can be defined as an engagement of residents through sensory stimulation and

long-term memories (Bowes and Dawson, 2019) by including natural environment and activities into daily routines (Day, Carreon and Stump, 2000).

The second domain is **atmosphere,** which can be defined as how humans construct their social environment. The concept of atmosphere shows how the atmospheric properties of dementia are determinants of how they are perceived by moving from physical aspects (Spence, 2020). The atmosphere of a particular care space may shift and collectively generated (Hatton, 2021).

The third domain is **perception**. People with dementia often experience and perceive differently as their dementia progresses. Due to damaged senses, reality may seem to be different and misunderstood, which can cause frustration, confusion, and distress for both people with dementia and caregivers.

The findings represent the concept of 'community', which indicates a social place within physical environments in forms of an organisation, a group of individuals in a society, or a culture (MacQueen et al., 2001). As shown in Figure 86, the definition of a dementia-friendly community can be reached and appears obvious. Finally, the three domains of normalness, atmosphere, and perceptions determine into a place and culture, which people with dementia and care stakeholders are mutually occupied, empowered, and included in the constructed society (Galvin, Valois and Zweig, 2014). The full potential of people with dementia is recognised by human rights (Cohen-Mansfield, 2021). From the four case studies, the findings are diverse and are mainly based on the perceived hierarchy of social structure. This can be expressed by architectural design as a cultural product, as the main aim of architecture is to conceive an adequate environment for human beings. If designers base their conception only on their own perceptions of the environment, in other words, a tool can be created to replace users by designing the space based on their perceptions of it. As a result, referring to Michel De Certeau (2011), the systems of operational combinations of resistance lead to a new culture. However, the perception of culture depends on a global, non-personal, objective definition of the space. It is achieved by understanding the mechanisms underlying human perception and the phenomena that influence it, which can be inclusive and built around common characteristics of the space. The following section will discuss the definition of domains, themes, and sub-themes.
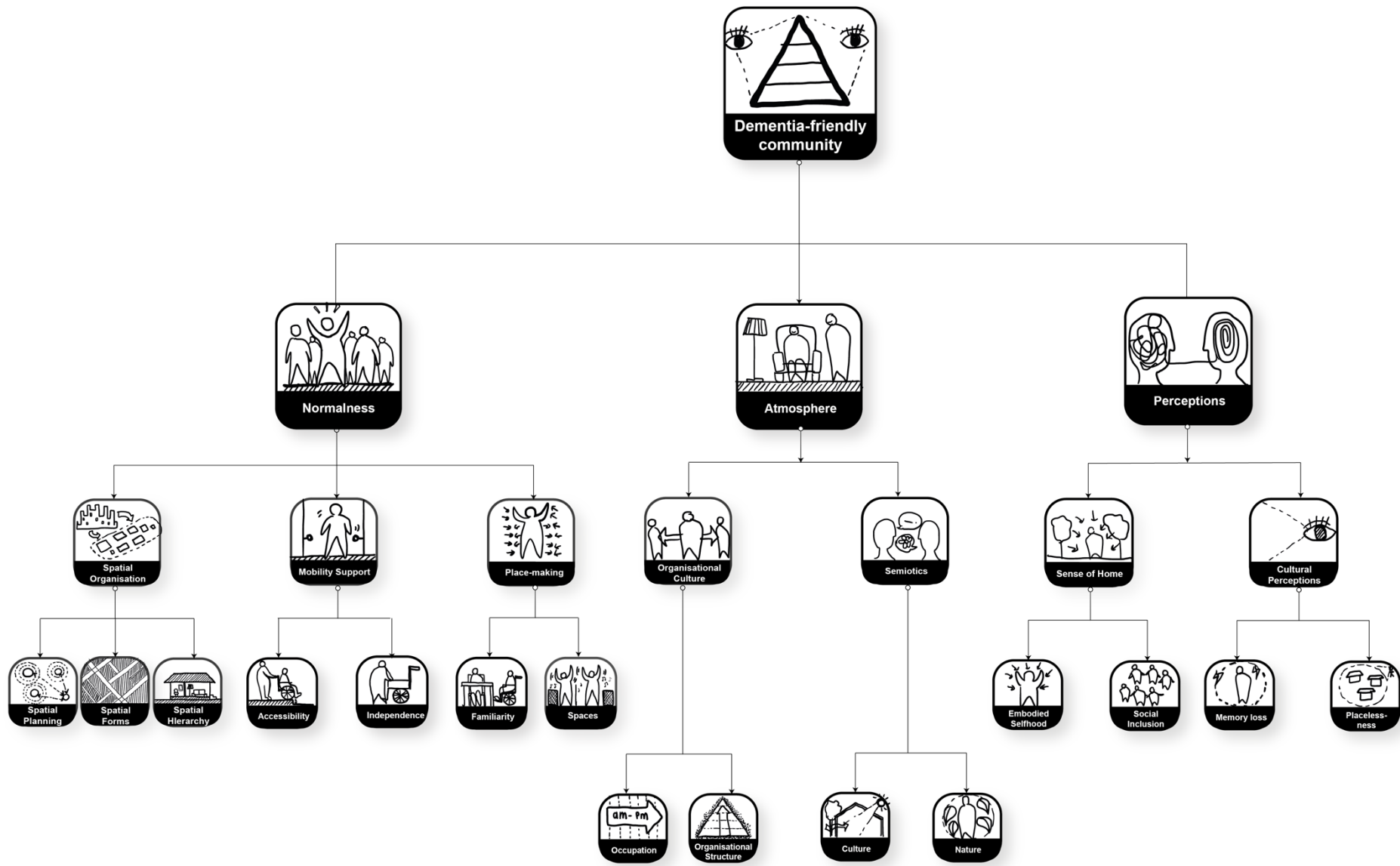
Figure 86 Dementia-friendly community

7.3.1 Normalness

In the context of dementia care, normalness often refers to how communal spaces are designed around the programme and functions of a village – such as theatres, supermarkets, and restaurants – to simulate the normality of their daily lives (as shown in Figure 87). Through sensory stimulation and long-term memories reinforcement, the normalness of the environment can increase residents' engagement (Marshall and Hutchinson, 2001), and can be incorporated natural-based activities into daily routines (Coventry *et al.,* 2021). However, people with dementia require varying means of support, because mobility is not just limited by physical or sensory impairments, as people get confused and lost (Koutnu and Miesenberger, 2011). The quality of life in older people can be defined by independent living and mobility in the physical environment (Talarska *et al.,* 2018). Hence, the research study suggests that care facilities' physical state should be considered in the planning stage and refer to the projection of the end users' image which aims to acknowledge the normalisation process.

As shown in Figure 87, there are three main themes of promoting independent domains: spatial organisation, which includes the three sub-themes of spatial planning, spatial form, and spatial hierarchy; mobility support and its two sub-themes: accessibility and independence; and place-making and its two sub-themes: familiarity and spaces.

Figure 87 Domain of Normalness

Figure 88 Autoethnography of the site context

7.3.1.1 Spatial Organisation

Different residents' needs are depending on the type and stage of dementia (Volicer, 2007), which result in mobility and sensory stimulation of the physical environment (Tolea, Morris and Galvin, 2016). Although most people with dementia live in communities, similar guidance does not exist in relation to the outdoor environment (Bayat and Mihailidis, 2021). To identify aspects of design in making the outside world dementia friendly, the current knowledge of best practices for indoor environments was examined (Mitchell *et. al*, 2003). A well-designed high street, housing developments and transport networks that support inclusive and active travel, and community space make a significant contribution to staying active and connected (RTPI, 2017). Architectural design solutions are enabled people with dementia to continue to negotiate and navigate in their local neighbourhoods (Mitchell *et al*., 2016; Mitchell, Burton and Raman, 2004). A major influence in design guidelines such as familiarity, legibility, distinctiveness, accessibility, comfort, and safety should be followed (Mitchell, 2003; Afacan and Afacan, 2011). Hence, there is a purpose-built approach to integrate into the existing landscapes and simultaneously elevate the users' social hierarchy.

There are three main sub-themes as shown in Figure 89. The first is spatial planning, which describes the focus on nodal concentrations and their interdependence, providing the basis for a more relevant regional geography. The second is spatial form, which depicts the environment's layout, and a structure which generally supports orientation abilities. The third is spatial hierarchy, which helps users navigate within the care facilities.
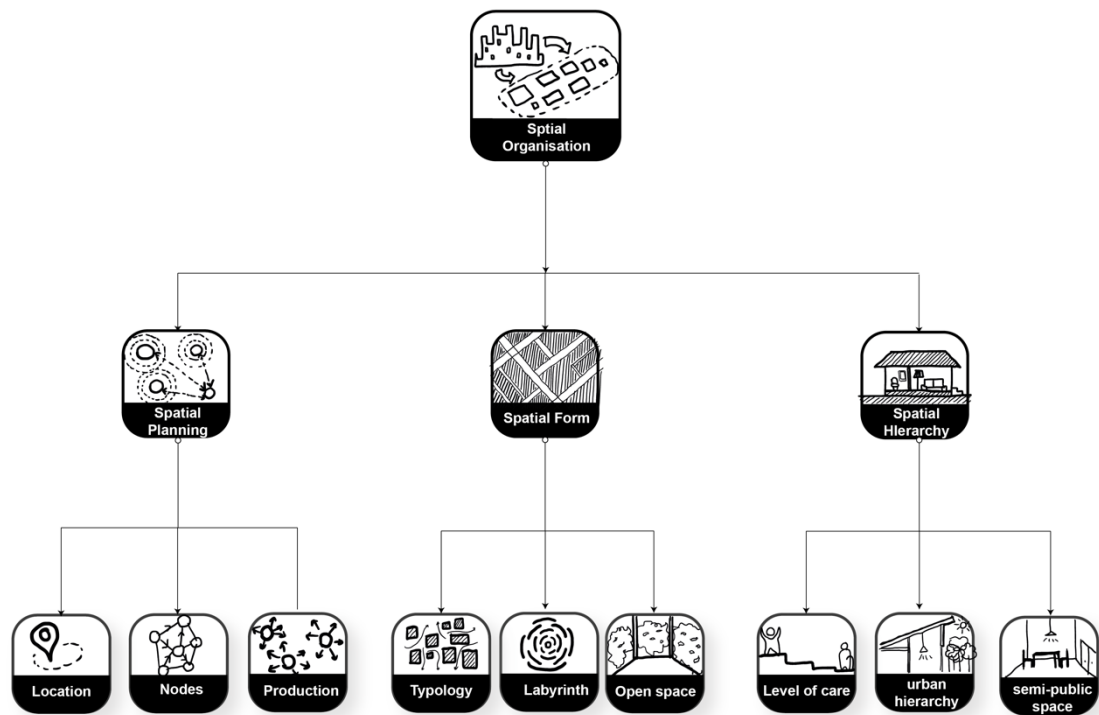
Figure 89 Theme of Spatial Organisation

7.3.1.1.1 Spatial Planning

Spatial planning refers to the distribution of people, which also comprises the concept of 'dementia-friendly communities' and other concepts e.g., dementia as a disability, equal human rights, a sense of meaning to empower people with dementia and other care stakeholders (Mathie *et al.,* 2022). In this case, a dementia-friendly community can be defined as a place or culture (Lin, 2017) where their quality of life is supported and experienced with meaning, purpose, and value (Lin, 2017). Instead of software support, the spatial planning (of Case Studies 1, 2 and 4) combines the concept of urban systems, which derives from regional geography, traditional macro-scale urban analysis, and regional economics.

Selecting a location for the destination is essential because environments may be crowded, which may be uncomfortable or overstimulating (see Blackman *et al.*'s 2003 review of research, which indicates that calm, familiar, and welcoming environments are the most dementia friendly). In terms of location and its ability to expand, purpose-built case studies (1 and 4) follow theories that take into account 'city-founders' and 'city-fillers', to distinguish

between activities that establish a community and those that persist because the city continues to exist (Swanson and Swanson, 1977, p. 23).

By creating more commercial nodes within residential neighbourhoods or dementia care facilities – for example, building corner stores within walking distance, social contact in the neighborhood may maintain cognitive reserve, especially in early stages, and slow dementia progression (Gan and Trivic, 2021). A theory of the organisation of cities shows as multilevel networks, including two main observable levels, where specific emergent properties can be observed. However, there are varying destinations within the site, such as activity spaces. Additionally, motivation and attraction as mentioned in the interviews suggest that social spaces – such as food production, restaurants, or the nurse's office in Case Study 2 – are the main attractions. The resorts are simultaneously working as the connecting node that connects with the city centre.

This leads to the experiential potential of food, which stimulated a growing interest in food tourism among tourism services and destination management organisations (Andersson, Mossberg and Therkelsen, 2017). The role of production can link at the outset to acknowledge that is a comprehensive exploration of food and urbanism, which provides insight into how food and food-related activities might be better integrated to achieve more sustainable urban spaces (Parham, 2018). As shown in Figure 90, the restaurants and the resort's bakery provide ongoing urbanisation and an increasing decentralisation of production. Urban factories are production systems located in an urban environment that make use of the unique resources and characteristics of their surroundings to create products locally, with a potentially high degree of customer involvement (Herrmann *et al*., 2020).

Figure 90 A sketch of the restaurant at Case Study 1

Spatial planning (table on page 210) has shown more attention to urban design and planning, considering the choices of two rural and two urban case studies. The relationships between contexts, accessibility, and infrastructure (Labi *et al.,* 2019) are investigated and presented in design recommendations. The choices of two rural and urban case studies were further analysed to impact the relationship with context and infrastructure. A summary table was added.

7.3.1.1.2 Spatial Form

The new healthcare paradigm, especially dementia care facilities, has had a very large influence on the form and type of building, architectural practices, and design of healthy spaces designed for end users (Quesada-Garcia and Valero, 2017). Increasing the quality of life and integrity are a key to providing care services for people with dementia (Lawrence *et al.,* 2012). Hence, the spatial form and navigation of a city should be opened (McCunn and Gifford, 2021) and available to all members, regardless of their age or ability (Masolo, 2002). As an environment's layout and structure are generally accepted as an impact on orientation abilities, many dementia-friendly design guidelines have emphasised to improve wayfinding and orientation for people with dementia (Wiener and Pazzagia, 2021).

The findings are supported by Kuliga, Berwig and Roes (2021), who argue for a physical environment designed to navigate and plan wayfinding strategies. In the context of dementia care, the concept of wandering raises safety concerns and covers different types of behaviour, including aimless movement without a discernible purpose. Case Studies 1 and 2 emphasise easy-to-follow routes, continuous pathways with loops and no dead-ends. Identical building blocks for wandering can form a labyrinth (O'Malley *et al.*, 2018), which allows a state of flow. In addition, the therapeutic game 'Labyrinth' (Ning et al., 2020) and the rehabilitation of people with dementia were implemented in both case studies. In contrast, Case studies 3 and 4 have a corridor-type circulation, with dead-ends, which may cause aggression if people clash at the end of corridors (Tilly, 2015). Hence, circulation should be designed to help support mobility and independence in circulating within the site.

By intertwining with the natural environment (Figure 91 and Figure 92), Case Studies 1 and 2 also offer a clear open space, which are public spaces that the users can easily recognise. But if, in the consolidated city, the piazza is a space 'open' and 'exterior' by nature that is well recognisable in its morphological structure, in the modern, dispersed city, the idea of public space is detached from this 'openness' and 'exteriority'. It is more related to the apparent oppositions – e.g., open–closed, exterior–interior, public–private – on which the traditional town was organised. Moreover, porosity is one spatial quality that can benefit the public spaces that seek to make the urban fabric porous while continuing to play their role in bounding traditional public spaces such as streets and squares.
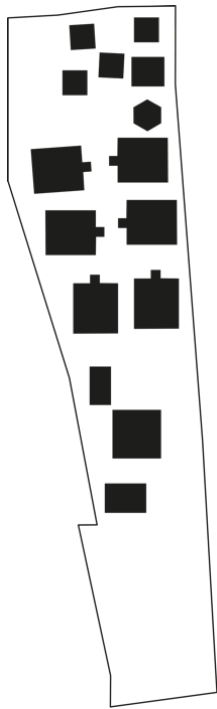
Figure 91 Spatial form of Case Study 1

Figure 92 Spatial form of Case Study 2

A table and diagrams (Table 10) were added, which depicted the case studies' perception of public-private and open-closed spaces. The case study sites have a similar function, but a different logic guides the arrangement. The context of the surrounding areas was illustrated to help understand the spatial hierarchy.

7.3.1.1.3 Spatial Hierarchy

Spatial navigation is a multifaceted skill that involves the integration of visual, proprioceptive, and vestibular inputs, and engages multiple cognitive processes (Verghese, Lipton and Ayers, 2017). In this case, the building's spatial layout is critical to the architectural legibility, requiring a degree of control and clarity for access to the site, internal circulation, and a clear spatial hierarchy in the form of a public/private gradient. Hence, the gradient of spatial hierarchy (such as semi-public spaces) and the presence of public spaces can reinforce their hidden energy to emphasise them to come out (similar to urban hierarchy). Consequently, this strategy required a certain degree of control and clarity regarding access to the facility, as well as a clear spatial hierarchy in the form of a privacy gradient, the lack of which is one of the distinguishing features of institutional buildings (Thompson *et al*., 1996; Hanson, 2003).

Levels of care are the main order for Case Study 1 from private to public. The planning was arranged by hierarchy starting from Pavilion 1 and 2 for care stakeholders and tourists. Pavilions 3 to 6 follow the levels of care respectively where the residents in inner pavilions could go to the public space. In contrast, Case Study 2 is not arranged from the logic of hierarchy – social segregation without a pattern causing memory units to be separated.

Not only the planning, but spatial hierarchy is also displayed in the spatial form as well for example high ceiling. Like an imitation of urban hierarchy, it reflects the quality of the architecture, in Case study 1, which is designed for bourgeois occupation, incorporating generously proportioned spaces and high ceilings (particularly related to the piano nobile, and diminishing above this). However, it also reflects the scope provided by Haussmann's own brand of 'façadism', which resulted often in a jumble of buildings at the heart of urban blocks, for ongoing interior transformations and improvements (Smith, 2013).

Moreover, spatial hierarchy can significantly support spatial coherence in visibility. Similar to urban spaces, patterns of pedestrian movement in cities are influenced by the visibility of urban activities. As a result, the visibility propagation reuses information about the visibility of neighbouring spatial regions. Finally, conservative hierarchy updating avoids visibility tests of the hierarchy nodes that are expected to remain visible in Case Studies 1 and 2. As illustrated in Figure 93, there were more semi-public spaces such as alcoves and seats around core activity spaces, from which residents could watch activities. The threshold spaces offered residents a sense of control, especially if they were not sure whether they wanted to join an ongoing programme. Residents were observed walking around and sitting in alcoves, sometimes watching activities but not necessarily actively participating in conversations. This also happens inside the private room where semi-private areas are used as a transitional space (from their homes to the village to the outside – transitional spaces) (Sfinteș, 2012).

Key points of Case Studies

The following table illustrates the key points of case studies (that worked or did not work or was different due to the urban and rural context, within each specific case studies).

Table 8 Key Points of Case Studies

Key points of Case studies	Case study 1	Case study 2	Case study 3	Case study 4	Synthesis
Location	The dementia care facility locates in Doi Saket district, which is rural area, Chiangmai, Thailand	The dementia care facility locates in Mae Rim district which is in the rural area of Chiangmai, Thailand	The dementia care facility locates in suburban area of Bangkok metropolitan.	The dementia care facility locates in urban area (Krungthep Kreeta) of Bangkok, Thailand.	The main similarities and differences between case studies are locations. Case study 1 and case study 2 are located in the suburban area of Chiangmai and the resort areas. On the other hand, case studies 3 and 4 locations are also away from Bangkok's centre

					because of land cost. So, the main similarities are the proximity to the city centre due to the cost of land.
1.Worked (Things that worked out)	The case study 1 is a purpose-built design, located in the rural area of Chiangmai, Thailand. The dementia care facility has advantages in architectural planning and community planning in low-rise typology.

Moreover, the resort typology allows the combination between architectural design, orientation, and | The case study 2 is a renovated project, located in the rural area. This also has benefits on architectural and community planning (resort typology) in horizontal dimension in terms of wandering and other physical activities.

Moreover, nature and architectural design are intertwined with scenery, especially in | The case study 3 has a rooftop garden and a garden on the ground floor, which allows the users to make choices of activities. Moreover, there are communal living spaces on each floor. | Case study 4 has a rooftop garden which allows the users to see Bangkok's skyline. In addition, the case study has a systematic organisation for care training. | In summary, case studies 1 and 2 are arranged in a low-rise organisation. This type of arrangement allows people with dementia to do more physical activities. Moreover, both case studies are located in rural areas with views and scenery. In addition, these case studies are managed by |

	natural environment. Furthermore, care and staff management are manifested and integrated into the design of the physical environment.	rural areas. In addition, private rooms (or bungalows) provide personalised comfort and privacy in the architectural design.			foreigners and designed based on their lived experiences and reliable research.
2.Things that did not work	The case study 1 is a purpose-built design and based the design on research. As a result, the budget and management for the case study are quite expensive (compared to other cases). During the time of COVID-19, as the care facility is highly based on foreigners, it is very difficult to find clients.	Case study 2 has a structured hierarchical organisational culture which has been dominated by the care managers/owners. In addition, the renovated property has restriction of distances between villas which do not support employees and their work environment.	Case study 3 has limited spaces (the spaces are arranged in vertical organisation). Moreover, employees do not talk or collaborate with each other due to a structured and untrained staff. Significantly, corridor type walkway does not support	Case study 4 has limited spaces (the spaces are arranged in vertical organisation). Moreover, employees are organised in hierarchical positions which collaborate with each other due to a structured and hierarchical staff. Similar to case study 3, corridor type does	In comparing these four case studies, the main limiting factor is the limitation of spaces (the spaces are arranged in a vertical organisation), especially in case study 3 and case study 4, which are located in urban areas of Bangkok, Thailand.

	In addition, there are no safety and security procedures.		wandering and their physical capabilities.	not support wandering or independent activities.	
3.Different due to its urban and rural context	Case study 1 has natural views and scenery because the care facility is located in rural areas. Moreover, the location enhances the care facility to have silent and quiet spaces as well as accessibility to natural environment. As the community is quite sparse in rural areas, size and planning can be expandable.	Similar to case study 1, case study 2 has natural views and scenery because the care facility is located in rural areas. Moreover, the location enhances the care facility to have silent and quiet spaces. Accessibility to natural environment and water features are the main advantages. As the community is quite sparse in rural areas, size and planning can be expandable.	Located in the urban area of Bangkok, case study 3 has limited spaces for resort programmes. This causes the care facility to be a mid-rise building and difficult for end users to navigate around and occupy by activities.	Located in the urban context of Bangkok, case study 3 has limited spaces for resort programmes. This causes the care facility to be a mid-rise building and difficult for end users to wander around. Space of natural environments are limited and hard to maintain.	From these four case studies, the main factor is the differences in land sizes and master planning. Moreover, the difference in urban and rural contexts highlights the differences in natural views, scenery and the availability of natural environments inside the care facilities.
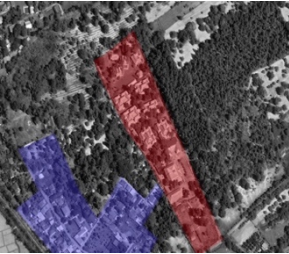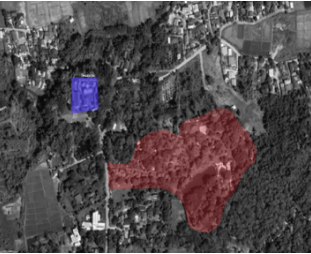
Spatial Planning of Case Studies
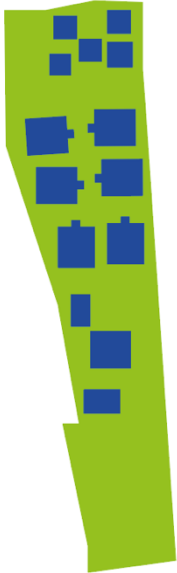
The following table illustrates the spatial planning of the case studies.
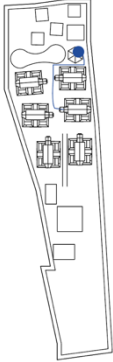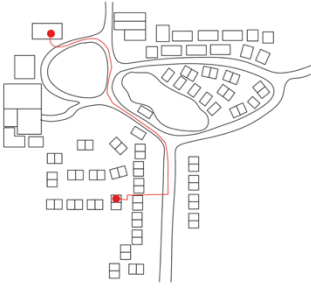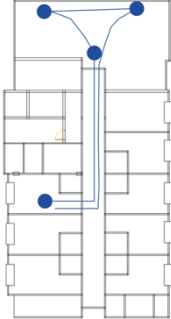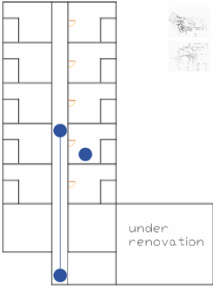
Table 9 Spatial Planning of Case Studies

Domains	Case study 1	Case study 2	Case study 3	Case study 4	Synthesis
Location	Case study 1 locate in rural area, Chiangmai, Thailand.	Case study 2 locate in rural area, Chiangmai, Thailand.	Case study 3 locate in urban area, Bangkok, Thailand.	Case study 4 locate in urban area, Bangkok, Thailand.	Different locations between case studies 1-2 and case studies 3-4 highlight the importance of location. All case studies are in rural parts of each province.
Relationship with context (culture)	Case study 1 has resources of caregivers can be recruited and trained more easily due to cultural reasons. This	Case study 2 has resources of caregivers can be recruited more easily. The rural context has a benefit of land size, scenery, and	The case study 3 does not culturally and socially connect to the context much in terms of physical environment and	Case study 4 does not culturally and socially connect to the context much in terms of physical environment and	Resources such as caregivers can be recruited and trained more quickly due to cultural reasons. Case

	is because the rural area has an advantage of land size, scenery, and a more friendly neighbourhood.	a scale of walkable neighbourhoods which locals can also help monitoring security.	programmes. They are quite isolated from the context. However, the only factor that matters is scenery which the care facility still connects to the context by scenery.	programmes and social hierarchy. However, the case study is quite isolated from the context but still connected to the outside environment by scenery and skyline.	studies 3 and 4 are located in a suburban area of Bangkok and are located next to industrial and commercial areas. The neighbourhoods are local communities and temples, which may indicate the characteristics and personality of caregivers. Hence, they need to be culturally and socially embedded in the context more in terms of physical environment and programmes.

Diagrams					
Layout	The rural context allows the care facility to expand the dementia care facilities in a horizontal manner. It is possible for the building layout to include various physical activities and accessibility.	The rural context allows the care facility to expand the dementia care facilities in a low-rise organisation. It is possible for the layout to include various physical activities and accessibility. Hence, there is also plenty of space for the natural environment.	In urban contexts, dementia care facilities have limited space to expand the layout horizontally. Consequently, a vertical organisation must be expandable which can cause difficulties in accessibility and some connection of physical activities.	In urban contexts, dementia care facilities have limited space to expand the layout horizontally. Thus, the dementia care facility has to expand in a vertical dimension, which can cause difficulties in accessibility and connection of some physical activities.	The building typology is designed for low to mid-rise buildings. The rural context allows the care facility to expand dementia care facilities horizontally. The layout is more scattered and integrated with the natural environment. In urban contexts, dementia care

				facilities have limited space to expand the layout horizontally.

Proximity to infrastructure	Case study 1, which is in a rural area is relatively far from the infrastructure in central Chiangmai, Thailand e.g., healthcare, and other commercial services. Hence, the users must be planned and arranged to go to selected destinations.	Case study 2, which is in a rural area is relatively far from the main infrastructure in Chiangmai, Thailand e.g., healthcare, and other commercial services. Hence, the users must plan and arrange to go to selected destinations.	Case study 3, which is in an urban area, is relatively close to the community and other public transportation hub (easy to transport).	Case study 4, which is in an urban area, is relatively close to the community (Krungthep Kreetha area) and other public transportation hub (easy to transport).	Case study 1-2, which are in a rural area, are relatively far from the infrastructure in central Chiangmai, Thailand. Case study 3-4, which is in an urban area, is relatively close to the community (Krungthep Kreetha area) and another public transportation
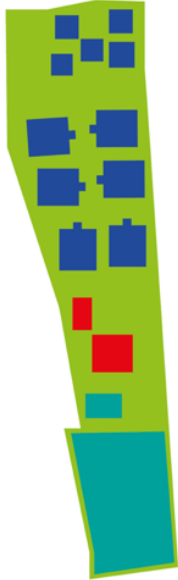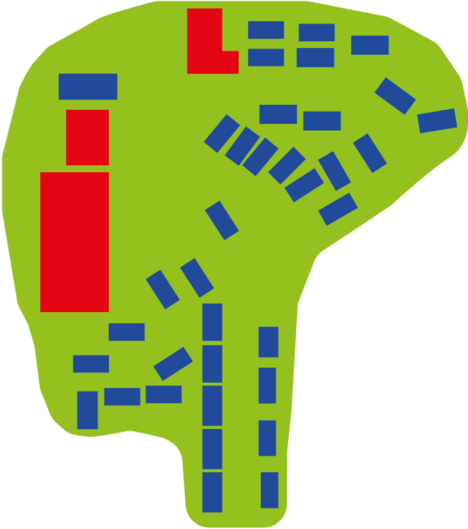
					hub (accessible to transportation).
Diagrams					
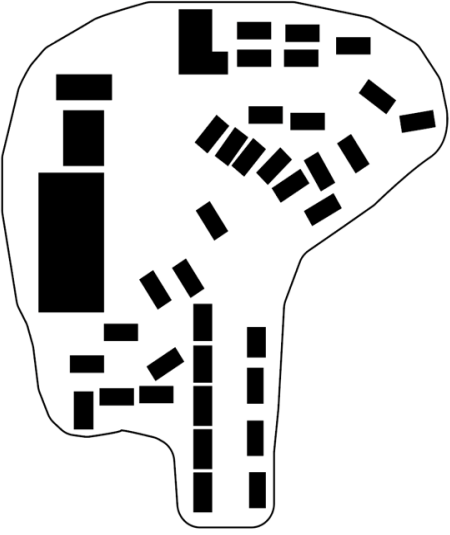
Spatial Form of Case Study 1 and 2

The table illustrates similarities and differences of case studies 1 and 2, which are highlighted in the diagrams.

Table 10 Spatial form of case study 1 and 2

Explain the diagrams – Figure 90 and 91 Spatial Form of Case Study 1 and 2			
Domains	**Case study 1**	**Case study 2**	**Synthesis**
1.Public-private	Public spaces in case study 1 demonstrate in the ground floor area where it is mostly a natural environment. Private spaces in case study 1 represents the resort typology where the rooms are grouped in various clusters (10-12 rooms). In addition, private spaces such as villas are scattered at the back of the property.	Public spaces in case study 2 demonstrate in the figure/ground area where it is mostly a natural environment and group of facilities. Private spaces in case study 2 are formed as the resort typology where the rooms are scattered around the property.	The two case studies have a similar function in private and public spaces. However, case study 1 has a better organisation of public to private spaces, which demonstrates in the ground area and is primarily a natural environment.

Diagrams of public-private			
2. Open-closed spaces	Open spaces and closed spaces in case study 1 represents differently based on their functions of figure and ground. Most open spaces in care facilities are for leisure activities and natural environments.	Open spaces and closed spaces in case study 2 also represent differently based on their functions (similar to case study 1). Most open spaces are for leisure activities and natural environments.	There are similarly open and closed space functions in case studies 1 and 2. Open spaces and closed spaces in case studies 1 and 2 also represent differently based on their functions. Most open spaces are used for leisure activities and natural environments.

3. Context of the surrounding area might help understand the spatial hierarchy	The surrounding context of case study 1 represents the rural area which helps understanding the spatial hierarchy. The entrance is connected to the most public spaces such as the resort lobby, restaurants, and meeting rooms, and swimming pools.	The surrounding context of case study 2 locates in the rural area which helps understanding the spatial hierarchy. However, the spatial hierarchy is not fully arranged. Some of the resident rooms are closed to the entrance which is quite dangerous for some users to walk out of the care resort.	The context of case studies 1 and 2 are in rural parts of Chiangmai, surrounded by local communities and helps understand the friendliness and unbounded spatial hierarchy. However, master planning of dementia care facilities and their

			communities should have security controls.

Figure 93 Spatial Hierarchy of Pavilion at Case Study 1

7.3.1.2 Mobility Support

The accessibility of dementia care facilities is mainly based on environmental planning and design (Waller, 2015). Designing for people with dementia focuses on indoor spaces of dementia care facilities, causes the accessible design in public spaces almost completely neglected (Blackman *et al.*, 2003). As people with dementia are often disorientating, challenging to interpret and navigate, threatening, or distressing (Blackman *et al.*, 2003), many outdoor environments may be inhospitable for people with dementia (Blackman, Van Schaik and Martyr, 2007). However, dementia-accessible design is still interpreted as not a vital component of accessing facilities (Houston *et al.*, 2020). The enclosure and spatial organisation of levels can be the reasons for inaccessibility (distance from ground and variations of destinations). Findings suggest that the accessibility of people with dementia depends on the horizontal development of care facilities, similar to the urban development. Hence, how the main users use spaces depends on the planning of accessibility by enabling the caregivers. According to Figure 94, the main sub-themes are accessibility and independence, which are discussed next.
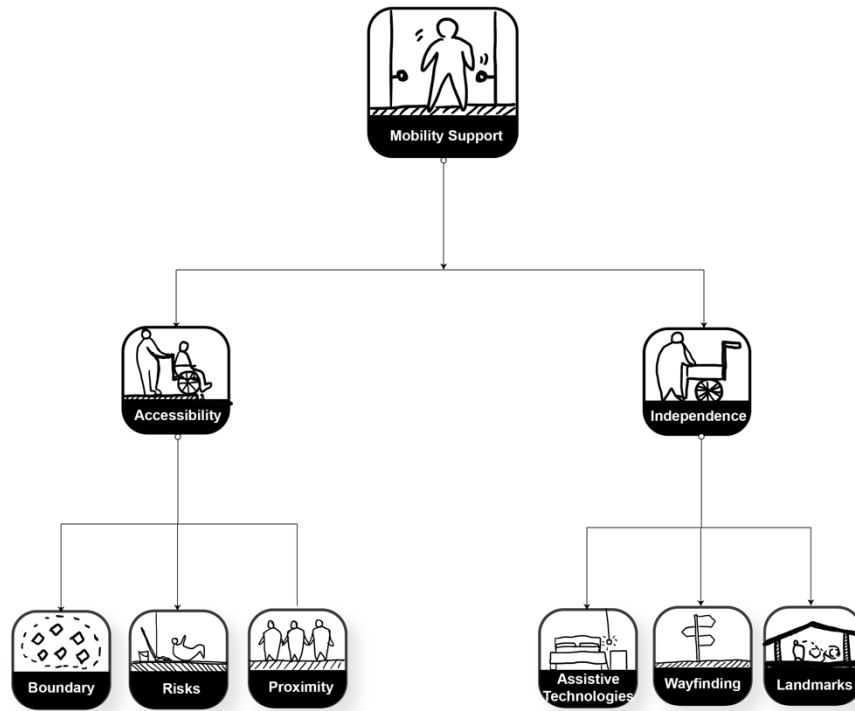
Figure 94 Theme of Mobility Support

7.3.1.2.1 Accessibility

Due to an impaired mobility, bedrooms in home design should be relocated on the ground level (Goodwin *et al.,* 2022) because climbing stairs may be difficult (Verghese, 2008). Depending on the room types and stage of dementia, residents may have different needs for movement, sensory stimuli, and social contact (Landmark, 2009). To meet these diverse needs, residents of a dementia special care unit should be avoided the top floor unless it is carefully designed because of sufficient freedom of movement and connection with the outside world (Hecke, Steenwinkel and Heylighen, 2019). Assistive technologies can support the effects of dementia by assuming and supporting impaired functions. As a result, context awareness is an accepted paradigm for assistive applications, enabling interactive systems to react appropriately to situations (Qin, Tan and Clemmensen, 2017). However, there is no recommended framework to view symptoms of dementia in terms of context and context awareness. The physical aspects of the context are also essential to consider. Hence, the sizing of the existing land or context is important (not only socio-cultural aspects of the context), as well as how the project can be developed.

The first factor is site boundary/context, which means the line beyond the land or property dictates the continuous space or the potential to expand. Care facilities have a strict property boundary, which means that they depend on the owners' property and amount of land. However, it is also based on the typology of the care facilities; for example, Case Studies 1 and 2 have a resort typology that allows everyone to access them. As shown in Figure 95, a resident in Case Study 3 had limited access to nature due to the vertical typology, which separated activity spaces, green spaces, and bedrooms. Besides, topography can make them challenging to renovate into a perfect barrier-free facility. As a result, the vertical dimension of the care facilities is crucial. Hence, Case Study 2 shows that high topography is not suitable for residents nor care staff. Similarly, Case Studies 3 and 4 are vertical developments, causing the frequency of accessibility of the activity spaces to be less frequent.
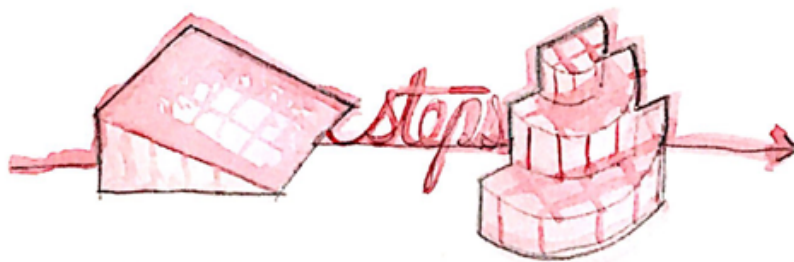
Figure 95 Autoethnography of ground levels at Case Study 2

Understanding and constituting protective practices can be alleviated by preventing and reducing risks and safety issues (Abdalla *et al.,* 2017). Moreover, object cluttering in trafficked areas can be dangerous (Salvendy, 2012) by factors such as wet floors (Salvendy, 2012). This reflects how safety is managed inside the care facilities due to the conflict between aesthetics and safety. Case Studies 1 and 2 feature lakes, which can be very dangerous without railings. A potential benefit of an 'edge spaces' of buildings by bringing people into natural environments are based on proximity to nature and green space (connection to nature) (de Bell, Graham and White, 2018; Xu, Nordin and Aini, 2022) (as shown in Figure 96). A comfortable location leads to the experiences of sensory stimulation, which either just inside or outside the building (Lykkeslet *et al.,* 2014).
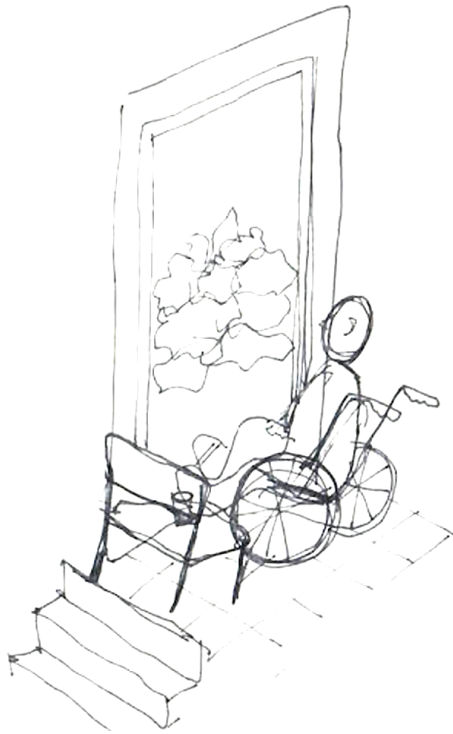
Figure 96 Limited Accessibility to Nature (Case Study 4)

Multiple domains have provided insights into how scale of neighbourhood design can be improved to have a more favourable effect on physical activity, a concept known as walkability. Monitoring systems and other information technologies and homecare technologies for older people with dementia are broadly considered the most promising means to establish these connections. Monitoring technologies for older people highlight socio-political responses to ageing and raise critical questions about caregiving, quality of life, and how technological design engages with everyday rights. Without the apparent surveillance, there was not much mobility in Case Studies 2, 3, and 4. This also indicates proximity to the monitoring systems (e.g., staff). To reduce risk, long-term care communities are also: ending group dining and group activities, prohibiting family visits, and turning to dedicated staffing for the memory care neighbourhood based on proximity and surveillance of the existing layout (as shown in Figure 97).

Figure 97 Proximity between care stakeholders and residents

7.3.1.2.2 Independence

The concept of wayfinding emphasises the processes involved in reaching destinations. In the context of new wayfinding tasks, they can be modelled as being decision based and the development of a plan of action. Anxiety, depression, and diminished interaction in people with dementia can be caused due to wayfinding (Davis and Weisbeck, 2016). Visual cues are interventions which can support people with dementia to navigate their ways more easily (Kleibusch, 2018). People with dementia have difficulty in wayfinding, but they can still re-learn their routes if the environment is supportive for wayfinding (Davis and Weisbeck, 2016). Consequently, key decision points, for example colourful, familiar (easily identified), and meaningful cues, are placed in residents' rooms as wayfinding strategies (Davis and Weisbeck, 2016; Passini *et al*., 2016).

Independence, safety, and well-being of people with dementia can be maintained and improved by technologies such as assistive technology (WHO, 2015). The physical and cognitive impairment associated with dementia is specifically designed to compensate (Arvanitakis, Shah and Bennett, 2019). These assistive technologies are distributed in bedrooms, which allows care professionals to stay outside. Ramps, handrails, and doors are fixtures that support the residents. This also includes wheelchairs or walkers as mobility aids,

which people with dementia use to aid with mobility (Figure 99 and Figure 98). Wayfinding cues and routes as shown in neighbourhoods, cities, and regions are complex phenomena (Langendorf, 1995).

Figure 98 The resident used a wheelchair as a walking tool (Case study 4)

Figure 99 The resident required caregivers to transfer to wheelchair (Case study 2)

Enabling dementia signage can significantly benefit people living with dementia by supporting independence, confidence, and well-being. However, there is limited use of wayfinding cues in the case studies. Case Study 1 uses colour coding of the pavilions to differentiate them (Figure 100). As people age, several changes occur, which affect both vision and colour perception where materials of walking blocks (in Case Study 2's walking routes) might be dangerous. Adequate lighting supports people with dementia to recognise spaces, rooms, equipment, and signs (Torrington and Tregenza, 2007). In addition, people's faces and their body languages can be clearly seen and helped them to participate in recreational activities (Ellis and Astell, 2017).

Figure 100 Colour coding for wayfinding (Case study 1)

7.3.1.3 Place-making

In the context of dementia care, the spatial characteristics of its geographies can be interpreted more than the lived spaces (Furia, 2022). The feeling of being home (Boccagni and Vargas-Silva, 2021) or being in place can be referred to the lived experiences (Johannessen *et al*., 2018). Through a process of place-making, person-centred care, continuity, and self-identity are sustained and supported, which may acknowledge space as an existential experience for people with dementia. As a result, sensory environment (especially spaces for personal expression and acceptance) can empower the therapeutic self, which leads to a positive mood and better opportunities if social inclusion. However, autonomy, lifestyles and values can be identified by an acceptance of people with dementia to be dependent (Smebye, Kirkevold and Engedal, 2012; Sinclair et al., 2019) and to remain in their own homes (Smebye, Kirkevold and Engedal, 2012). Hence, beneficence and non-maleficence, within an ethics of care, can justify paternalism (Varkey, 2021). The recognition is required before autonomy can be realised (Bin, 2022). Autonomy, therefore, requires spaces so that people with dementia can express their identity. As shown in Figure 101, there are two main sub-themes, which are familiarity (memory cues and routines) and spaces (privacy, wandering, and open spaces).
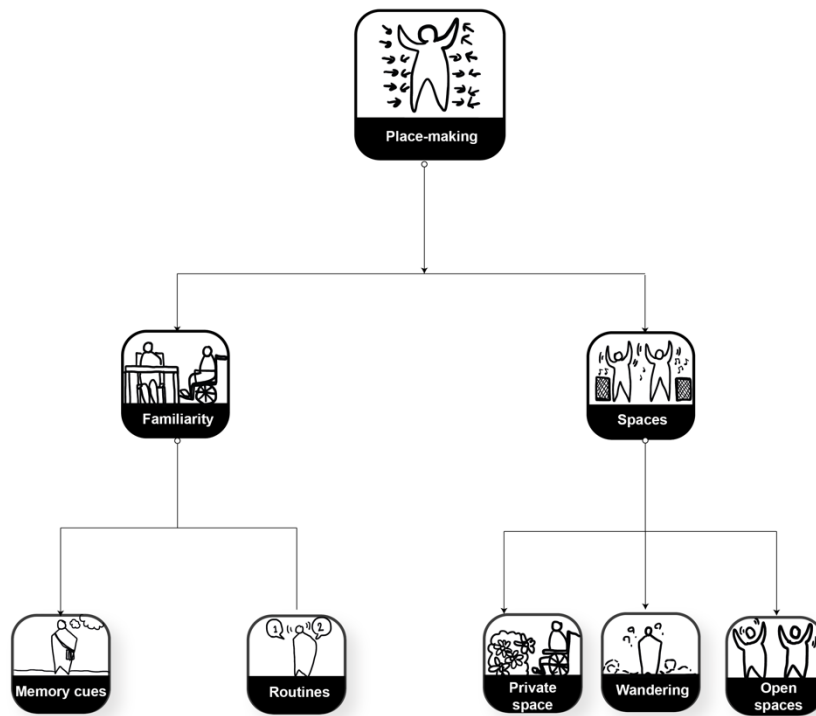
Figure 101 Theme of Place-making

7.3.1.3.1 Familiarity

The sense of familiarity is the organising construct. Although the sense of familiarity can be processed in both explicit and implicit memory in normal people, memory is retrieved more frequently and efficiently in the implicit memory system than through explicit memory in people with dementia by using stimuli, e.g., time and music cues. The programme's aim was to improve family members' experience during visits and help them to cope with the lack of communication by creating an individualised database that comprises specific 'time capsule' episodes from their life, based on their favourite music and other memory cues, such as photos and other related artefacts. However, memory cues can encourage their recall for daily activities and identities.

As dementia progresses, language difficulties are a significant problem for most people with dementia (Banovic, Zunic and Sinanovic, 2018; Kempler and Goral, 2008). However, the residents can recall memory and recognition using memory cues of body languages, motor neurons, or sensory cues (Franklin *et al.,* no date; Nairne, 2020). As evidence in Figure 102 shows, the speed of mobility, eye contact, and voice volume can enhance their activities.

Therefore, the memory for everyday tasks examined the potential of sensory cues, especially mirror neurons, to improve free recall of an action event by individuals with dementia.
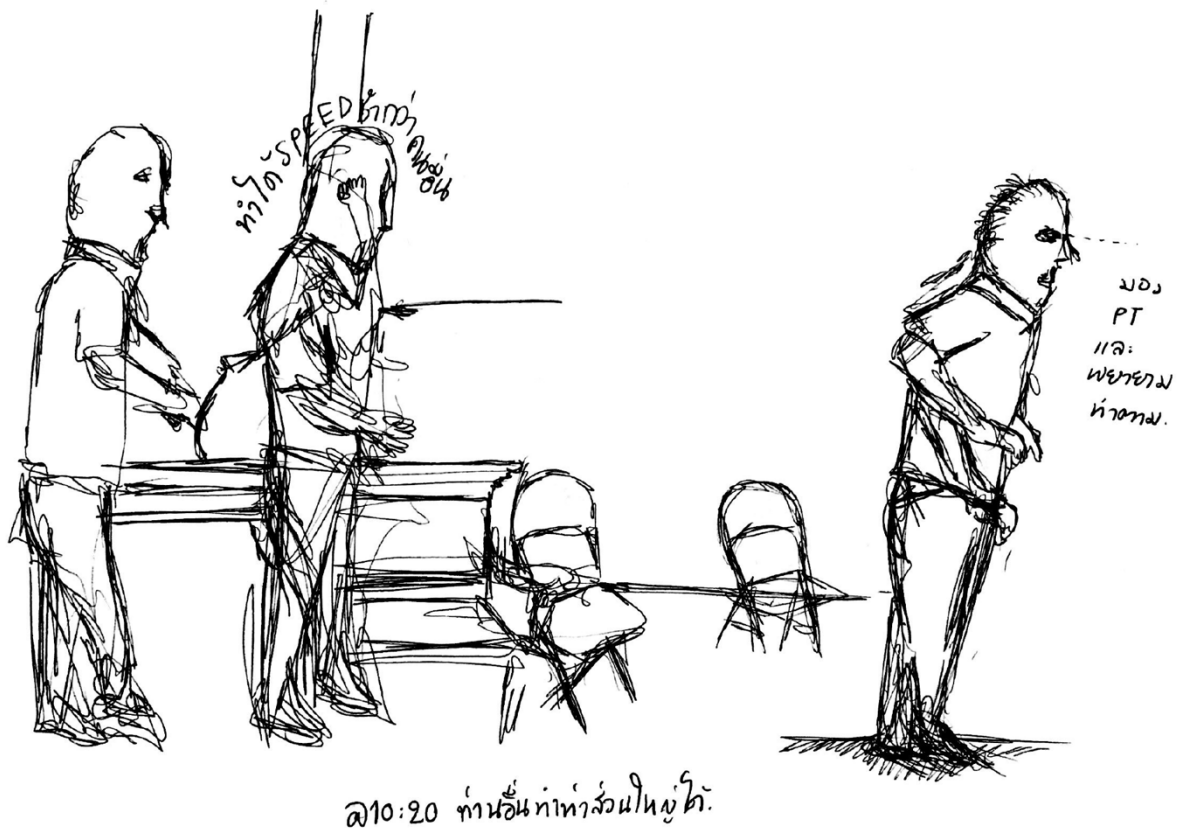
Figure 102 Sequences of the resident following Tai-chi postures (Case study 2)

Furthermore, routine, and familiar environments are essential to people with dementia. The daily routine can help to decrease undesired behaviours such as aggression, restlessness, and agitation (Desai and Grossberg, 2001). However, the relationship between the concept of dementia and activities of daily livings (e.g., meal preparation, grooming, or dressing) does not clearly recognised (Giovannetti *et al.,* 2006). A piece of evidence states that people with dementia require time to be familiar with new contexts and can have re-learning capabilities (Hegde and Ellajosyula, 2016). In the context of dementia, episodic memory loss can negatively influence everyday actions (Pause *et al.,* 2013). Thus, the routines and activities of daily living programmes have relevance to everyday function. As a result, the caregivers experienced less stress and were able to give better care.
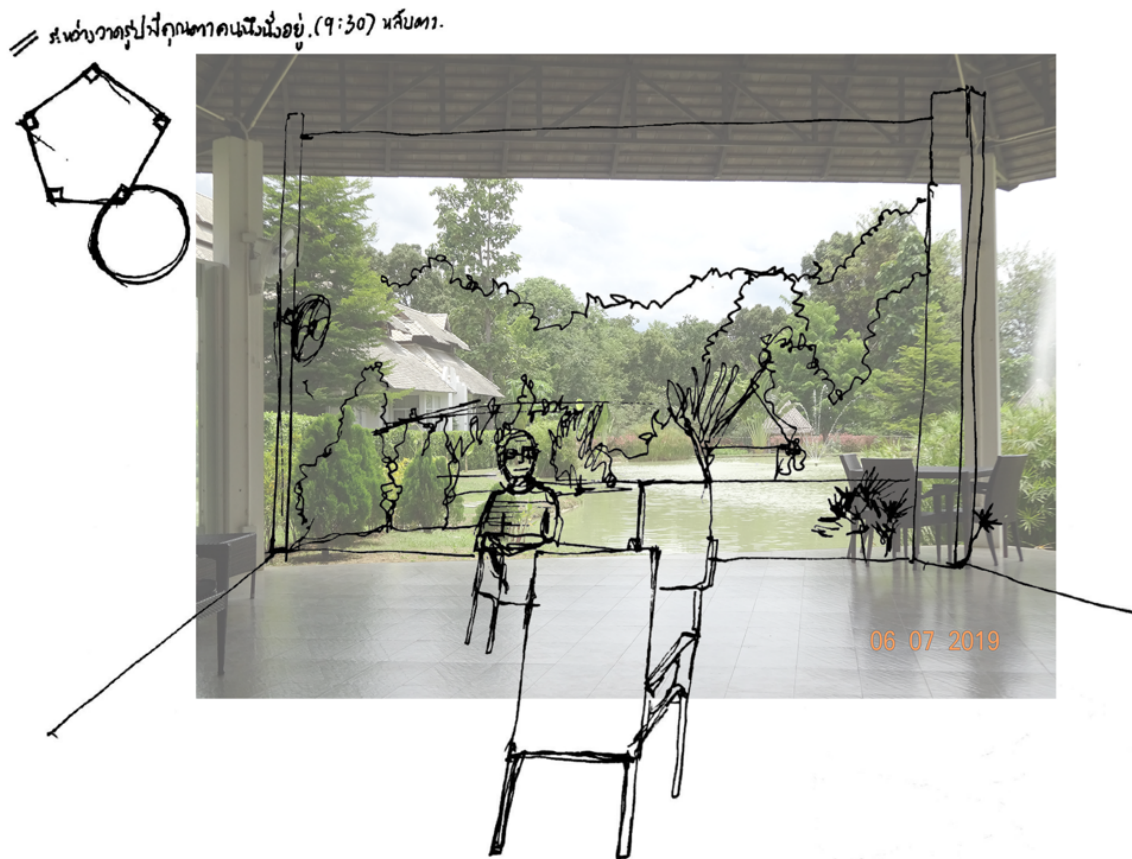
Figure 103 A resident was waiting for a morning activity session (Case study 1)

7.3.1.3.2 Spaces

Limited space (e.g., insufficient space for people with dementia) has negative impacts on quality of care (George, Long and Vincent, 2013). Safe communal spaces are ensured that enabled people to move around freely when engaging with motion sensors in tandem and contributed to the creation of a psychologically safe space for people with dementia in a rural dwelling. Consequently, design principles such as manageable cognitive load, clear sequencing (Barrett, Sharma, and Zeisel, 2018), and appropriate level of stimulation are focused and driven as design parameters. Hence, there are three types of spaces to deliberate in the dementia care facilities.

The first kind of space is private space. Based on a review of earlier studies, it was expected that increased personalisation would lead to positive behavioural outcomes – reduced agitation and aggression – and to improved quality of life. This includes the size of bedrooms, as well as personal spaces. The personal space depicts where they chose to sit and how they arrange their possession regarding their boundaries.

The second type is continuous spaces (for freedom). Although the word 'wandering' is often defined as 'walking' in people with dementia, the term suggests that the aimless type of walking. There is no definition or a reason why people with dementia want to walk. It might simply be that people have energy they wish to use, or it could be that people are walking to try to resolve some problem they have – perhaps they are bored or are looking for something.

Third is open spaces, which show the positive impact of physical activities such as dancing on the improvement of the cognitive abilities of people with dementia (Kim *et al.,* 2011). The findings confirm the value of dance therapy on the mental, physical, emotional, and social capabilities of people with dementia (Karkou and Meekums, 2017). The quality of flexibility as shown in Case Study 1 stated that the concept of flexibility in urban planning is defined as the compatibility and adaptability of planning thought and planning systems. The important features of public space planning are diversity and complexity to allow the users to express their creativity.

7.3.2 Atmosphere

Atmosphere can be defined as how humans construct their social environment and shows how the atmospheric properties may be determinants and perceived. The atmosphere of a particular dementia care settings may modify and be generated by collective users (Hatton, 2021). The material quality of atmosphere is registered through the perceptual (or embodied) know-how of humans (Anderson, 2009) by conceptualising user behaviours within a care environment (Duncan *et al.,* 2020). Sensory factors such as sounds, smells, and other climatic features are stimulated and invite users to engage and use spaces independently (Lee, 2022; Bentley *et al.,* 2023). The concept of reading atmosphere proposes and suggests that its social production is based on a tacit, informal code of conduct, which some regular readers played an influential role. Hence, a supportive and comfortable atmosphere is important, which refers to the collective behaviour that the focused community may manifest on a common event, while emotional climate identifies instead the emotional relationships between members of a society. As shown in Figure 104, the domain composes of two themes, which are organisational culture and semiotics.
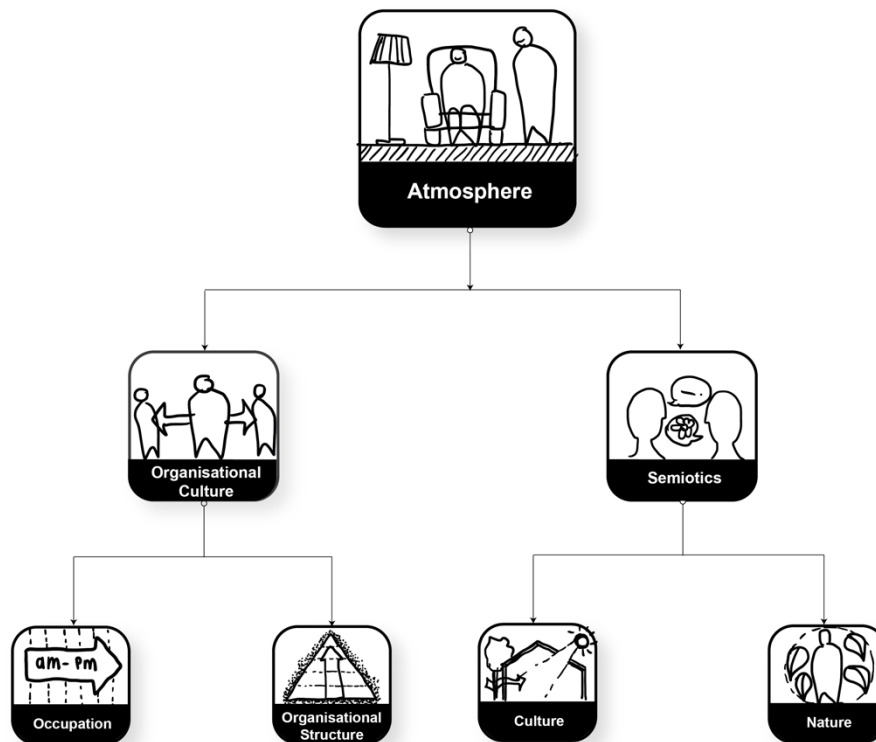
Figure 104 Domain of Atmosphere

7.3.2.1 Organisational Culture

Generally, elements of organisational culture compose of an organisation's expectations, work experiences, and philosophy, as well as values that direct employees' behaviours (Bamidele, 2022). As a result, an overall self-image, ways of interactions, future expectations are undeniably embedded through the organisational culture (Laininen, 2018). In the context of dementia care, structured approaches can enable nursing staff to consider a culture of care likely to support reflection, critical discussion, and improved quality of care. Moreover, a 'right' leader or staff cannot satisfy with all care facilities' organisational culture and values (Killet *et al.,* 2016). The everyday tasks of care practice are necessary to find ways of resolving and consistently espousing the values. Subsequently, the everyday practice should evolve, either consistent with, or divergent from, espoused values (Killett *et al*., 2014). Hence, organisational culture also means person-centred care in terms of caregivers where they are occupied with, and have the same hierarchy as, the residents and have a certain personality that fits the culture.

As shown in Figure 105, the theme comprises two sub-themes: occupations, which indicates how they occupy space and time in the care facilities; and spatial hierarchy – which hierarchies were reduced inside some of the care facilities.
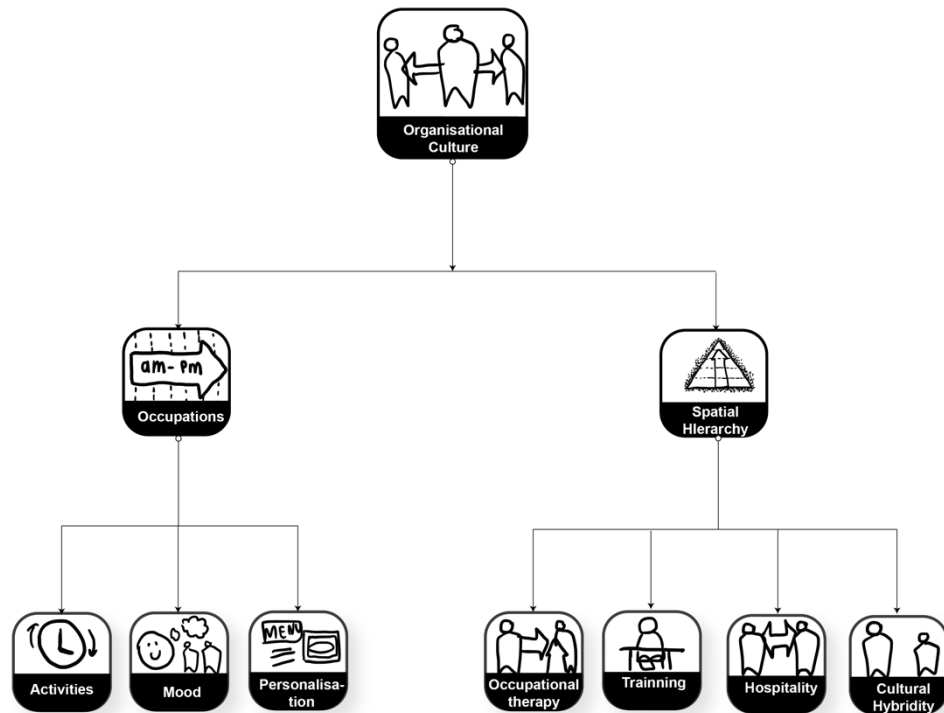
Figure 105 Theme of organisational culture

7.3.2.1.1 Occupations

Studies have suggested that activities are meaningful for people with dementia based on a spectrum of occupations that a person performs and perceived as significant (Brown and Hollis, 2013). A wide variety of activities such as leisure, social, recreation, chores, or work-related activities can be included as meaningful occupations. As a result, participation in these activities can become meaningful in three ways, including gaining a sense of pleasure, creating a sense of connection (Roland and Chappell, 2015.), and facilitating a sense of autonomy and personal identity (Travers *et al*., 2015). Therefore, daily functioning, social participation, and well-being in people with dementia can be improved by the use of occupational performance (Graff *et al.,* 2006). It has been shown to enhance the sense of competence and well-being of primary caregivers.

From observations, activities that are available all day are more effective, rather than just scheduled activities. The behavioural sequences of Figure 106 and Figure 107 support the claim that activities – e.g., dance, tai chi, yoga, swimming, or walking – will help keep residents busy and active. Leisure activities – e.g., drawing/painting classes, games, or other group activities – can all help the residents stay involved. Activities should be planned to fit the unit's routine and provide structure and intervention options when these clusters of negative behaviours take place. Hence, therapeutic activity programmes should fit into the unit timetable of care activities.

Mood and engagement during group activities indicate the positive relationship between people with dementia and the care stakeholders (Beerens *et al.,* 2016). As shown in Figure 106 and Figure 107, facilitators are required for activities engagement with people with dementia (Strandenæs, Lund and Rokstad, 2019). Group proximity or group arrangement is another factor that the evidence of mirror therapy can support. This means that grouping and non-hierarchy work to allow caregivers to do activities with them similar to a memory club – a structured, time-limited psycho-educational group for people with dementia and their caregivers. Consequently, new hospitality experiences were introduced to the caregivers.
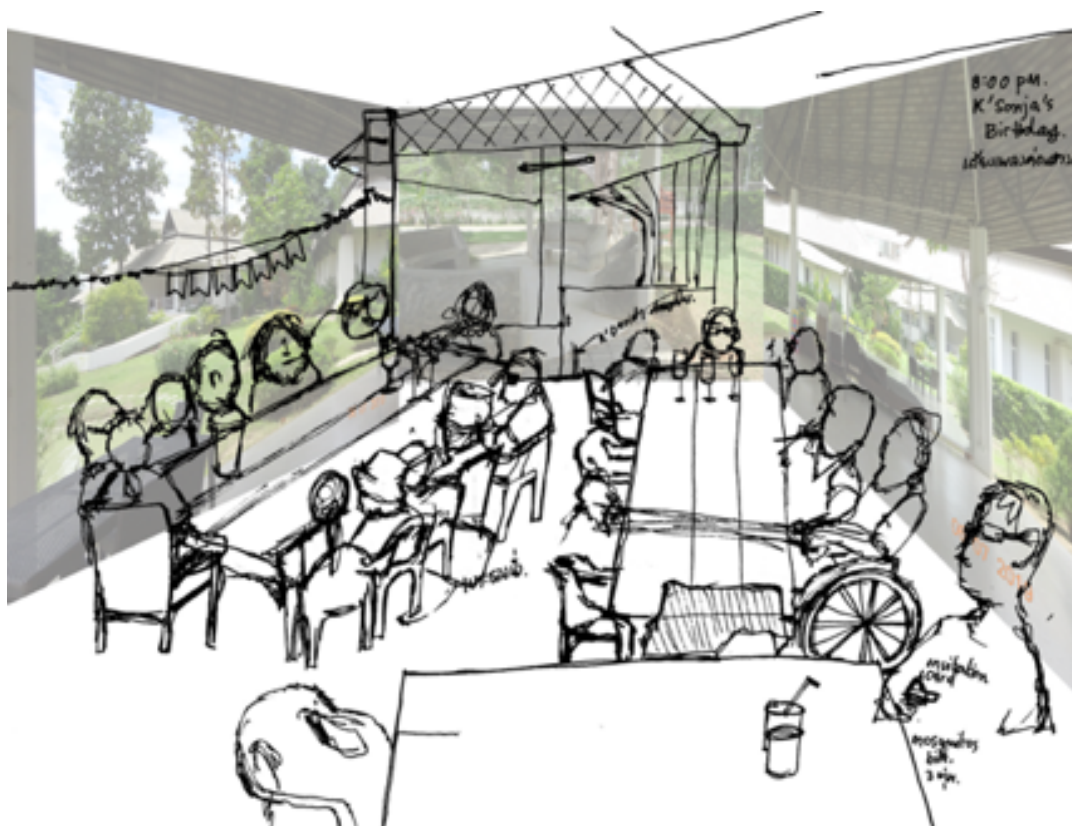
Figure 106 Atmosphere of a resident's birthday party (Case study 1)
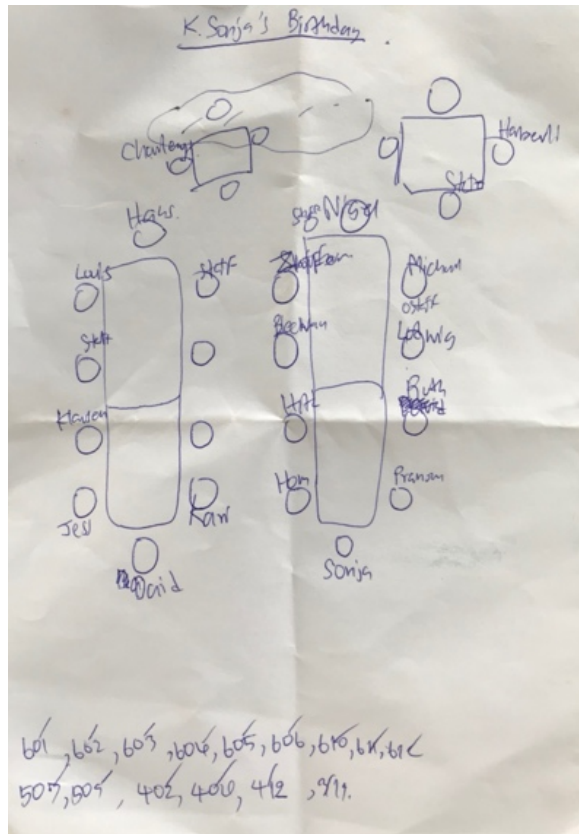
Figure 107 Seating arrangement by an Occupational therapists (Case study 1)

Moreover, personalisation has recently been described as the dominant idea in social care and social work, as well as a political consensus that a personalised approach should be taken for everyone growing old with dementia (HousingLIN, 2016). Sarah Carr writes: "Personalisation means recognising people as individuals who have strengths and preferences and putting them at the centre of their own care and support" (Carr, 2012, p. 2). Their stages, preferences, and personality are important which emphasises that they are individuals, with relationships between them and others (Figure 108).

Figure 108 Atmosphere inside a memory clinic (Case study 2)

7.3.2.1.2 *Organisational Structure*

The organisational change entailed by open innovation is highly pervasive, as it requires a firm to intervene on the 'hard' aspects of its organisation (e.g., organisational structures or performance evaluation and management systems). In order to arrive at sound care relationships, district nurses need job conditions that enable them to work in teams. In addition, it is necessary for an organisation's structure to offer latitude to professionals to act independently. A flat organisational structure is better suited to this than a hierarchical one. As a result, a hybrid organisational structure can empower employees, especially caregivers, and give respect to them.
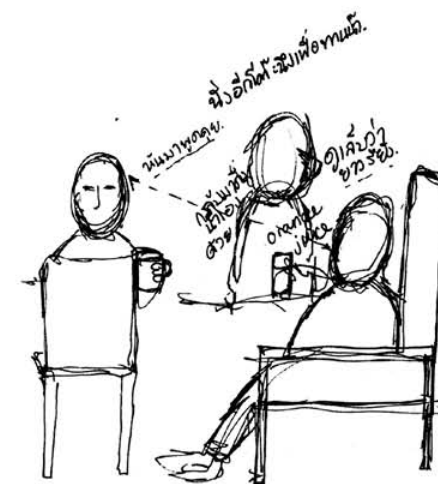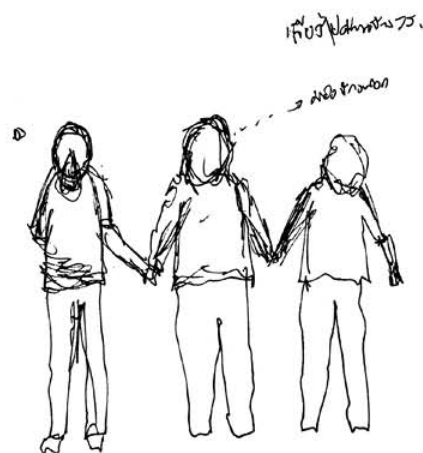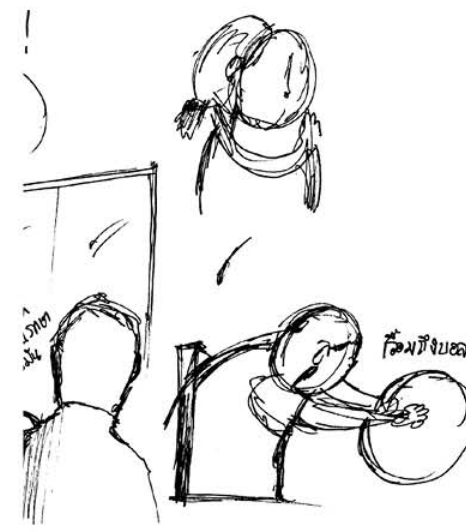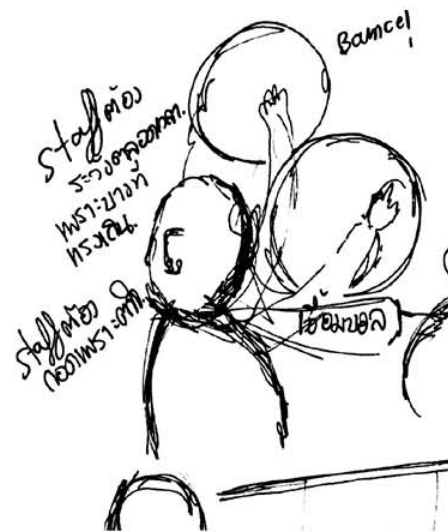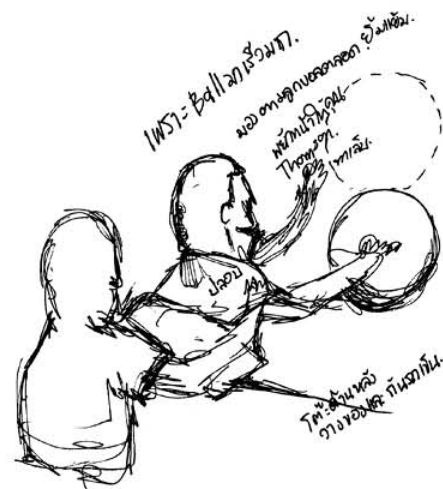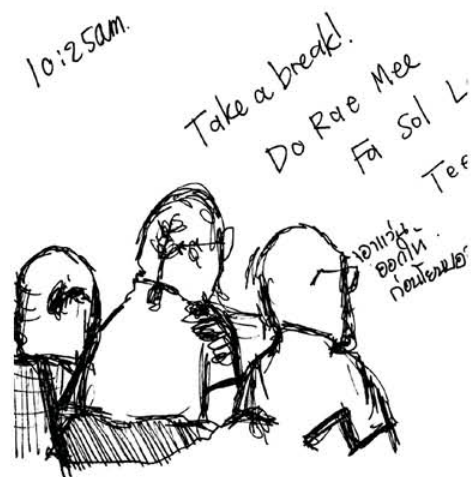
Figure 109 Behavioural Sequences of Participant 1 (Case study1)
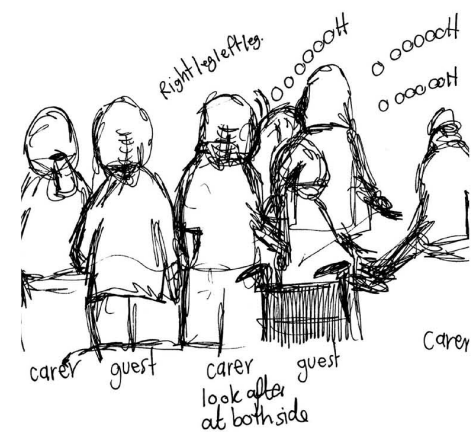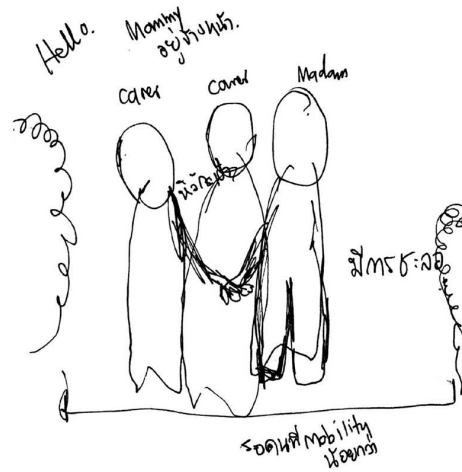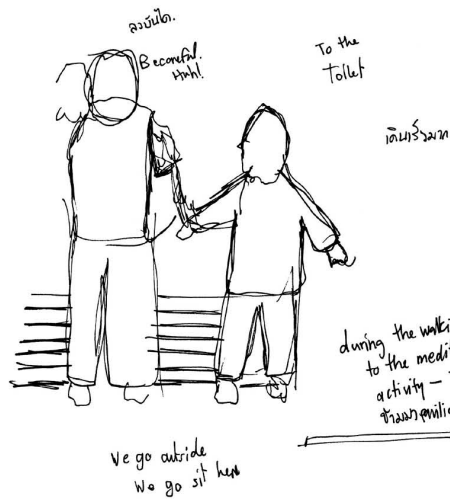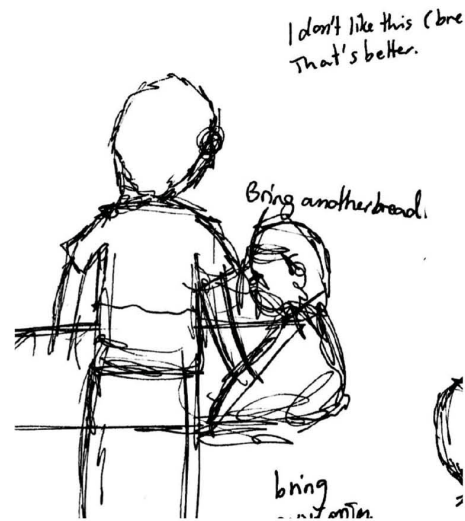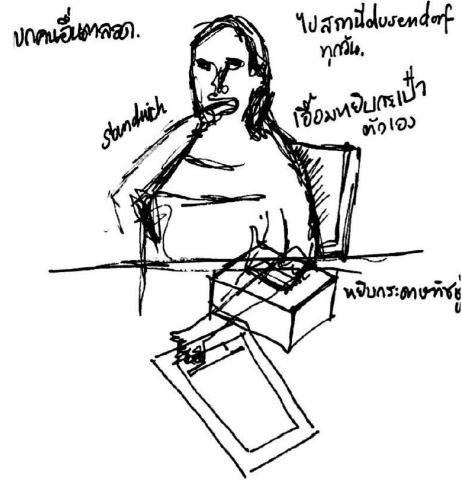
Figure 110 Behavioral Sequences of Participant (Case study 1)

Unlike physical therapists or other care professionals, occupational therapists are one of the critical actors in an organisation (as shown in Figure 111). Occupational therapy practitioners, through their academic curricula, have expertise in activity analysis (Khuabi and Bester, 2020), work with older people in various care settings, and use occupational performance to approach dementia as a condition (Bennett *et al.,* 2019). Moreover, they act as the facilitators between people with dementia and their caregivers (Stanyon *et al.,* 2016). Cultural hybridity constitutes an effort to maintain a sense of balance among the practices, values, and customs of two or more different cultures. In cultural hybridisation, a new identity is constructed which reflects a dual sense of being. The jointure resides both within and beyond the margins of nationality, race, ethnicity, class, and linguistic diversity. As a result, a multicultural organisation can emphasise the social hierarchy.
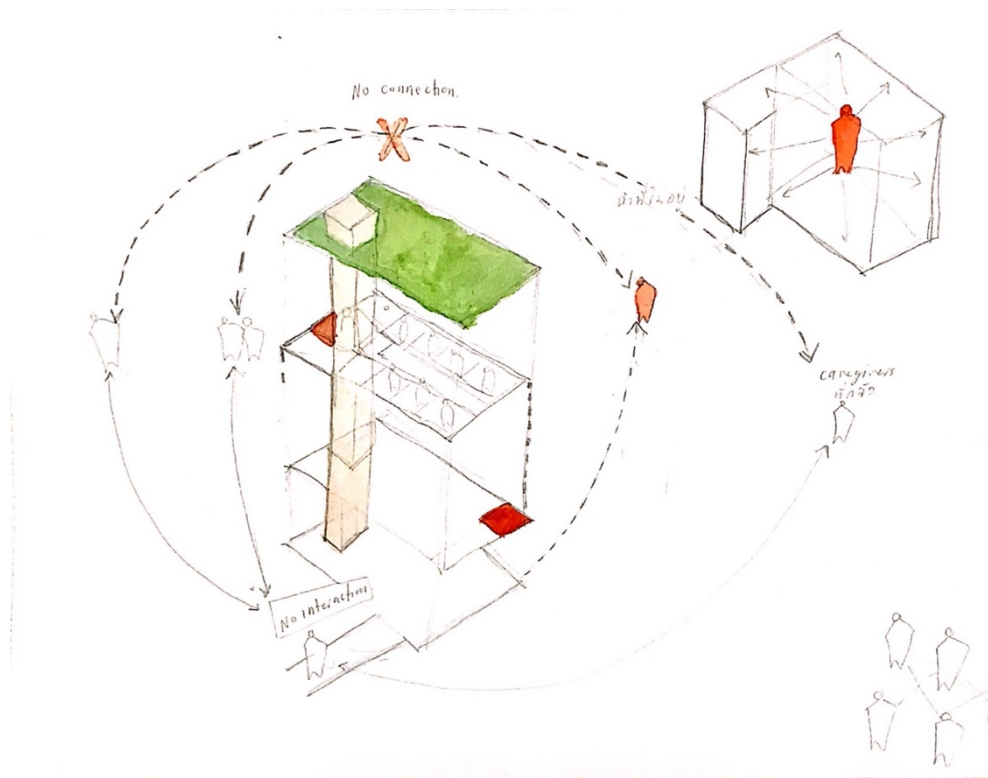
Figure 111 Authoethnography of Organisational Culture (Case study 3)

The organisational structure, especially in Case Study 3 (Figure 111), illustrates the disconnect between different stakeholders in the care organisation. Due to hierarchical factors and the building's layout, caregivers, physical therapists, nurses and care managers were socially separated and rarely communicated during working hours. The physical therapist acted as a facilitator between caregivers, nurses and care managers. However, their working room was separated from the other working spaces. The organisational structure and the

physical environment caused a lack of employee motivation. Moreover, the organisational structure of dementia care facilities is influenced by the hierarchical status within care institutions, which can result in a caring culture (Etherton-Beer, Venturato and Horner, 2013).

Similar personality characteristics among hospitality graduates further support the conclusion that academic preparation and quality of life issues are very important to the industry retention and attrition of hospitality graduates. Common usage of the term is reflected in dictionaries as the act or practice of being hospitable. Moreover, it can be defined as the reception and entertainment of guests or strangers with liberality and goodwill (Cai and Lee, no date). However, it can also amplify the strengths and weaknesses of each culture – to learn about each culture and demonstrate the social hierarchy between cultures by using quality of life as a factor. The privacy of one's home can define the intimacy of self/being associated with the private dwelling: one welcomes others into one's home or into one's being (Figure 112).

Figure 112 Interaction between caregivers and residents (Case study 1)

More importantly, the case studies show that high-quality dementia-care training can lead to an improvement in communication between caregivers and people with dementia (Eggenberger, Heimerl and Bennett, 2013), a reduction in challenging behaviours (Ooi *et al.,* 2018), and an increase in job satisfaction for caregivers (Gkioka *et al.,* 2020). As a result, care stakeholders can manage situations by using care strategies and tactics specific to dementia care (Waugh *et al.,* 2013). Case Study 1 has its own training school which has shaped its curriculum using occupational therapy theory. In addition, applicable dementia education and care training to standardise good care quality may be required for the health and social care workforce (Surr *et al.,* 2017). The benefits of a successful training programme depend on the staff's ability to put their learning into practice through behaviour change, which can facilitate open spaces for participation.

7.3.2.2 Semiotics

The discourse of dementia reveals those afflicted as being semiotic subjects, i.e., people for whom meaning is the driving force behind behaviour. For example, the experiences of older adults attending an Adult Day Service (ADS) centre also focus on semiotics, such as ADS clients' use of symbols to communicate with others and assert their personal and social identities. The 'semiosphere' refers to the dense, symbolically mediated interactions within this community (Black *et al.*, 2018). Peirce's semiotics deals systematically with nonintentional signs of the body and of nature at large, which has become the main resource for semiotic theories among signs of inorganic nature, living systems, and signs of machines (especially computer semiotics, see Andersen, 1990). Hence, the cultural and linguistic signs of humans living together in a society emphasise the search for information and knowledge, and express as systems of comfort, especially their connection to nature.

The theme of semiotics contains two sub-themes, culture, and nature. Culture includes three sub-sub-themes: languages, aesthetics, and material objects, while nature involves sensory environment and metaphor (as shown in Figure 113).
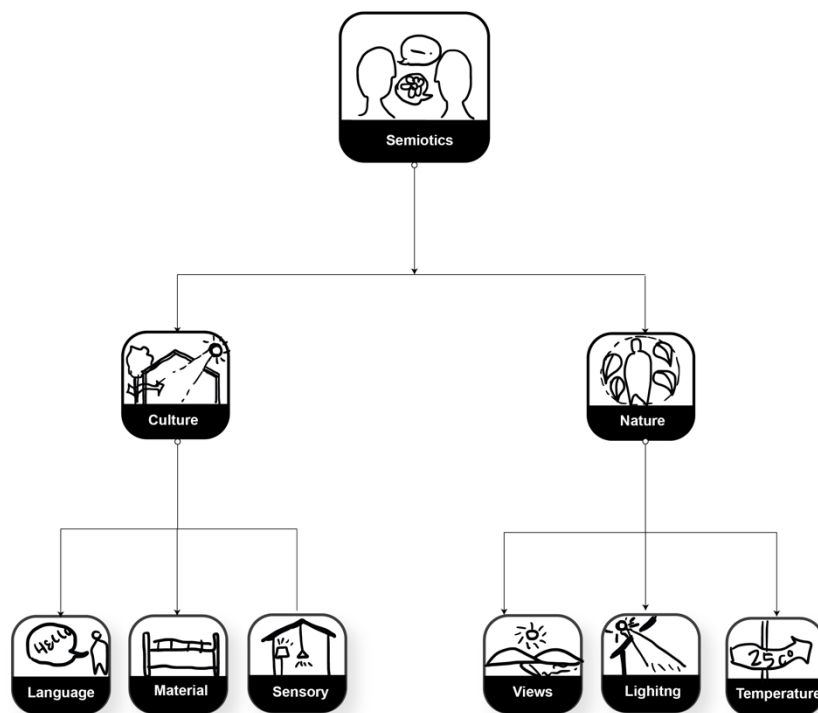
Figure 113 Theme of Semiotics

7.3.2.2.1 Culture

Based on shared attitudes, beliefs, customs, and written/unwritten rules, culture has been developed over time (Tambolas, Vujicic and Jancec, 2023), and is considered valid (Fokina and Krupnov, 2020). The cultural metaphor is used to understand the cultural mindset of a nation and compare it easily and quickly to those of others (Gannon, 2011). By identifying the phenomenon, activity, or institution of a nation's culture, most people with dementia are aware to be important which they identify cognitively and emotionally (WHO, 2021). The cultural metaphor's characteristics become the fundamental for describing and understanding the society (Gannon, 2011). Cultural and historical background encourage and question how societies have constructed and defined dementia. Narratives which are used to explain dementia and languages, are central to analysing about dementia and framed by contemporary culture. In addition, several films, TV documentaries, news reports, theatre plays, memoirs, novels, and poems are interrogated to portray dementia experiences (Low and Purwaningrum, 2020).

Language is an important resource, which may be used to construct an identity, to adapt to new cultural environments, to make sense of new experiences, or some combination of these features (Hassi and Storti, 2012). Voices and sounds in the German and English languages or Thai traditional songs were combined for leisure activities (Figure 114). In fact, a person's religion, nationality, and culture are likely to have a major influence on their preferred activities, objects, everyday routines, encouraging meaningful engagement and communication (Koenig, 2012). Sometimes, communication can depend on partners imitating each other (Maister and Tsakiris, 2016). When caregivers tried to help people with advanced dementia to eat and the person did not understand, the caregiver demonstrated what she meant to do by opening her own mouth (Yokoi *et al.,* 2012). Suddenly, the person recognised, understood, and started eating.

Figure 114 Physical therapist was talking with Japanese residents (Case study 4)

Material objects – such as furniture, beds, photographs, chairs, and so on – are an essential part of the grieving process (Betts, 2015) and operate as memorials to loss (Ochsner, 2016). Objects which owned by or shared with a loved one can support individuals transition through bereavement (Wakenshaw, 2020) to a stage where they can overcome with their loss and the permanent absence of the person they loved (Kenning, 2018). The ethnography found evidence that people with dementia developed relationships with objects and can employ objects in a transitional way (Stephens, Cheston and Gleeson, 2013). Similar to Stephens, Cheston and Gleeson (2012), the findings link to Winnicott's theory of transitional objects (Winnicott, 1989) which can provide some understanding of dementia processes. Additionally, the symbolism of the nursing home as a transitionary phase between life and death is reflected by architectural forms and translates into physical and cognitive decline.

The most fundamental language capacities are the ability to express what speakers see, hear, feel, taste, and smell (Winter, 2019). Sensory linguistics is how language relates to the senses to express sensory perceptions (hybridity of linguistics and cultures). In other words, a sense of beauty, or the perception of aesthetics, perceives during, if not before, people's perception-meaning system. In this case, ambience such as lighting (constructed lighting and sounds) – light can be designed as a tool for identifying social intimacy and inclusion, shaping spiritual spaces and ambience of hospitality, and orchestrating movement. While light can work as a metaphor as well as a material agent in these social negotiations. Moreover, the smell of hospitals and nursing homes can be less likely to serve as a source for metaphor, considering

both basic perception verbs and quality terms. Furthermore, the touching of wooden furniture showed that natural and smooth wood surfaces were perceived more positively in emotional touch than coated surfaces, which highlights the importance of naturalness and user experience.

7.3.2.2.2 Nature

Nature is often included in activities according to people's wishes, needs, and experiences with dementia. Nature encompasses everything, including people and their environment, which they experience in various forms in their daily lives. To build care settings while giving no thought to integrating the buildings into the interdependent natural flow of life is a missed opportunity for nourishing the mind. The manufactured environment can provide a beneficial connection to nature through room orientation, views, natural light, and ventilation (Chalfort, 2009). Hence, nature as an environmental awareness that human being lives on Earth. The concept is concerned with how a great sense of awe can be produced by, among other things, the sight of nature, and the sense would not be describable in the language.

Viewing a garden, as passive interactions with nature, can lower blood pressure and heart rate (Jimenez *et al.,* 2021), as well as increase health and well-being in older people (Tang *et al.*, 2005). However, the scenery of 'Garden of Eden', described by a resident in Case Study 2, expresses calmness and spiritual satisfaction. Moreover, the light and sound are designed to reconstruct the interaction with outdoor nature, which is missing in the confined indoor space. By interacting with the installation, the people with dementia perceive stimuli that resemble their memories of natural lighting with a calm background sound of a brook, an experience they miss in the care centre; implementing lighting and sounds provide stimuli of remembered events (Siriaraya and Ang, 2014)

Natural lighting inside the building examined the importance of the diurnal cycle, and a connection with nature and the outside world, which support for people with dementia in social activities (Figueiro, 2017), and a recognition of place (Torrington and Tregenza, 2016). Some people exhibit symptoms of sundowning syndrome, i.e., an increase in agitated behaviour as evening approaches. However, no evidence was found whether natural lighting inside the care facilities supports symptoms, though it helps separate day and night.

A comfortable temperature encapsulates the overall comfort because disruptions in the circadian rhythms of locomotor activity and core body temperature were usually associated

with increased nocturnal activity and raised body temperature. Case Study 1 suggested that there is a need to provide comfortable internal temperatures and ventilation. This is because, within the temperature modality, people with dementia more often developed a dislike of cold (rather than warm) environments (Fletcher *et al*., 2015). Hence, residents could access more outdoor environments because of the warmer climate.

7.3.3   Perceptions

People with dementia often experience and perceive differently as their dementia progresses. Due to damaged senses, reality may seem to be different and misunderstood, which can cause frustration, confusion, and distress for both people with dementia and their caregivers (Banovic, Zunic and Sinanovic, 2018). As a result, dementia shifts how a person perceives the world around them (Singleton, Mukadam and Livingston, 2017). The design of the physical environment can enable the quality of 'being in place' (Harrison *et al.,* 2022), or feel like being at home, and include them in the community. In contrast, it is somehow based on the perception of the perceivers themselves of how they see the perceived (people with dementia) as 'others'. Several problems emerge, including how to perceive perception itself: the perceptions of the perceivers, for whom space is central, and of the people with dementia for whom it is marginal (Yang *et al*., 2016). Therefore, the two sides' perceptions of 'world' are in the threshold as perceived, and perceivers are individualised.

The perceptions domain, as depicted in Figure 115, includes two main themes: sense of place, which describes the feeling of being home or being in place (Harrison *et al.,* 2017), and which is composed of two sub-themes: embodied selfhood and social inclusion; and cultural perceptions, which is composed of two sub-themes: memory loss and placelessness. The following section will explain these in detail.
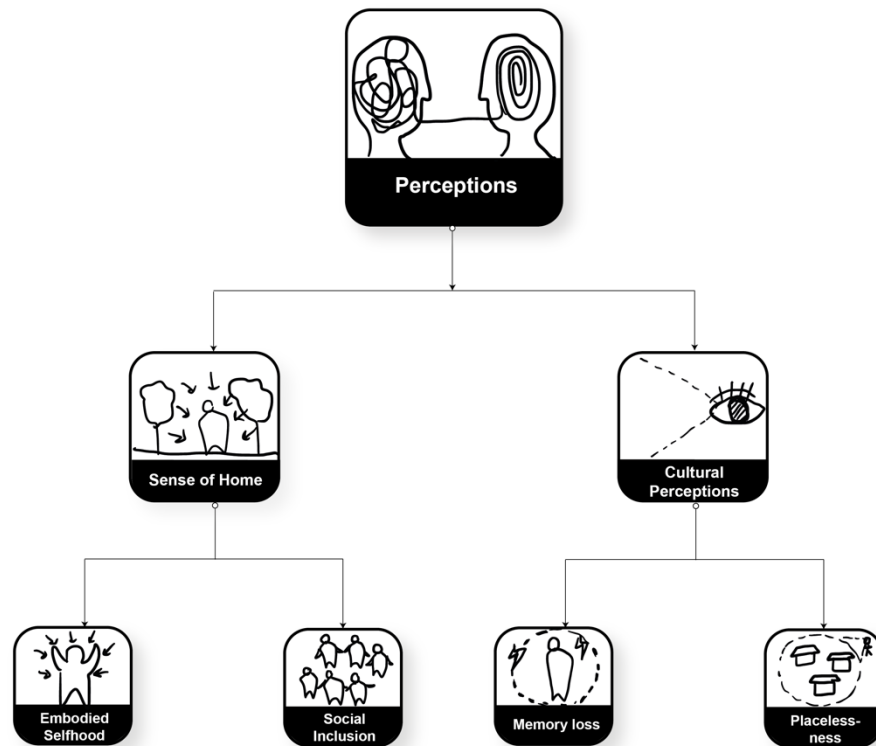
Figure 115 Domain of Perceptions

7.3.3.1 Sense of Home

In the context of dementia care, the role of home equally cannot be underestimated in a care or hospital context. 'Home' can engender calm, enable intimacy between individuals, and support a sense of self through a connection to things that are known and have a deep meaning. Homelike spaces can function as a retreat, a space for relaxation, and a natural setting to help de-escalate anxiety and challenging behaviours. Home is something familiar that is recognisable and that a resident can relate to. As a result, sensory environment (especially spaces for personal expression and acceptance) can enhance the therapeutic self, which enhances positive mood and has a better chance of social inclusion.

The domain of sense of home, as illustrated in Figure 116, includes two sub-themes: embodied selfhood, which suggests the maintenance of self and identity, and social inclusion, which explains the feeling of being part of something. The theme consists of two sub-sub-themes, which are play and art-based activities.
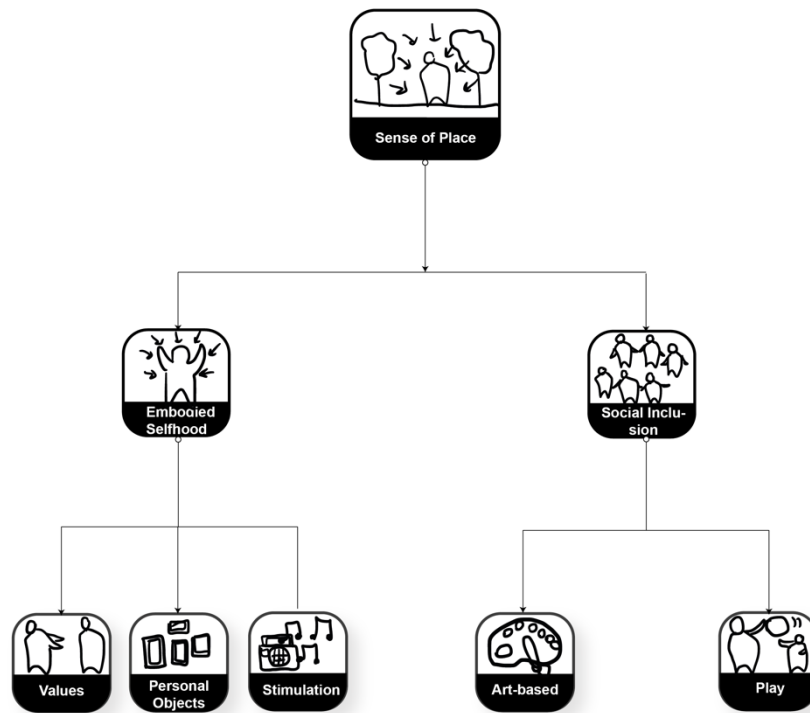
Figure 116 Theme of Sense of Place

7.3.3.1.1 Embodied Selfhood

Persistence of self in both mild and moderate-to-severe stages of dementia is contrasted with many studies which record degree of self and identity deterioration (Caddell and Clare, 2010). However, loss of selfhood can be seen as a product of the Western assumption (Spiro, 1993; Nasreddin-Longo, 1995), which a completed human being is completely dependent on cognition and memory (Robertson, 1991). Hence, not how they are perceived through selfhood, but how they depict their personal expressions is a crucial means of communicating meanings, concerns, lived experiences, memories, and valued aspects of the self. Therefore, personal experiences are embedded in and influenced by the relationality of the relationships of the self and caregivers. Therefore, the embodied selfhood should be encouraged by three factors: self, caregivers, and supportive environment.

Embodied experiences from a sensory environment can encourage personal expression. For example, when the residents were stimulated by familiar music, they responded by singing songs and starting to dance. The residents could also be stimulated by recognised languages

or semiotics to activate their ADLs such as eating. Changes in personality and judgement in dementia raise both practical and philosophical issues concerning a person's identity. In this case, a person's values and preferences have been altered by disease, so caregivers' decisions for people with dementia should be guided by their understanding of the patients' premorbid values and preferences (Dening, Jones and Sampson, 2013). This can be seen in food preferences (Kontos *et. al,* 2011), which in Case Study 1 encouraged the late-stage residents to have croissants, or their favourite menus to acknowledge the caregivers.

On the other hand, some residents had marked their private spaces by personal handbags, which is supported by the ideas of Buse and Twigg (2014). Handbags (In terms of bags themselves and objects they contain) can be interpreted as 'biographical' and 'memory' objects to support women's identities. However, it was not only women with dementia; one of the male residents with dementia in Case Study 1 always carried his crossbody bag containing family photographs. In this case, photographs, and personal objects (such as combs, perfumes, or cards) were arranged inside their personal spaces and could enhance conversations between residents and their personal caregivers (Figure 117).

Figure 117 A caregiver dressed up the resident

As a space for embodiment, the body is separated and apart from cognition (Kiverstein, 2012), which could be a source of intelligibility, inventiveness, and creativity (Kontos and Grigorovich,

2018). In terms of privacy, this finding focuses on resistance strategies employed by residents to create private space in a public place. Residents frequently longed for home, a safe place distanced from the nursing home. Selecting a place to sit signifies and encapsulates the essence of findings from this ethnography and is used to illustrate the irony of denying even this choice to residents when sitting is one of the few activities they do (as shown in Figure 118). In addition, one of the residents in Case Study 2 chose to only talk and do activities with a familiar caregiver within her own bedroom.
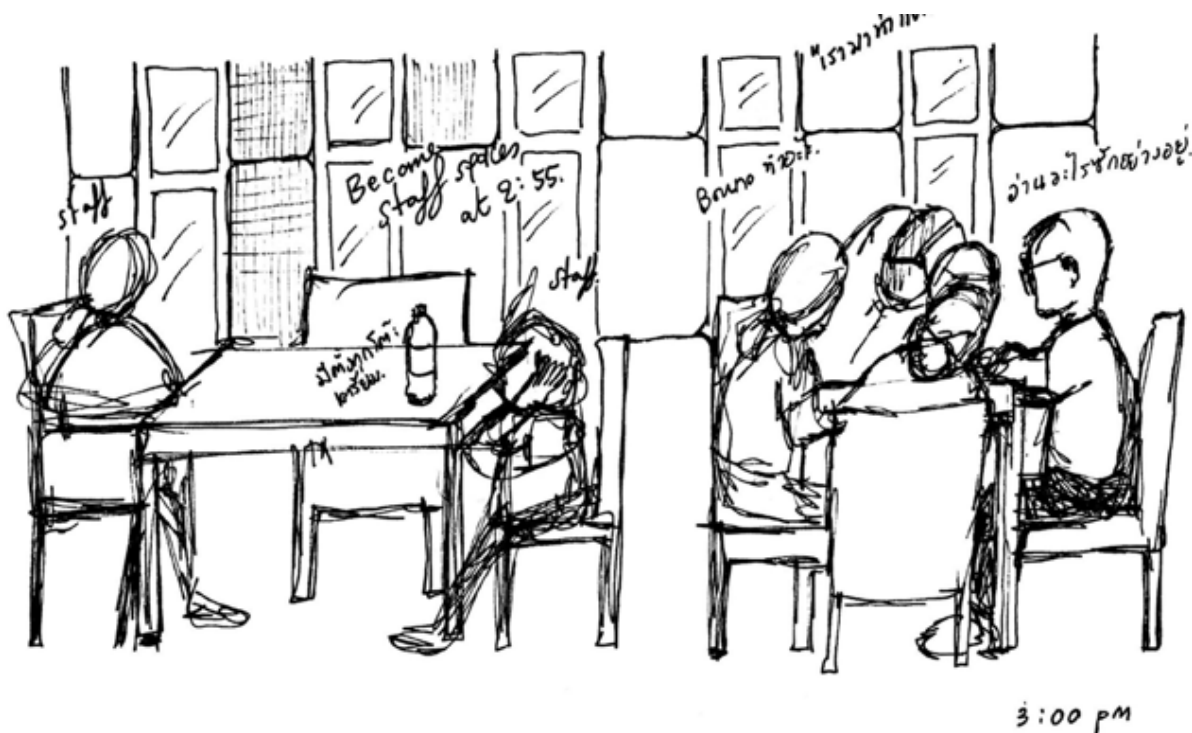
Figure 118 Seating Positions

7.3.3.1.2 Social Inclusion

People with dementia prefer to live at home (Olsen *et. al.,* 2016) because social activities can still be engaged with friends and families (Førsund, 2018). Moreover, attending socio-emotional preoccupations are essential for their experience of home (Forsund *et al*., 2018). However, in the context of dementia care facilities, Foote and Azaryahu (2009) stated that sense of place is used to describe the distinctiveness or unique character of particular localities and regions. In this case, the emotional bonds and attachments that people develop a sense of place in environments (Hashemnezhad, Heidari and Hoseini, 2012) are expanding in different scales from homes to nations (Foote and Azaryahu, 2009). Therefore, social

inclusion also involves how feelings of belonging can emerge from a group of people and how people with dementia can be accepted in these circumstances.

Significantly, the joining of trained facilitators can diversify the group. Arts-based programmes such as painting, music, and dance have been identified as efficient strategies to improve the well-being of people with dementia (Strohmaier *et al.,* 2021) and offering opportunities for caregivers to develop robust social support networks (Strohmaier *et al.,* 2021). As a result, arts-based programmes and the physical environment act as a medium where all activities were emphasised to have the same language. Thus, the environment works as mediators for users to understand.

Figure 119 'First Smile' after the recreational activities (Case study 2)

The findings highlight the playful and imaginative nature of how people with dementia engage with dance and demonstrate how this has the potential to challenge the stigma associated with dementia and how to support social inclusion (Kontos *et al*., 2020). As psychologists Glynn and Webster (1992) defined the concept of play as "alleviate boredom, release tensions, prevent aggression, and symbolise workgroup membership" (Swinnen and de Medeiros, 2017), play facilitates people with dementia in terms of their cognitive limitations, and move to 'the player' (Dartigues *et al.,* 2013), which emphasises their emotional capabilities (Swinnen and de Medeiros, 2018). Subsequently, the notion of 'play' can enhance people with dementia increase feelings of hope and reduce feelings of isolation and loneliness caused by

dementia, as well as enhance positive mood (Figure 119). As a result, a positive atmosphere can encourage others to accept and participate in the activities of people with dementia.

7.3.3.2 Cultural Perceptions

Dementia can be interpreted as a cultural phenomenon, which depends on biomedicine's ability to name and diagnose by symptoms of changes, behaviours, and experiences (Hillman and Latimer, 2017). In addition, the concept of dementia can be highlighted in diverse ways based on how it is experienced. However, the cultural meanings attached to dementia – even within societies – are not universal and is interpreted (Hillman and Latimer, 2017), embodied, or resisted by people within social contexts (Hillman and Latimer, 2017). These procedures are shaped according to their social status (e.g., gender, social class, and ethnicity, and individual biography (Veenstra, 2011). Therefore, how people with dementia are perceived is dependent on the cultural and educational backgrounds and social status of the perceivers.

As shown in Figure 120, the theme of cultural perceptions consists of two sub-themes: memory loss, which describes the state of brain damage affecting areas of the brain involved in creating and retrieving memories, and placelessness, which designs the environment to be appropriated for them, the place became placeless for others. However, cultural perception can be transformed once there is education and acknowledgement.
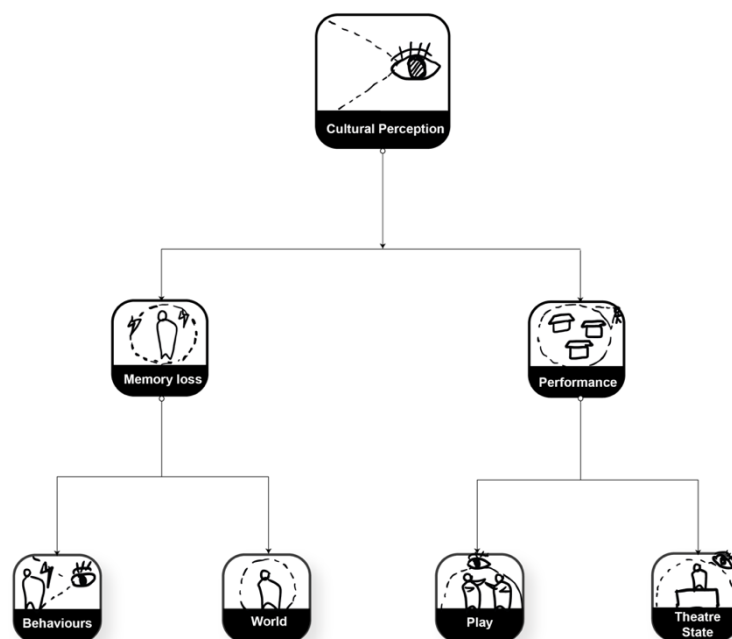
Figure 120 Theme of Cultural Perceptions

7.3.3.2.1 Memory Loss

Dementia is caused by the deterioration of the brain (Emmady, Schoo and Tadi, 2022) and can result in aspects of creating and retrieving memories (Alzheimer's society, no date). As a result, people with dementia often experience memory loss, and progressively affect everyday life (Jahn, 2013). As dementia progresses, short-term memory is increasingly lost, though long-term memory remains. As a result, their 'world' gets smaller because they cannot recognise the environment. Only particular aspects can stimulate their memories. Hence, 'we' cannot understand their behaviours or how 'we' perceive them and their worlds.

As shown in Figure 121, Figure 122, and Figure 123, the behaviours of the residents show that the exact prevalence of violence in dementia is unknown, which often complicates nursing care, and any activity that involves an invasion of personal space increases the risk of aggression. As a result, episodes of violence can be seen with positive psychotic symptoms such as delusions and hallucinations. Especially in Case Study 2, the care staff could not understand a resident's behaviours, as she could not perceive the surrounding environment due to her stage of dementia. As a result, physical barriers were built to hide the researcher from violent attack. However, tactics like turning on familiar songs could improve her mood very quickly.
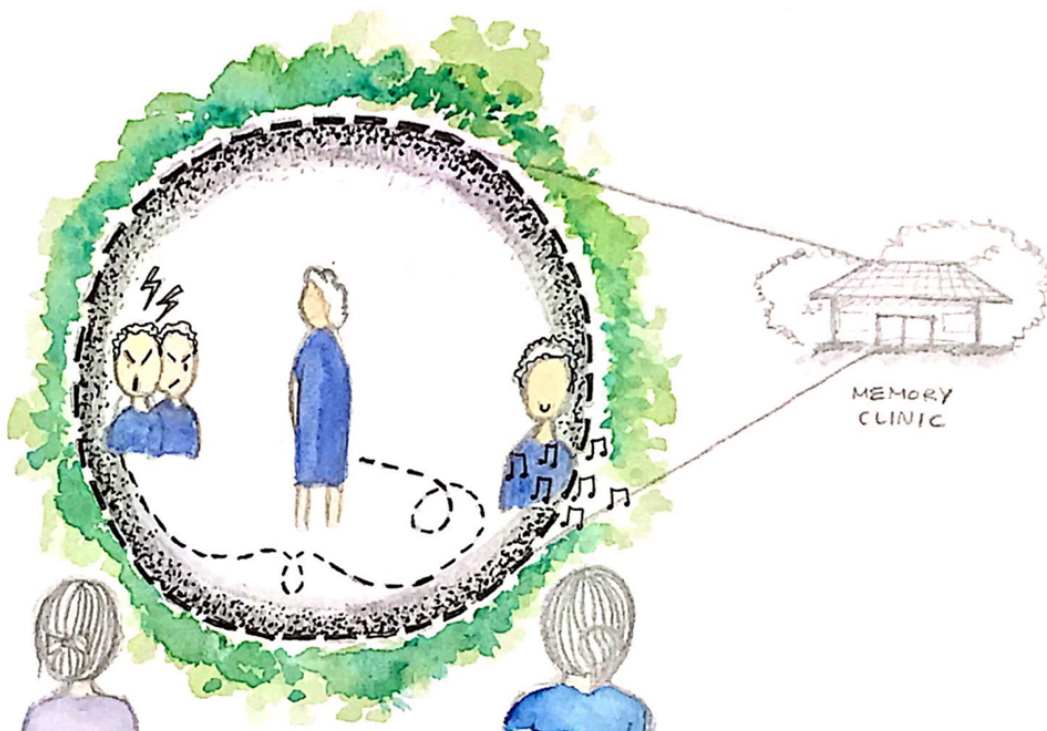
Figure 121 Reflection of the Researcher's Experiences (Case study 2)

Another resident in Case Study 2 collected leaves in the care facilities; nurses stated that "she is in her world, they are gradually constructing their world". However, this is how *we* explain 'her' behaviour. Wandering and walking to collect leaves could still express her identity. A culture can influence the world views, which often influence the way in which dementia is perceived (Faure-Delage *et al.,* 2012). Consequently, these perceptions are often influential in the responses to symptoms. Among different ethnic groups, dementia is interpreted as stress, losses, worries, or normal ageing based on folk models (Cox, 2007).
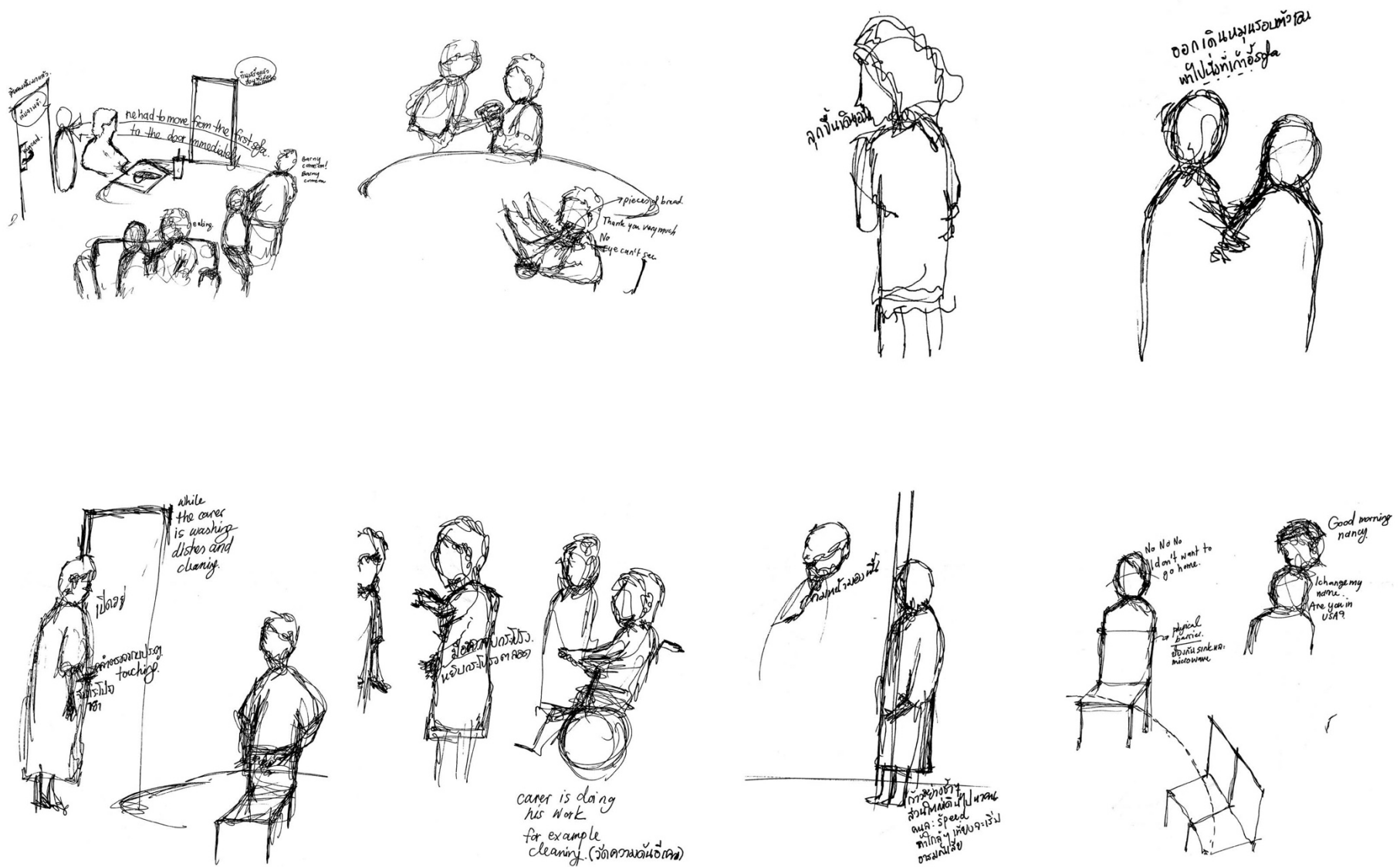
Figure 122 Behavioural Sequences of Participant 5 (Case study 2)
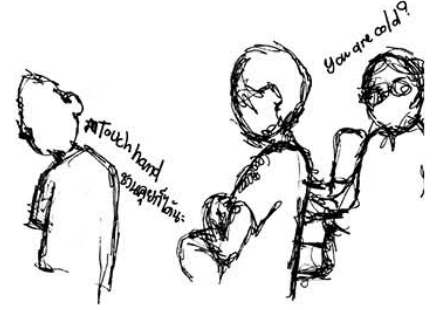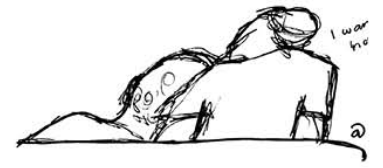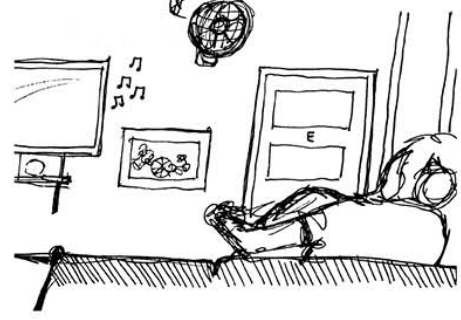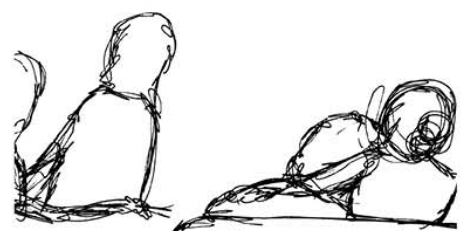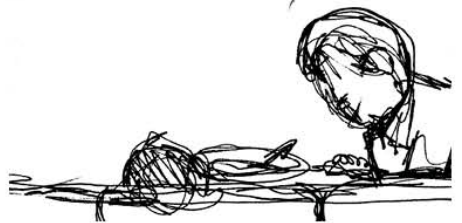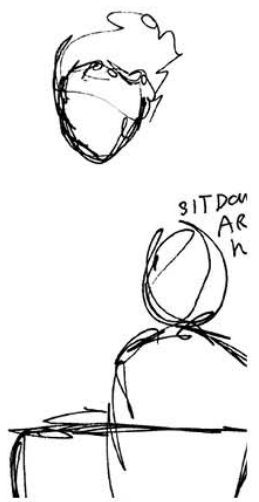
Figure 123 Behavioural Sequences of Participant 5 (Case study 2)

7.3.3.2.2 Placelessness

Relph (2008) suggests that, in general, placelessness arises from kitsch – an uncritical acceptance of mass values, or technique – the overriding concern with efficiency as an end in itself. The overall impact of these two forces, which manifest through such processes as mass communication, mass culture, and central authority, is the undermining of place for both individuals and cultures, and casual exchangeable environments. Unlike the definition of 'non-place', placelessness in dementia care facilities is caused by the perception of the individual researcher – however, it can be reinterpreted by familiarity and the process of place-making, though they cannot express much due to hierarchical status.

Feeling like being in *The Truman Show* is a researcher's first impression because there is a surveillance system that can be felt within the site. These images are frequently reconstituted through the ambivalent economies of tourist encounters. This contributes to emerging research on how geopolitical assemblages are co-constituted by a range of popular discourses, tourism practices, media engagements, and political-economic relations, and how they inform popular geopolitical experiences of and in place. A range of examples will be used to exemplify the ways in which tourism is staged and performed. The observers may not understand the actions and activities. These understandings imply that tourism is extraordinary rather than mundane, that it concerns 'play' rather than 'work'. However, there is a feeling of being in a theatre because everyone uses body language and other languages that are only understood by others.

The recent literature states that theatre and performance can alter the way people perceive about dementia (Burns *et al.,* 2018) and some contexts in which dementia care happens (Gray *et al.,* 2020). Similar to *The Truman Show* and other cinematic geographies, a new communication method, the 'Veder method', has recently been established (van Dijk, van Weert and Droes, 2012). The method in a group activity (e.g., living-room theatre activity) for people with dementia are trained for caregivers to operate. Emotion-oriented care methods are combined with the theatrical stimuli (van Dijk, van Weert and Drose, 2012). Within the context of Thailand, care facilities formed a new organisation culture in which both caregivers and guests lived and worked in an environment that locates intimacy and compassion in one place and the biomedical and bureaucratic exigencies of modern medicine and care philosophies in another. Therefore, a new tourism landscape has emerged where spectators are observing a newly formed culture in the theatre.

Referring to meals for caregivers and the guests, being a guest can be interpreted into identities between caregivers and researchers. According to Geertz's concept of power (1980), Thai culture can be seen as one of command-and-obedience but one that privileges the capacity of pomp, drama, and display to order human affairs. Ceremony puts people in their places; ceremony, drama, and display are not illusory and do not conceal the ordering function of the state. Care facilities can be seen as the colonisation of the new world in terms of constructing an autonomous colony to attract foreigners.

7.4   Conclusion

The findings of the ethnography study indicate that the users' utilisation of space as tactics to project a new image of dementia shows that space means a negotiation of the power relationship, which can determine in three main domains: normalness, atmosphere, and perceptions. The first theme, normalness, comprises three themes and seven sub-themes. The second theme, atmosphere, has two themes and four sub-themes. The third theme, perceptions, is composed of two themes and four sub-themes. From the domains, it appears evident that the definition of a dementia-friendly community can be refined. The domains of normalness, atmosphere, and perceptions refer to a place or culture, in which people with dementia and care stakeholders are understood their rights, recognised the fullest potentials, empowered, and included in the constructed society (Lin, 2017). From the four case studies, the findings are diverse, mainly based on the perceived hierarchy of social structure. As a result, referring to Michel De Certeau (2011), the systems of operational combinations of tensions propose a new culture. However, perception of culture depends on a global, non-personal, objective definition of the space by understanding the mechanisms underlying human perception and the phenomena that influence it, which can be inclusive and built around common characteristics of the space by all observers. The next chapter is to establish a design framework for an enabling environment for dementia care.

8 TRIANGULATION OF RESULTS AND DESIGN FRAMEWORK DEVELOPMENT

8.1 Introduction

This chapter's main objective is to establish a design framework for an enabling environment for dementia care. The chapter illustrates the triangulation of the research findings (from the previous chapters) that show different perceptions of stakeholders, including designers (e.g., architects, interior designers, and occupational therapists), care professionals (e.g., care managers, nurses, occupational therapists/physical therapists, and caregivers), and the researcher. Because people with moderate and advanced dementia are dependent on the people assisting and caring for them, a model of how the facilitating role of caregivers and the physical and material environments are intertwined and presented (Topo, Kotilaien and Eloniemi-Sulkava, 2010). The existing design guidelines for the physical environment for dementia care are focused specifically on people with dementia but eventually could be seen as a separate model for a particular group of people with more varied needs. Hence, the design model should enable architects to develop the concept of place attachment and provide inclusive perception for the end users in the design process. The method for this chapter is a triangulation in which a table of analysis of previous chapters is generated. Consequently, a design framework is reproduced highlighting the interaction between each domain, theme, and sub-theme.

The results show that four domains emerge from the triangulation of stakeholders' perceptions. The domains include creative functionality, sense of security, personhood, and self-esteem. All four domains are crucial in forming a systematic approach that will enhance an enabling environment for dementia care. A systematic approach results from mapping behaviours, tasks, and the planning visions of the urban system authorities. Therefore, ideal concepts and the reality of assessments or regulations should be considered.

8.2 Triangulation of results

Triangulation was completed by analysing three groups of users (Figure 124). The first group of interview participants was made up of 15 designers, including eight architects/interior designers and seven occupational therapists. The second group of interview participants was the carers, composed of seven care managers, 14 care professionals, and 15 caregivers. The last research method was ethnographic studies, which include four main research methods:

ethnography, behavioural mapping, post-occupancy evaluation, and autoethnography. All data collections were conducted in the four selected case studies in Thailand. A table of analysis of previous chapters was generated. Consequently, an infographic of a design framework was reproduced to illustrate the interaction between each domain, theme, and sub-theme.
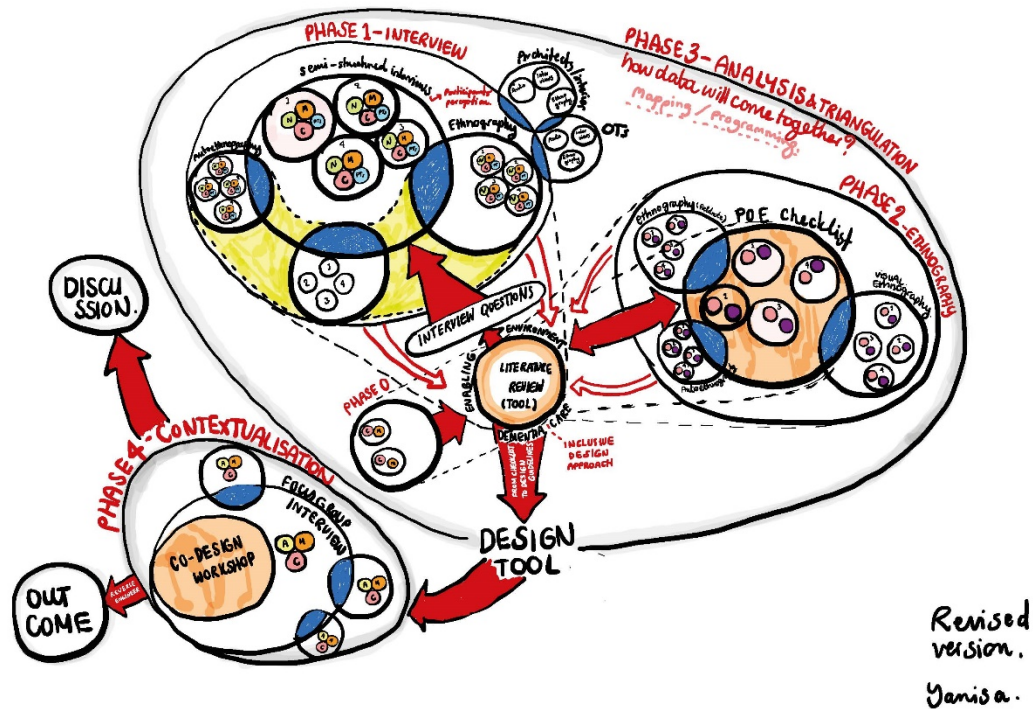
Figure 124 Diagram of Data Triangulation

8.3 Main findings

As artificial or man-made environments have various aspects and dimensions, perception is defined as the way human beings notice things, especially with the senses. Thus, the way people understand or experience their surroundings depends on how they perceive. However, the aspects of an artificial environment often neglect the individual as well as the collective perception. In the dementia context, the perception of the capability approach and the ergonomics approach are closely related. Hence, ergonomic interventions empower people, giving them additional tools for progression. From a universal perspective, an enabling environment is an environment that considers inter-individual differences (differences in anthropometric characteristics, but also in age, gender, and culture), which compensates for individual deficiencies (due to ageing, illnesses, and incapacities). These enabling and obstructive qualities of a built environment have been described as 'affordances' (user-

environment). The approach is to promote health and play through a supportive environment (Sando and Sandseter, 2020). The positive or negative actions produced by a physical environment refers to a challenging and dynamic interpersonal process between care managers' interests and individuals' needs to maintain safety in a care home environment. However, there is limited evidence of design guidelines or recommendations for measuring the collective perception of dementia care.

The relationship of needs and attachment involves developing behaviours to ensure the proximity of a caregiver in times of stress. Every product must have certain basic functionality in place to possess some intrinsic value. Broken functionality kills the product experience. Key concepts on design issues which are important to a creative designer in an effort to produce a functional product that can be useful to the market (Clarkson et. al, 2007). Whenever a new product is introduced to the market, one of the key attributes of the product is its aesthetic appeal, which has a close relationship with the overall design of the product and how well it looks in the eyes of the consumer. The final outcome of any design process is a functional or working product and this requires a creative mindset in order to develop innovative and eye-catching designs. Creativity is an inherent personal capacity to reinvent solutions by providing alternatives to existing ideas, be it in product development or new product design. In design, creativity is characterised by a number of factors which include fluency, flexibility, elaboration, reproducibility, and innovation. Overall, the design should be usable, in other words it should be functional, and therefore the area of designing for functionality has been explored to meet the user need.

As illustrated in Figure 125, the study findings indicate how the design of an enabling environment can support the quality of dementia care. four overarching domains emerged from the users' perceptions, including **creative functionality** (including three themes: learning environment, flexibility, and stimulation); **sense of security** (including three themes: enabling environment, knowledge, and recognition); **selfhood** (including three themes: self-environment, person-centred care, and social inclusion); and **self-esteem** (including aesthetics, dignity, and sense of place).
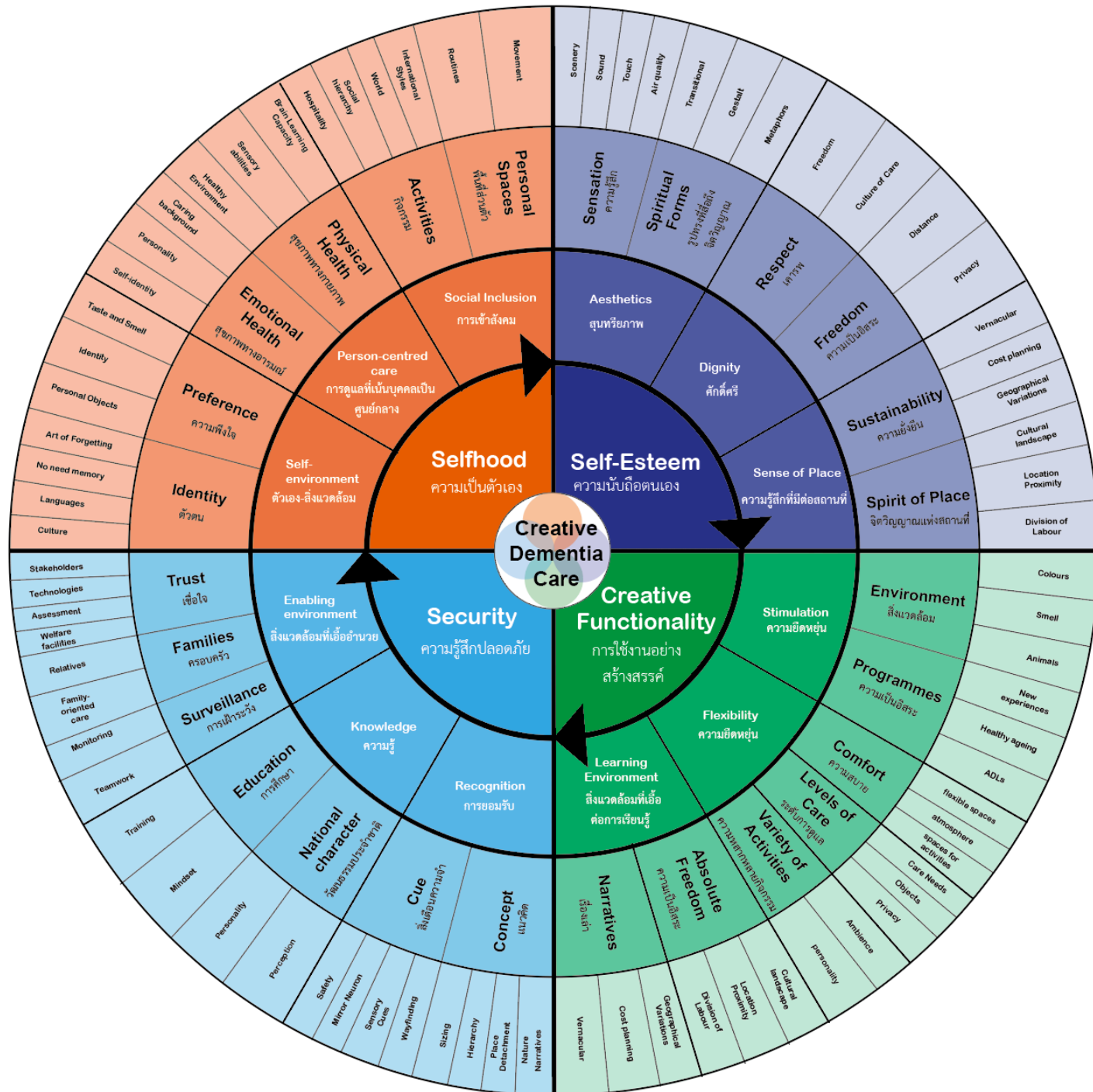
Figure 125 Design Framework of an Enabling Environment for Dementia Care

The first domain, **creative functionality,** arises out of a secure base and provides the starting point for intimacy, one with positive *genius loci*. People get attached to places that are critical to their well-being or cause them distress. Hence, the sense of place individuals and people have is a biological response to the surrounding physical environment and cultural creation.

The second domain, **organisational security**, reveals the capacity for healthy protest and therefore detachment is the basis of autonomy. Instead of characterised by loss of meaning and loss of proper connection between locations which might introduce the identity crisis, independence is reinforced and valued. As a result, attachment behaviours are relatively deactivated, and detachment behaviours become prominent.

The third domain, **selfhood,** covers the capacity to reflect on oneself and to disidentify with painful or traumatic experience. The domain expands the attachment theory concept into the transpersonal realms of the personal and collective unconscious, birth, death, and spiritual non-attachment. Based on the context of Thailand, non-attachment is an essential condition of harmony in Buddhism.

The fourth domain is **self-esteem,** which has allowed different selfhood accentuations without making positions mutually incompatible. As dementia has been perceived primarily as a biomedical phenomenon with a trajectory of irrevocable decline, self-esteem is broadly based on how others have treated them.

The findings expand the significant of attachment theory through people with dementia's subjective experiences. The experiences represent unwilling separation and disruption of attachment bonds and are related to Holme's 'triangle of attachment' (2011). In addition, Ainsworth's work on the quality of attachments has given rise to the suggestion that caregivers are the 'architects' of the quality of attachments, and that attachment, non-attachment or disordered attachment with the person cared for lies in the hands of caregivers (Cassidy, Jones and Shaver, 2013). However, the context of Thailand has suggested the condition of liquid society (Eco, 2017) that describes disorientating boundaries or limitations (Leach, Raworth and Rockstrom, 2013). The definition includes belonging to no place, unknowing where 'home' is, underlines the sense of uncertainty and in-betweenness experienced by people (Geurts, Davids and Spierings, 2020). Therefore, the question of the application of the culture of unboundedness form and non-attachment is raised. The following sections will explain further in detail.

8.3.1 Creative Functionality

Creativity has a significant influence on the design process and its outcomes (Han, Forbe, and Schaefer, 2021), which argued that aesthetics and functionality, are critical characteristics of products (Lloyd-Cox, Pickering and Bhattacharya, 2022). In design, the role of buildings as status symbols, products, and instruments of power are translated architecture as an object (Glenn, 2003). Space is seen as ultimately changeable, and the material world is viewed as transient and detached. As a result, architects and end users are far more willing to accept buildings that might morph, shift, subside, reform, and resurface (Sinclair, no date). Therefore, the non-attachment of character denotes how a building's material features embody the social, cultural, and political traits of the people it serves, which an architectural environment accrues when its spatial, structural, and material features emerge seamlessly from the patterns of everyday life. As illustrated in Figure 126, the domain consists of three sub-themes which include learning environment, flexibility, and stimulation.
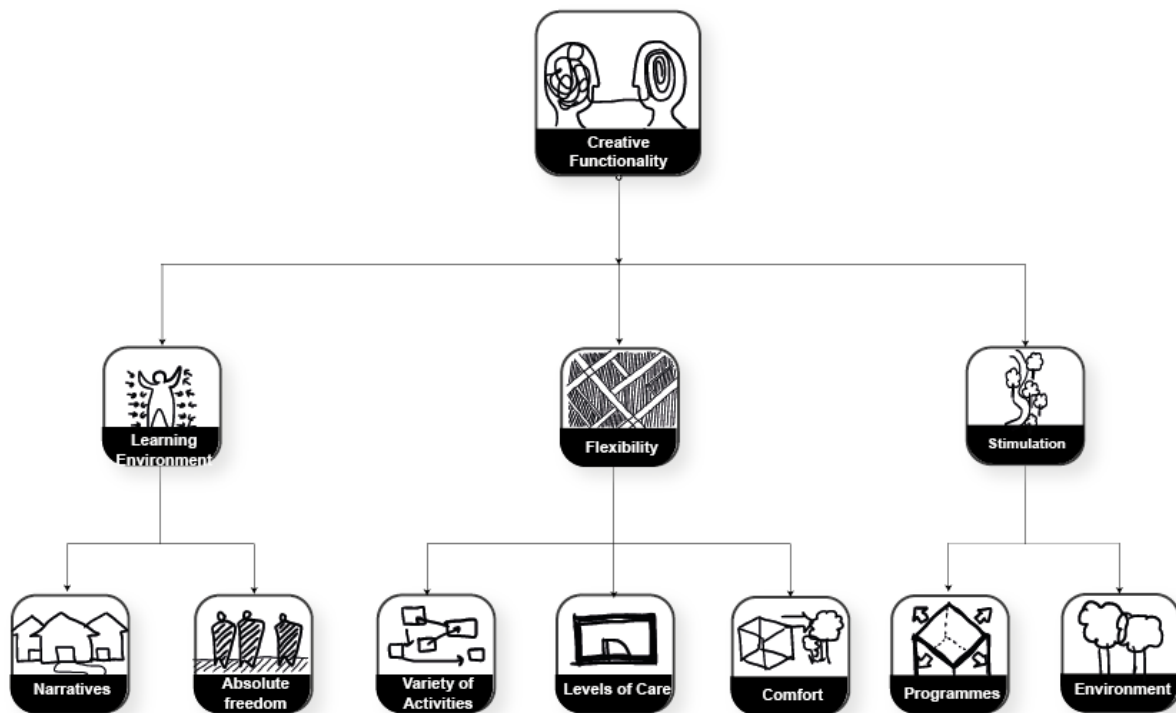
Figure 126 Domain of Creative Functionality

8.3.1.1 Learning Environment

Learning theory provides a simple form for designing effective learning environments and supports open-ended opportunities to build (National Research Council, 2000). Nevertheless, recent research in the science of learning raises important questions about the design of learning environments, which suggests the value of rethinking what is taught, how it is taught, and how it is assessed. Because of the care policy, the dementia care facilities are deprivation of freedom of movement, which questions the challenge for care workers to guarantee the safety of residents while not restricting their freedom of movement. The rule of no rule represents an absolute freedom from rules as far as rules are conventional (freedom in the sense of not being under any rules). As shown in Figure 127, the theme includes two sub-themes: narratives, and absolute freedom.
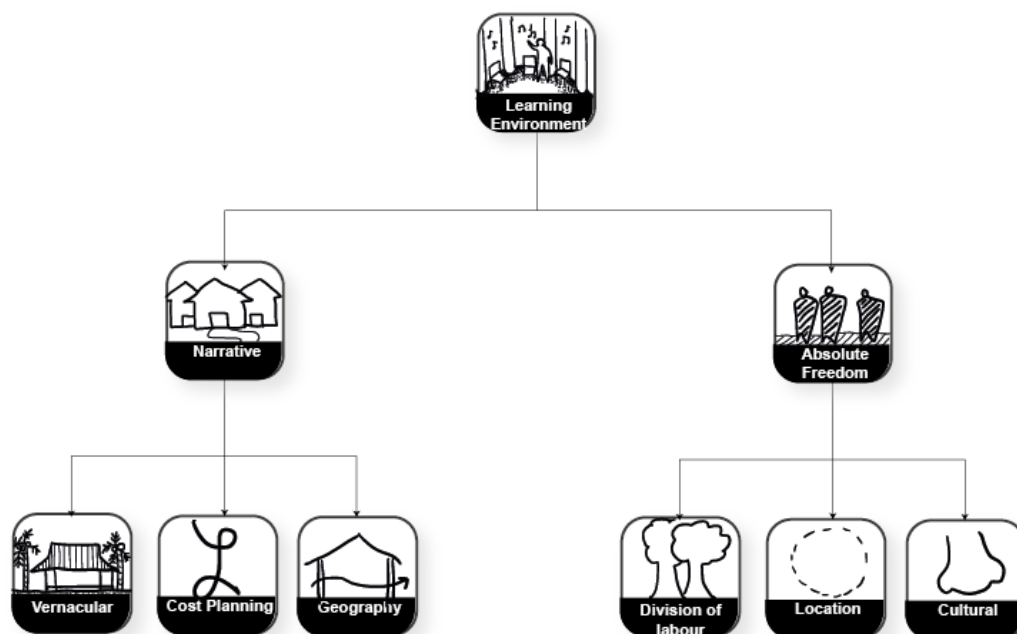
Figure 127 Theme of Learning Environment

8.3.1.1.1 Narratives

The narrative self has historically been identified with long, autobiographical narratives (Kelly and Dickinson, 1997). However, medical, and neuropsychological studies have portrayed

Alzheimer's disease in terms of a gradual memory loss and selfhood (Guzmán-Vélez, Feinstein and Tranel, 2014). During the progression of dementia, the traditional concept of the narrative self loses much of its relevance. In the research context, narrative hospitality means taking responsibility in imagination and in sympathy for the story of the other, through the life narratives which concern the other. Narration and narrative management not only promote the tourism product but also create empathy and engagement in consumers who are now treated as guests (Bakounakis, no date). Thus, experience economy can be achieved. As a result, this story may be the history of the land, or the location as perceived by the guest and converted into a personal story. But the 'setting' could also be an invented story, the product of a narrative design or the result of personalised service. Within the resort theme, modern culture depicts society as made up of actors – individuals and nation states. In sociology and social psychology, anyone who engages in intentional action is shaped by internalised expectations about how others interpret its meaning (action theory). However, cultural forms are not embodied. They also shape social actors, giving them their specific identity and integrity. In contrast to the concept of non-place, new insights better capture the essence of place (Arefi, 2007). In the case of placelessness, drawing examples from both Christian and Buddhist traditions, Tuan (2001) explores, with characteristic grace, sensitivity, and insight, the ultimate placelessness of religious experience. In the world of tourists (placelessness as non-attachment), placelessness often indicates loss and disorientation.

8.3.1.1.2 Absolute Freedom

Absolute freedom as disoriented attachment is characterised in Ainsworth and Bowlby's (1991) strange situation task as a child who exhibits behavioural disorganisation or disorientation in the form of wandering, confused expressions or unorganised patterns of interaction with a caregiver. In the context of Buddhism, the disorientation is indicated by the unsteadiness of hallucinatory perception, which is reported as undulating and shimmering; for transparent, released, and awake which translate the oscillating form (Flavio and Cerniglia, 2019). Even though reality orientation has been shown to improve cognition when accompanied by medication, trauma frequently displays as a symptom cluster, which manifests on a spectrum of multiple sensory modalities (instead of embodied memories). People with dementia usually become disoriented in time and space, which may result from confusion caused by changes in the brain, memory loss, or perhaps from difficulties in recognising people and objects.

Only case study 1 creates continuous circulation loops with destination points and no dead ends which can limit confusing choices, reduce cognitive demand, and allow for a more

enjoyable walk without the frustration of identifying direction. In this case, walking or wandering can become forms of meditation. Especially for people with dementia, the mind wanders away from the object of focus is ubiquitous. The mind wandering in the context of meditation provides individuals with a unique and intimate opportunity to examine the nature of the wandering mind closely. Awareness of ongoing thought is cultivated, while simultaneously aiming to develop evenness of temper or disposition, or compassion towards the content of thoughts or bodily sensations (Brandmeyer and Delorme, 2021).

In this case, sense of flow involves smooth walkways, no distraction of objects, comfortable sizing for peripersonal space, no dead-end circulation, and continuity of space and flow, where there is nothing to block the way. Time disorientation may relate to concentration of the mind for meditation, which regular and constant practice can lead to independence. Regular and constant practice at a fixed time and place where there is no disturbance or distraction will condition the mind to still and calm quicker (Ravindran, 2006). As a result, such equipment is essential for fall prevention. Safe environments such as non-slip flooring or clear rooms can reduce the risks arising from sensory difficulties. Furthermore, physical exercise and multifactorial interventions, have potentially demonstrated to reduce falls in people with dementia (Lach, Harrison and Phongphanngam, 2017).

Furthermore, like an international style or neutral design (e.g., modern and uniform), people with dementia may maintain higher levels of well-being if care staff wear appropriate clothes in the care home environment (Mitchell, 2018). Examples are clothes similar to those of the residents, or even pyjamas and other nightwear such as a night shift (Mitchell, 2018). However, the counterargument may lead to greater levels of distress due to disorientation (Mitchell, 2018), increased infection (Linder *et al.,* 2022), and an inability to recognise nurses when needed (Mitchell, 2018).

8.3.1.2 Flexibility

Flexibility is a spiritual essence that is necessary for higher consciousness. Learning environment allows one's happiness and contentment to be independent of the always-changing experiences that are often beyond the control of themselves (Richard, 2014). Being able to display flexibility assists ruminating on what happens in life, allowing a present and accept the changing experiences of life without being fixated on holding onto positive experiences and pushing away negative experiences (Kashdan, 2010). However, people with dementia have disoriented their ability to interpret sensory inputs, such as visual concepts or other sensory cues (Wiener and Pazzaglia, 2021). The capacity of people with dementia

exhibits flexibility in their actions, thinking, attitudes, and creative capabilities. The overall intent of the focus is both to provide evidence of flexibility in these people and simultaneously to combat negative stereotypes (Albers *et al.,* 2015). As flexibility is a core element of person-centred care (Cohen-Mansfield and Bester, 2006), needs, personality, and capabilities of people with dementia (Berglund, 2019) are attempted to adapt for the concept (Cohen-Mansfield, 2006). The theme consists of three sub-themes, which are variety of activities, levels of care, and comfort (as shown in Figure 128).
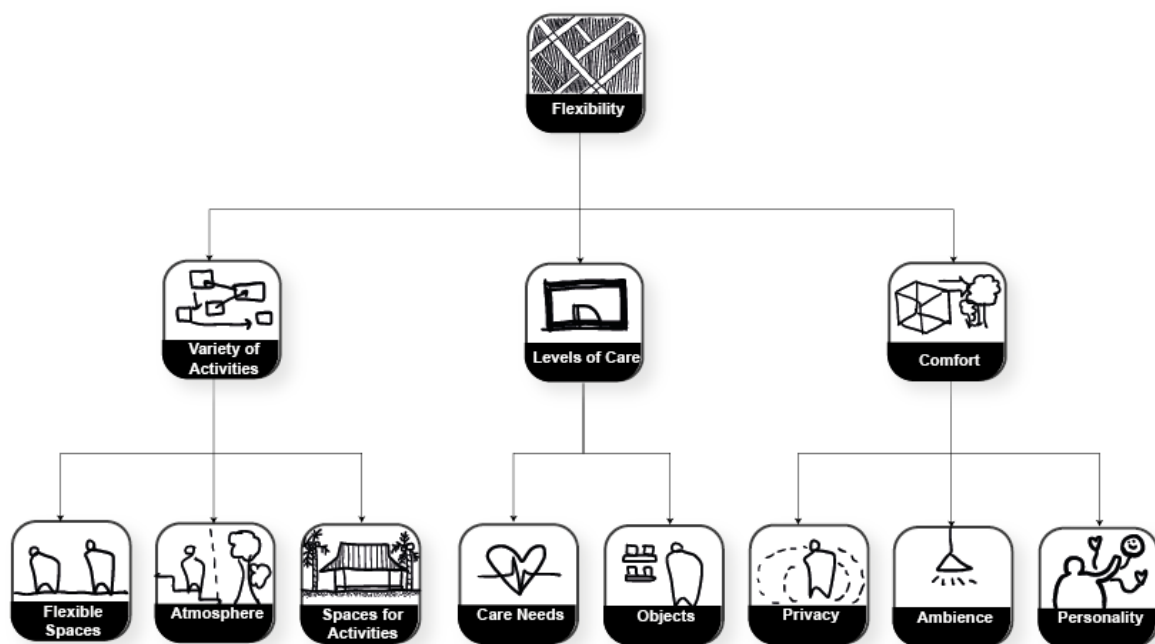
Figure 128 Theme of Flexibility

8.3.1.2.1 Variety of Activities

Activity theory argues for a developmental view of how conceptual frameworks and technologies, practical actions in the world, individuals, and social institutions shape, which are shaped by one another in the learning process. For Vygotsky (1978), the use and construction of artefacts were part of human development: the mind was not an objective entity but was developed through activity. Due to dynamic choices, most dementia care facilities have more adequate and variable common spaces which cause less physical agitation among residents. Some special care units (SCUs) have a range and variety of rooms for communal activities. When there is variety, residents tend to release energy by walking from one space

to another, rather than becoming physically agitated. In such varied environments, residents rely less on staff and occupy themselves with activities appropriate to the location.

Flexible spaces and activities are beneficial for caregivers who are organising/sharing activities. Inside a pavilion in Case study 1, a front entry area is usually called the common area or living area. Various choices of activities are available in such spaces, such as dining, cooking or organic gardening. In addition, such spaces can be used as wellness facilities, including spas or salons, to change the atmosphere. With these things in mind, dementia specialists must decide on room or facility layouts. The implementation of diverse open spaces (with flexible common spaces) creates more flexibility and adaptability to changing trends, attracts different interest groups, and ultimately provides more synergistic benefits to buildings and cities. A space requirement defines one's immediate space needs or one's needs in future periods. A space requirement that defines future needs is a forecast space requirement.

Arranging the furniture in small groups promotes interaction and communication between people with dementia. Arranging the furniture around available activities supports engagement with the actions (Sharp *et al*., 2019). Limited information is available on the characteristics of care organisations (Nilsen *et al.,* 2020), especially group living home care and staff ratios (Testad *et al.,* 2009), which contribute to care staff well-being, residents' quality of life, and quality of care (Willemse et al., 2011). In addition, the room layout and furniture arrangement should support capabilities to safely navigate in spaces (Pollock and Fuggle, 2013). Human-environment interactions usually occur in the physical milieu. Thus, the body as a medium situated within the space is immediately adjacent to the peripersonal area and surrounding the body. However, human interactions increasingly occur with or within virtual environments, and hence design approaches and metrics must be developed to index human-environment interactions in virtual reality.

In addition, atmosphere and events make interior design primarily a social process that renders visible the strategies of materialising the inherent elusiveness of atmospheres into the form of a concept. Hence, the concept is configured in a design network of humans and materials, which defines the conditions under a specific intermediary status between subject and object that can arise.

8.3.1.2.2 Levels of Care

Level of care is the intensity of effort required to diagnose, treat, preserve, or maintain an individual's physical or emotional status (Wells, Pasero and McCaffery, 2008). Preventive

practices to build a solid partnership between health professionals and caregivers is required (Lemmo *et al.,* 2022). An acknowledgement and a recognition provide a practical, safe, and a person-centred care (Willemse *et al.,* 2011). A level of compassion and vigilance of welfare can reflect how to maintain a safe environment (Stone, Hughes and Dailey, 2008). In addition, improving safety involves learning about the causes of error and using this knowledge to design systems of care to make the mistakes less frequent and less harmful when they do occur (Noland, 2000). Hence, researchers, policymakers, and providers have intensified their efforts to understand and change organisational conditions, components, and processes of healthcare systems as they relate to residents' safety.

The palliative care needs of people with dementia, which might include symptoms such as pain, are undertreated, while people with dementia are over-subjected to burdensome interventions. Grouping for activities is assessed and observed by caregivers or occupational therapists. They are distanced from their relatives and enclosed in clusters according to their levels of care (which are based on surveillance). The assessment of people with dementia's needs is called a care needs assessment which identifies what the person's needs are, and what support would meet these needs (Black *et al.,* 2013). The assessment helps the local authority to make decisions. However, multiple intrinsic and extrinsic risk factors can cause falls in people with dementia. Some factors are unique to the symptoms. As a result, risk factors can vary between different people with dementia (Ganguli *et al.,* 2015). Individually, their personal objects are removed, and flooring is made safe to reduce fall risks.

8.3.1.2.3 Comfort

Comfort can be defined as a state of physical ease from pain or constraint (Pineau, 2008), which is stated as one of the six emotional and psychological needs highlighted by Professor Tom Kitwood (1997) to maintain a sense of well-being for people with dementia (Kaufmann and Engel, 2014). However, in the research context, the definition of comfort for designers and care stakeholders are different. The level of comfort and privacy preferences are related. Privacy includes personal spaces, respect, self, and dignity, which suggests that people with dementia perceive their living space as a world that keeps closing in, because a person's immediate environment is reduced as dementia develops (Forsund *et al*., 2018). The claim can be supported by Wiersma and Dupuis's (2010) research, which found that the absence of personal possessions from women's handbags in care homes reflects a loss of privacy and a sense of home. The relatives' decision-making on private rooms over shared resident rooms are debated (Cohen and Day, 1993). As a result, care facilities with and without private rooms

typically incorporate other architectural and programmatic differences. The significance of resident room types is still obscure (Annerstedt, 1997; Skea and Lindesay, 1996).

Social environment also has an impact in comfort. Zoning can allocate friends and neighbours. As residents and care staff are relocated, impacts may be few or unsignificant (Anthony *et al.*, 1987; McAuslane and Sperlinger, 1994; Robertson *et al.*, 1993). Thus, the dementia-friendly environment of a new facility may partially clarify the lack of negative impact of relocation, according to McAuslane and Sperlinger (1994).

An adjustable ambient environment includes flooring and objects and stability, vision, lit/dark environment for sleeping, good ventilation modes for smell, noise, and orientation. Natural lighting inside the building illustrated the importance of the circadian cycle, a natural scenery which support for individual and social activities, and recognition of place (Torrington and Tregenza, 2016). Some people exhibit symptoms of sundowning syndrome, i.e., an increase in agitated behaviour as evening approaches. However, no evidence was found about whether natural lighting inside the care facilities relieves symptoms, though it does help separate day from night.

8.3.1.3 Stimulation

Cognitive stimulation such as a range of enjoyable activities by providing sensory stimulation for thinking (Woods *et al.,* 2012), concentration and memory, are a positive intervention for people with dementia (de Melo Rondao, Goncalves Mota and Esteves, 2022), usually in a small group setting (Woods *et al.,* 2012). Sensory stimulation becomes the input and sensation, which are received when senses are activated (Gadhvi and Waseem, 2022). As Cradle (2011) mentioned, activity theory's proposal can be interpreted as the concept of artifact-*mediated and object-oriented action*, which have been rejected behaviourist ideas of activity as the response to a stimulus. Consequently, sensory stimulation has shown to improve the well-being of developmentally disabled adults, or people with neurocognitive disorders. The theme consists of two sub-sub-themes, which are programmes and environment (as shown in Figure 129).
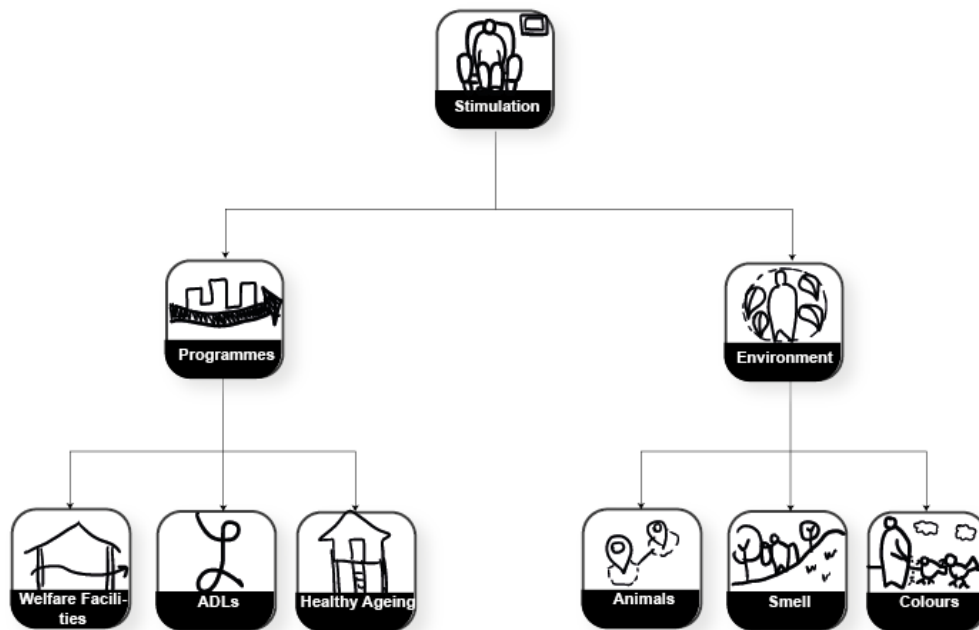
Figure 129 Theme of Stimulation

8.3.1.3.1 Programmes

Healthy communities should provide programmes which are both environmentally and socially sustainable (Hancock, 2000). By developing from the global industrial economy, programmes are based on the quality of the built and natural environments (Söderholm, 2020). Human detachment from the natural environment has decreased the strength of the immune system. King (2001) shows the importance of a harmonious balance existing and emphasised between human and nature itself. Healthy ageing should balance disease prevention and injury with the promotion of behaviours and environments in a way that maximises functioning and well-being across the lifespan (Albert, 2010). Hence, programming of natural therapy should be provided.

Stress is closely linked to conditions such as depression and anxiety (Mariotti, 2015), which have been suggested as factors that could increase the risk of dementia (Byers and Yaffe, 2011). Stress-related environments can be reduced by welfare facilities for caregivers and relatives. A facility policy may establish and encourage care staff to dine with residents (Park, 2010). Rooms are also provided for the relatives as hospice care. The case studies

demonstrated that playing and therapeutic social activities are essential for people with dementia (Duffner *et al.,* 2022).

A healthy environment enables users of a building to be at their best – physically, mentally, and emotionally. Healthy indoor air quality, water, ambient sound, lighting, cleaning, disinfecting, ergonomics are variables for healthy environment. A healthy environment should contain no pollution but plenty of Vitamin D. The first sub-sub-theme is biological health, which is based on personal hormones, and biological clocks. Synchronised by light and darkness, the circadian clock controls waking and sleeping cycles, body temperature, digestion, hormonal cycles, and behaviour patterns.

Training for activities of daily living (ADLs) is intended to establish goals and tasks of training programmes and improve self-esteem (Justice, 2018). By creating a healing space and time (Sage, 2011), the designers determine each re-learning programme and activity for the users. Consequently, programming is the primary overall concern, through which activities such as leisure or cognitive endeavours stimulate their brains. These activities can include activities of daily living, routines, habits, walking, and physical exercise. Moreover, types of therapies such as recreational therapy, speech therapy, cooking groups, art and craft activities, and games are also used.

8.3.1.3.2 Environment for Memory Stimulation

A multi-sensory environment dedicates space or room where sensory stimulation can be controlled (intensified or reduced) (Eijgendaal *et al.,* no date). The multi-sensory environment aims to promote active or passive interaction are matched to fit person's perceived self-identity, for example, motivation, interests, leisure, relaxation, and education (Eijgendaal *et al.,* no date). In most case studies, natural environment is a part of the physical design (Chulvi et al., 2020). A prototype of a multi-sensory environment (MSE) was built by Dutch caregivers principally for the recreation of older people with severe intellectual disabilities (Hogg *et al.,* 2001). Leisure activities involving an appeal to primary sensations would be more immediately engaging than activities based on intellectual pursuits (Hulsegge and Verheul, 1986).

For learning zones and positive mindsets, the environment as media affects personal lifestyles and life history (Abbas *et al.,* 2019). The education/learning zone involves the changing of perception through education (Goldstone, Landy and Son, 2010). 'Learning environment' can be defined in diverse physical locations, contexts, and cultures in which students learn. It is important that education includes the promotion of an environmental mindset that involves

social interaction, psychosocial environment, and virtual reality (Abbas *et al.,* 2019). Unlike people with fixed mindsets, people with a growth mindset would be less inclined to ascribe behaviours to personality. Thus, changing their personality type depends on the adaptability of their mindset. Training programmes for languages and motivations, as well as educational spaces, should be provided.

New experiences and positive risk taking have shown that meaningful activities to people with dementia are like those people without dementia (Telenius *et al.,* 2022). Eklund (2009) argues that the occupation spectrum is essential for one's perception, which reflects on how they perform in the everyday life (Brown and Hollis, 2013). When taking a risk, a person becomes informed, decides to go through the experience, and is willing to accept the consequences, regardless of the outcome. As a result, a lack of motivation and apathy are concerning as problems in rehabilitation of people with dementia because they cause lower functional ability and poor relationships with caregivers (Nobis and Husain, 2018). While related to depression, apathy presents distinct challenges.

In contrast, nature-based environments can enhance positive outcomes for people with dementia, include improved mood (Cobentry, 2021), higher levels of social interaction (Shanahan et al., 2019), and increased motivation for residents (Shanahan et al., 2019). A lively and motivated experience with sunlight and colours can also more greatly job satisfaction for care staff. Embodied experiences can also allow people to become open to the experiences of the world, e.g., food taste (Everett, 2008). In this case, the taste experience is an accumulation of multiple senses, which one sense can stimulate a perception in different senses (Goody, 2002).

8.3.2   Sense of Security

A sense of community creates a sense of security, which a reaction to traumatic events inevitably changes over time. The initial's own social context generally restores the sense of security necessary for optimal recovery. In some cases, people with dementia and their relatives can lose connection with friends and with each other. According to the end users, one of the most challenging aspects is the gradual sense of security, which the experiences of uncertainty, growing detachment, and exhaustion can be noticed (van Wijngaarden *et al*., 2018). In the context of dementia, sense of place often means risk and resilience management to gradually ground the sense of security in policy and practice. On the other hand, detachment is the basis of autonomy (Holmes, 1997). Therefore, the importance of place in managing risk

and resilience is emphasised. Nevertheless, an element of sense of self has been relatively neglected in dementia as a critical aspect of dementia experiences (Bailey *et al.*, 2013).

As shown in Figure 130, the domain consists of three main themes: the enabling environment, knowledge, and pattern recognition. The first theme, the enabling environment, is composed of three sub-themes: trust, families, and surveillance. The second theme is knowledge and is made up of two sub-themes: education and national character. The third theme, recognition, consists of concept and cues.
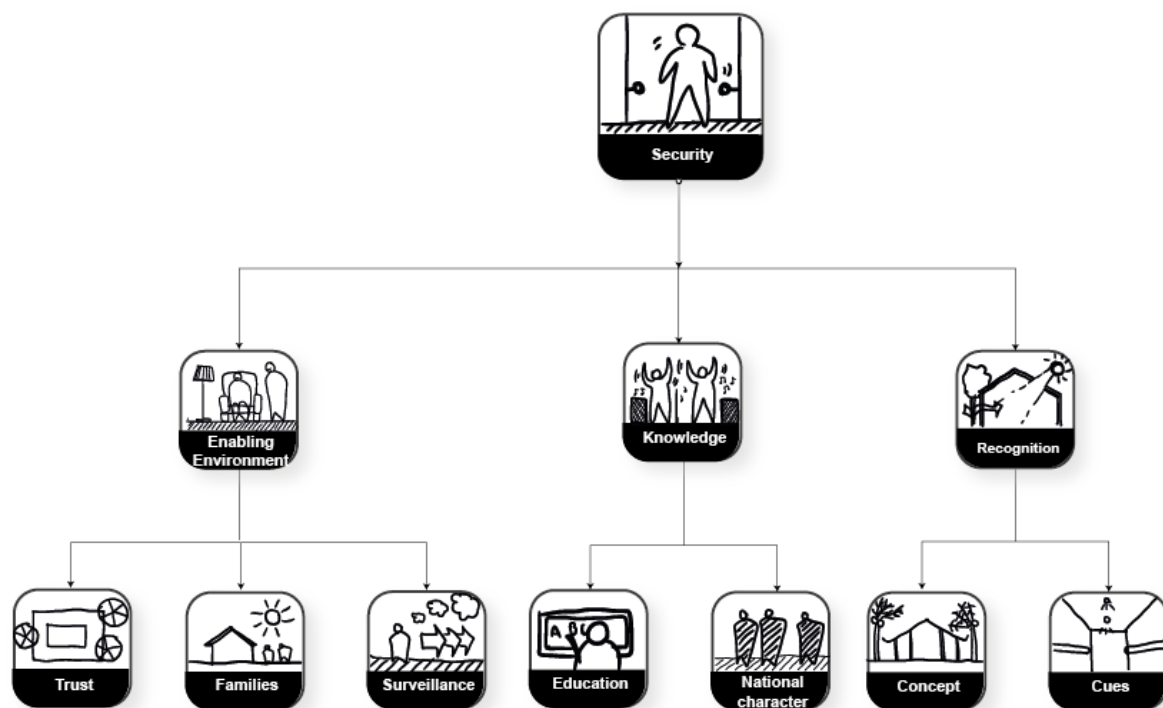
Figure 130 Domain of Security

8.3.2.1   The Enabling Environment

The enabling environment means the overall environment, which may provide people with dementia and their relatives a flexible and safe space in a setting where they can 'play', explore, and learn. The environment can contribute greatly to universal leaning and development in the early years. In case studies, the concept of affordances considers how physical and psychosocial environment provides positive and negative possibilities for action. In this case, psychosocial support helps to improve caregivers' self-efficacy, which may

positively influence caregivers' health and well-being (Merrilees *et al.,* 2020). The research finding demonstrates that self-efficacy can positively impact on a care model (Merrilees et al., 2020) among dementia family caregivers (Merrilees, 2020). Hence, the provision of an enabling environment can support the independence of people with dementia and caregivers (Merrilees *et al.,* 2020; Warner and Schwarzer, 2020). As shown in Figure 131, the theme includes three main sub-themes: trust, families, and surveillance.
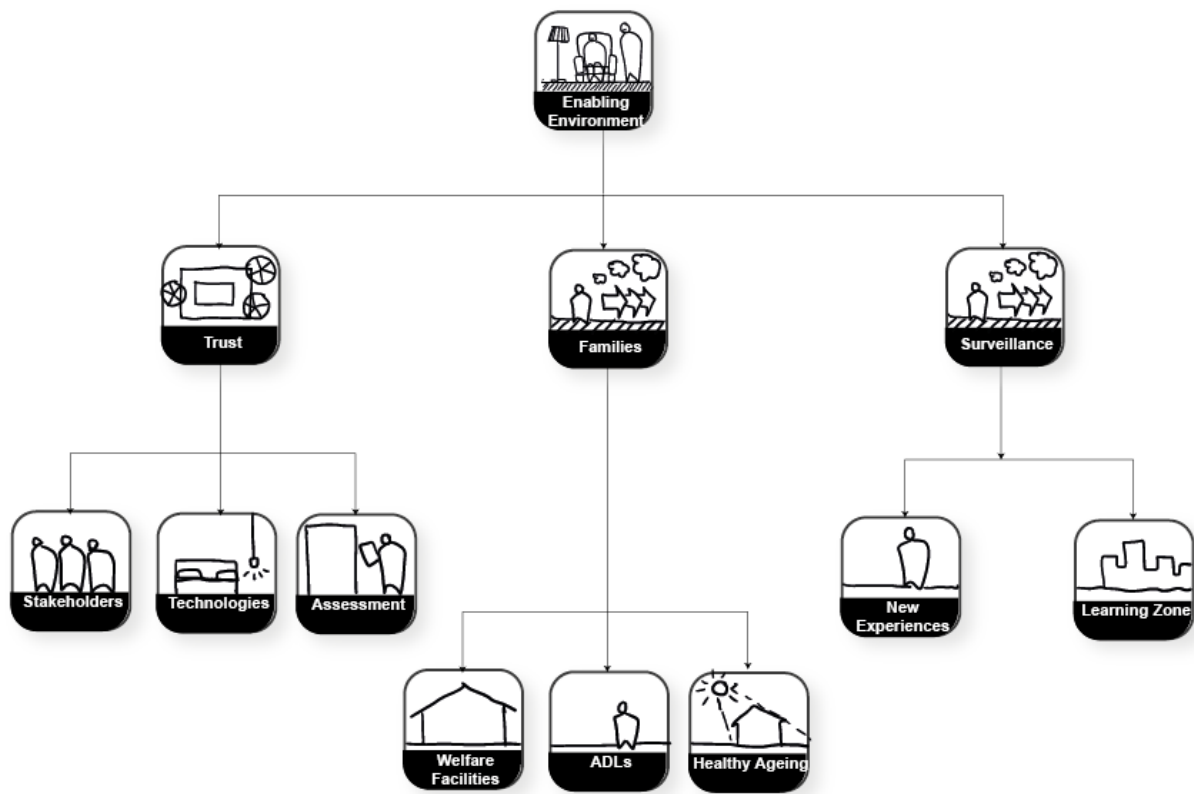
Figure 131 Theme of Enabling Environment

8.3.2.1.1 Trust

Having a sense of control over oneself (Flores *et al.,* 2020) and the environment can encourage people with dementia to feel safe and secure (Grobosch, 2020). However, a relationship between care managers' leadership and caregivers' experience of difficult situations can be challenging in dementia care settings (Yaghmour, 2022). As a result, trust between care recipients and caregivers are important when it comes to feeling safe and secure. In addition to familiar objects, people with dementia prefer to be close to people they know they can trust. Despite their cognitive decline, people with dementia are often aware of who cares for them.

Devices of assistive technologies can assist people with dementia (Pappada *et al.,* 2021) to maintain and improve their independence, safety, and well-being (Akyurek, G. *et al.,* 2017). Currently, some equipment is specially designed to assist physical and cognitive impairments. In most case studies, assistive technologies are distributed in bedrooms, allowing care professionals to stay separated. Fixtures such as ramps, handrails, and doors provide support for the residents. Mobility aids, including wheelchairs and walkers, enable people with dementia to navigate to their destinations (Martins *et al.,* no date; Hunter *et al.,* 2020).

Moreover, the progressive and distressing nature of the symptoms extend beyond the person with dementia. Secure dementia care facilities are generally disconnected from the community and often confine their residents. The lack of resources to provide stimulation, as well as the inactivity of bodies and minds, results in agitation and a faster progression of the disease.

Memory of human faces and voices are generating through time. This is the ability to encode and recognise unfamiliar faces when the acoustic patterns of speech transmit information about the speakers. However, if the faces and voices of caregivers have become familiar, caregivers and residents become more closely attached in their relationship. Photographs and personal objects help to trigger memories in people with dementia.

8.3.2.1.2 Families

Informal caregivers of people with dementia are often recognised as the invisible second 'patients' (Mackowiak *et al.,* 2021; Engel *et al.,* 2022), who are critical for care recipients' quality of life (Karg *et al.,* 2018). However, caregiving effects are sometimes argumentative due to social isolation (Grycuk, 2022), physical ill-health and financial hardship (Wang et al., 2022), which are based on high affliction rates and psychological morbidity (Brodaty and Donki, 2009). Through sense of detachment, family members discover how to trust and open their hearts in safer ways. Detachment helps each member move towards personal growth, which can prepare him or her for healthy relationships. Hence, there is a balance of emotion and economic status.

Relatives are people in different countries who have a relational attachment to the people with dementia. They are partly attached by distance. However, their satisfaction is still dependent on whether the people with dementia are satisfied with the place. Moreover, they are also partly attached in terms of budget or their previous selves (their expectations). Caregivers who are vulnerable to attached outcomes can be identified as factors to enhance or intensify burdens and strain (Brodaty and Donkin, 2009), and, in terms of personal profile, the

management of budgets and pensions. Nonetheless, if they are staying in the resort, these factors must be managed through pensions to create the desired perception. On the other hand, staff ratio and personality of caregivers in the Thai context partly become 'families' based on their cultural background of family-oriented care. Even though their cultural background is family-oriented, they are still working as caregivers in the form of families.

8.3.2.1.3 Surveillance

Confidence and calmness of caregivers or people with dementia can be increased by the impact of surveillance technologies (Vermeer, Higgs and Charlesworth, 2019). Surveillance can increase in autonomy and independent for people with dementia and a decrease in caregiver burden (Mulvenna *et al.,* 2017). Activity trackers can be used to monitor the behavioural symptoms of dementia, which can help to assess non-pharmacological interventions. People with dementia can successfully adopt technologies in their everyday living. Hence, team-based collaborative care and technological interventions can provide a practical strategy to deliver effective dementia care in various care settings (Galvin, 2014).

8.3.2.2 Knowledge

Knowledge refers to a belief that is true and justified (Grefte, 2021). The definition of knowledge has led to its measurement by methods that rely solely on the correctness of answers. Hence, a correct or incorrect answer is interpreted to mean simply that a person knows or does not know something (Hunt, 2003). Human brain maturation is characterised by the prolonged development of the structural and functional properties of the large-scale networks that extend into adulthood (Lim *et al*., 2015). Surroundings include biotic factors such as human beings, whereas an environment consists of an inseparable whole system constituted by physical, chemical, biological, social, and cultural elements, which are individually and collectively interlinked. Regarding the built environment, its shape and form can convey the concepts and beliefs of users' everyday lives. As a result, the participants indicated that environments as media can still enhance learning based on people's personality traits. Therefore, environmental design should match learning styles with personalities. The theme consists of two sub-themes which are education and national character.

8.3.2.2.1 Education

Dementia education and training can improve care staff's knowledge and confidence, nurture positive attitudes, and produce better outcomes for people with dementia. Cognitive training, occasionally described in the literature as 'brain training', 'retraining' or 'remediation', typically involves a set of structured guidelines – and usually standardised – tasks, designed to train relatively well-defined cognitive processes (Bahar-Fuchs *et al.,* 2018) and abilities such as speed of information processing, attention, memory, or problem solving (Colom *et al.,* 2010). Care stakeholders differ in how they experience and respond to dementia caregiving. To explain such differences, the dementia mindset captures the extent to which care professionals view dementia as stable and fixed (akin to the biomedical perspective) or as flexible and malleable (akin to the person-centred approach) (Patel *et al.,* 2021).

Training of languages and cultural specificity are essential for organisational culture (Tipuric, 2022). Research participants described nurses' comfort strategies under the following categories: immediate and competent technical/physical care, positive talk, vigilance, attending to physical discomforts, and including and attending to the family. The comfort strategies used by nurses can lead to a positive impact of the participants' physical and emotional well-being (Wensley et al., 2017).

8.3.2.2.2 National character

Personal backgrounds such as age, gender, education, race, and ethnicity can increase a risk of dementia (Terracciano *et. al*, 2017), which can be associated with alternative risk factors, including income, wealth, lifestyles and personal healthcare (Yassine *et al.,* 2022). As a result, personality changes can be exhibited by people with dementia, which can precede the progressive conditions (Cipriani *et al.,* 2015). Moreover, unlike national character, premorbid personality may predict a determining and exaggeration factors of the original personality as dementia progresses (Prior *et al.,* 2016). As a result, early dementia detection can improve treatment outcomes and personality changes. However, deprived perception and understanding of dementia are major barriers (Tan *et al.,* 2012).

8.3.2.3 Recognition

Language deficits are frequent in dementia (Kempler and Goral, 2008). People with dementia demonstrate, among other signs, word-finding problems (Rohrer *et al.,* 2008), sentence

comprehension deficits (Banovic, Zunic and Sinanovic, 2018), and lack of cohesion in discourse (St-Pierre, Ska and Beland, 2009). People with dementia and care stakeholders are an acceptable pattern language (Roze des Ordons *et al.,* 2019). Moreover, these groups could imagine situations, which they used the presented patterns to improve and talk about their life with dementia. The pattern language (Alexander, 1990) is established by providing an example and describing its development process. One can think of a thesaurus, which relates synonyms along multiple vectors of similarity, without trying to select a single word that captures an idea to the detriment of others. Focusing energy on agreeing on the most abstract and synthetic forms of invariants, detached from any context, given the fragmentation of contexts and related vocabularies and worldview, seems a daunting task. The two sub-themes include concept and cues, as shown in Figure 132.
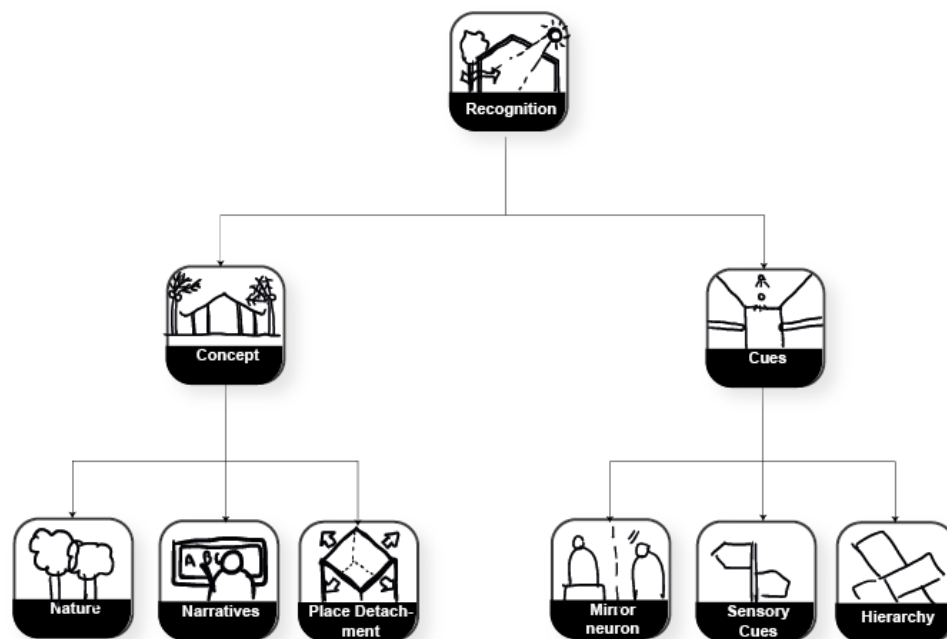
Figure 132 Theme of Recognition

8.3.2.3.1 Concepts

Concepts are an essential notion for the understanding of human thought (Giunchiglia, 2016). People with dementia have lost their capabilities to interpret sensory inputs (Albers *et al.,* 2015), such as visual concepts or other sensory cues (Dixon, Anderson and Lazar, 2022). As

there are many different stages involved in the seeing process, various types and combinations of mistakes could occur among people living with dementia. The view of representations recognises the idea of the computational roles of items being determined using only their syntactic properties (Horst, 2003).

Narrative and imitation suggest that the emotions associated with people's past experiences appear to provide a strong cue for recollection, forming a significant feature of their accounts and providing all informants with narrative identity. This sense of narrative identity began to dissolve for some people with dementia as their symptoms progressed and their stories faded from memory (Villar, Serrat and Bravo-Segal, 2019). For 'normal' people, whose memories were not so devastated by symptoms, this sense remained with them.

Place detachment and face recognition creates multiple affordances of spaces, whether sensual, symbolic or cerebral, which provide meaningful trigger ties, stimulate new affective and practice repertoires, and may exert a transformative power in personal biographies. Bonds evolve in tandem with individuals' life courses and are also impacted by events. Hence, the concept of nature, as the environmental awareness that human being live on Earth, is concerned with how a great sense of awe can be produced by, among other things, the sight of nature, and this sense would not be describable in language.

8.3.2.3.2 Cues

Each long-term memory corresponds to a specific pattern of neural activity distributed across the brain. The role of design patterns in forward engineering is well known, but it is not easy to use, since considerable experience is required. Different approaches and tools have been proposed in the literature to enhance and support the design process with respect to the exploitation of design patterns. In addition, the role of design patterns in reverse engineering has been widely studied. People with dementia may not be able to process or solve challenging forms of conflicting information (Poppe *et al.,* 2020). Therefore, the room layout should be thoroughly designed to ensure if sensory cues are clear, understandable, and controllable (Spence, 2020). This leads to the issue of accessibility.

Imitation is a pervasive behaviour in humans that is central to the learning and transmission of culture. Imitation seems also to be a 'facilitator' in many social encounters, helping not only in the synchronisation of body postures, gestures, voices, and facial expressions, but also apparently in increasing people's liking for one another. Sensory cues such as lighting cues

provide a statistic or signal that can be extracted from the sensory input by a perceiver, indicating the state of some property of the world that the perceiver is interested in perceiving. A cue is some organisation of the data present in the signal which allows for meaningful extrapolation.

Furthermore, spatial disorientation in people with dementia manifests itself in getting lost in familiar and unfamiliar places (Puthusseryppady *et al.,* 2020) and have been characterised more specifically using spatial navigation tests in both real space and virtual environments (Vlcek and Laczo, 2014). An impairment in multiple spatial abilities, including allocentric and egocentric navigation strategies, visuospatial perception, or the selection of relevant information, are required for successful navigation (Laczo *et al.,* 2021). Some arrangements have underlying hierarchies which subtly reinforce traditional teacher-centred power dynamics (Smith, 2017). It follows that spatial geometry and hierarchy should be considered key parameters in learning space design.

8.3.3 Selfhood

Arguably, two concepts of selfhood remain within the frame of a debate, for example the undersocialised and the oversocialised views of human occupation (Shilling, 1997). Intermediate theoretical positions have created interaction and intersubjectivity in self-formation (Harrison and Tronick, 2022). Importantly, different accentuations of selfhood without making positions mutually incompatible are allowed (Durand, 2006) Dementia has been understood as a biomedical phenomenon with a trajectory of irrevocable decline related to neurodegenerative changes (O'Connor *et al.,* 2016). However, the performance and behaviour of people with dementia are not exclusively determined by neuropathology (Schneider *et al.,* 2009). Personal histories, social interactions, and social contexts are influenced. There are three themes associated with selfhood, including self-environment, person-centred care, and social inclusion (Figure 133).
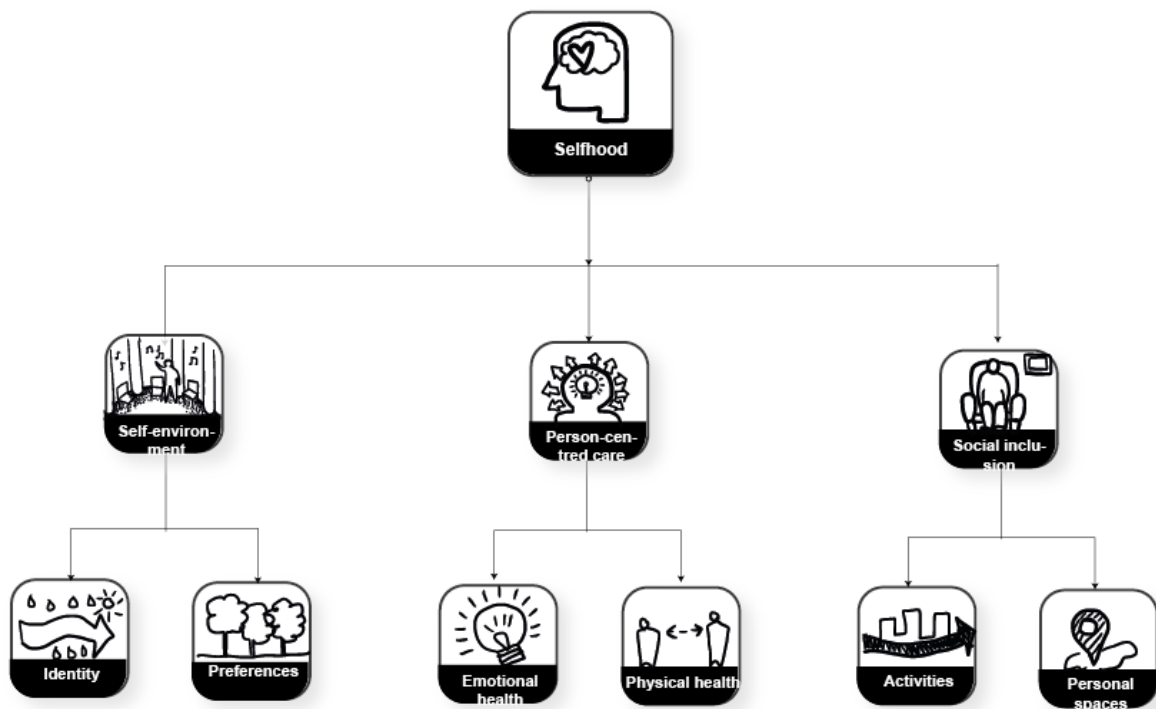
Figure 133 Domain of Selfhood

Self is a multi-component construct which entails a number of cognitive operations (mostly in neuropsychological terms) (Klein and Gangi, 2010). The concept is likely to relate to the maintenance of perceptual and conceptual boundaries between the self and non-self within the world at large, the internalisation of an appropriate self-image, and an updating of that image based on experience (Bond *et al*., 2016). The ideas of *dana* and its threefold purity provide guidelines for Buddhist spiritual care, in which a chaplain sits with a person who suffers from spiritual or emotional pain and supports her or him to find a way to become free from agony (Thien, 2019). Functional status can be conceptualised as the ability to perform self-care, self-maintenance, and physical activity. However, disidentification from roles, images, and identity represents the non-attachment of people with dementia with their progressive symptoms and personality. Hence, fulfilling good functional performance is fundamental for enabling older people to maintain independence and avoid institutionalisation. This theme is composed of two sub-themes: identity and preferences (as shown in Figure 134).
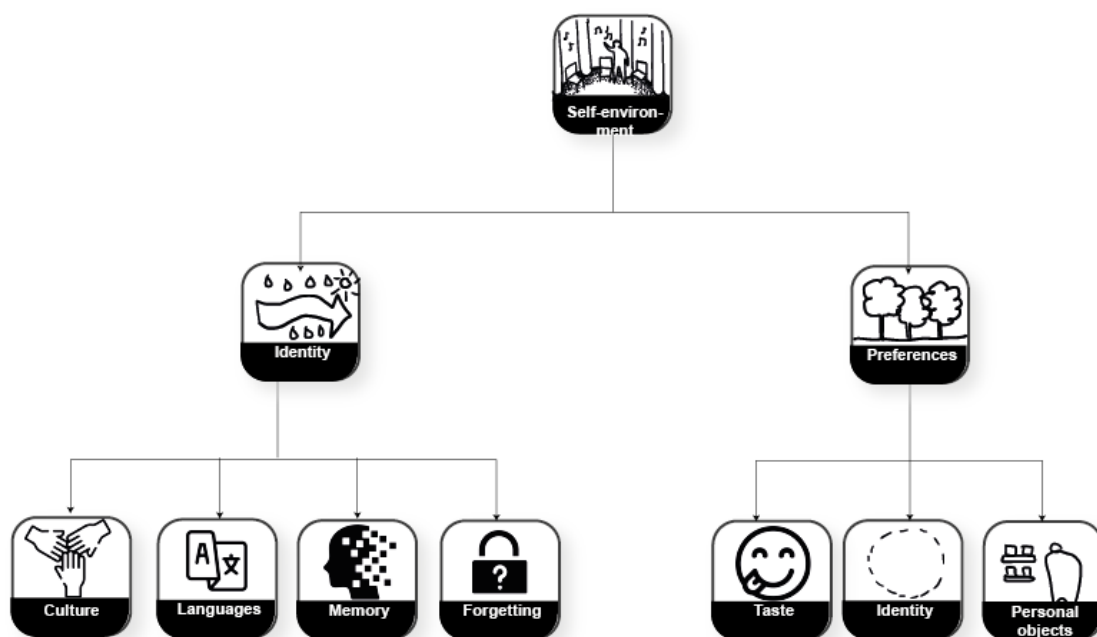
Figure 134 Theme of Self-environment

8.3.3.1.1 Identity

Changes in personality and judgement in dementia raise both practical and philosophical problems concerning personal identity. For example, if a person with dementia's values and preferences have been altered by disease, should caregivers' decisions for the person be guided by their understanding of their premorbid values and preferences, or of their current values and preferences. Commonly, memory loss is not the only symptoms of dementia. People with dementia also have issues with language skills, visual perception, paying attention, or personality changes (Knopf, 2019). Language deficits are frequent in dementia (Kempler and Goral, 2008). Thus, people with dementia demonstrate, among other signs, word-finding problems (anomia), sentence comprehension deficits, and lack of cohesion in discourse (Kempler and Goral, 2008).

For walking, people with dementia are no different. It can help to relieve stress and boredom and is good exercise (Wang *et al., 2021*). But as with all behaviour, if a person with dementia is walking about – and possibly leaving their home – this could be a sign that they have an unmet need. Findings suggest that walking can reduce the risk of dementia (Hackett, 2018; Wang, 2021). Promoting active lifestyles in physically capable older people could help their

late-life cognitive functions. In Western countries, the term 'wandering' tends to have a negative connotation. Wandering is a distinct form of ambulation or locomotion.

8.3.3.1.2 *Preferences*

In terms of personality and preferences, the concept of personality is an integrating power coordinating all psychological processes (Hampson, 2012). It is obvious that one cannot talk about the personality of a new-born child. Arguably, the personality of a human being is 'produced', created by social relationships into which the individual enters during their life (Whiteman, 2009). Hence, personality is understood as a culturally and socially determined special organisation that coordinates the entire activity of an individual with their surrounding world. The roles of life history plasticity and evolution have previously been underappreciated in community ecology (Lancaster *et al.,* 2017). However, life history may be crucial to understanding interactions and local biodiversity under changing climates (Weiskopf *et al.,* 2020). Self-identity is essential for enabling people to reflect their identity within their space. For example, they may display personal objects and belongings in their rooms (materiality). Moreover, daily activities, hobbies, and occupations can reflect their self-identity, reminding them of their accomplishments. Likewise, duty and sincerity are actions reflecting what these people value and have already achieved. Therefore, the findings of Thungsakul and Nilsakul (2018) differ from the existing definition of cultural prominence, showing a variety of living spaces that people could experience, including a physical environment, reflecting the district's past as a special symbol, and contributing to social activities (Birer and Adem, 2021).

8.3.3.2 Person-centred Care

Conceptually, person-centred care is a model, which health-care providers are encouraged to partner with patients to co-design and deliver *personalised* care that provides people with the high-quality care they need and improve health-care system efficiency and effectiveness (Santana et.al, 2018). The shifting attitudes of people with dementia can be matched with personalised care (Goodall *et al.,* 2021) based on their individual needs, preferences, and lifestyles (Tawfik and Anya, 2013). A culture change of person-centred care is required to set as a standard (Evans, 2017) and help to deliver this through a meaningful collaboration (Lloyd et al., 2017) in medical research and care practice (Coulter and Oldham, 2016). This theme is composed of two sub-themes: physical health and emotional health (Figure 135).
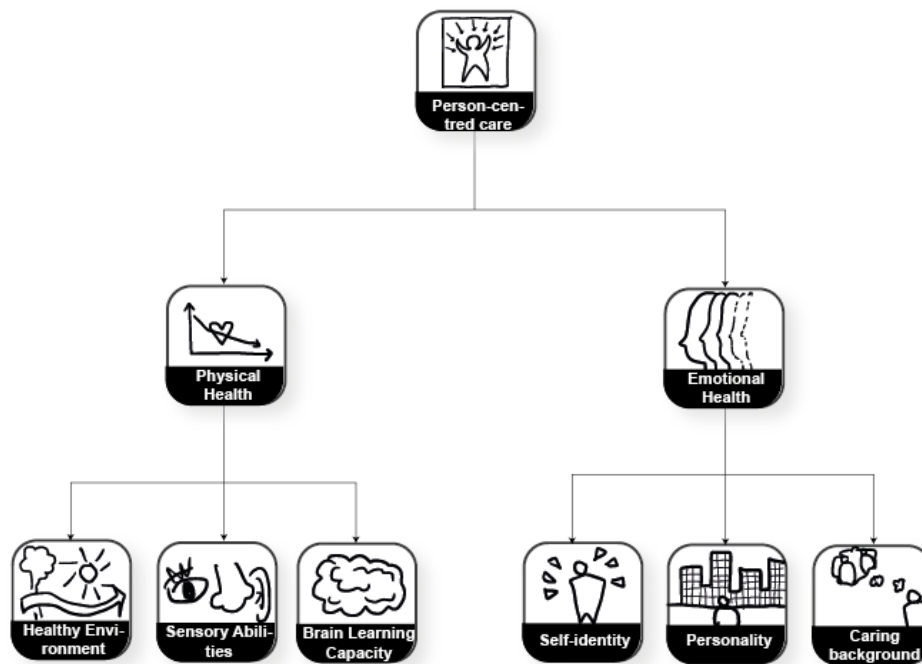
Figure 135 Theme of Person-centred Care

8.3.3.2.1 Physical Health

Physical health represents one dimension of total well-being (Stoewen, 2017). The term refers to the state of your physical body and how well it is operating. In addition, the appreciated personal experiences may be essential for a flexible employment for both goal disengagement or reengagement strategies (Mahlo and Windsor, 2020). As people age, healthy ageing is desirable and opportunistic for enabling people with dementia to be and do what they value throughout their life purpose (Yates *et al.,* 2019). Being free of disease or infirmity is not a requirement for healthy ageing, as many older people still have one or more underlying health conditions that, when well controlled, have little influence on their well-being.

In terms of sensory sensitivities, people with dementia misinterpret the information from their senses, which causes changes in perception and can lead to a misunderstanding of the world around them. Sensory functions can be subjects of intervention for cognitive rehabilitation and must be adaptive to become comprehensible, comfortable, safe, and therapeutic (Kaewsriwong et al., no date). However, the environment should be healthy to support their health. Hence, personality change can arguably consequence from sensory functioning rather than disease burdens or depressive symptoms (Mourelatos, 2021; Li, Lin and Wu, 2022).

Brain neurotransmitter changes and strokes can impair learning capacity, including memory and knowledge. Based on medication and the study of underlying diseases, Alzheimer's disease research has developed to a point where scientists can look beyond treating symptoms to consider addressing underlying disease processes. Several possible interventions, including immunisation therapy, drug therapies, cognitive training, physical activity, cardiovascular disease, and diabetes treatments, have been developed and tested to support the learning capacity.

8.3.3.2.2 Emotional health

An absence of fixation on self-related concepts, thoughts, feelings, and a capacity describe non-attachment to self in terms of emotional health (Whitehead et al., 2018). The space has to be managed and planned (Hassanain, 2010) by flexibly interact with the surrounding without trying to control them (Whitehead *et al.,* 2018). The Buddhist construct of non-attachment is related to, yet distinct from, the construct of mindfulness. Mindfulness refers to an individual's open, present-centred awareness of what is happening in their field of consciousness, whereas non-attachment denotes an absence of attempts to control what is happening in consciousness. Non-attachment to the self has emerged as a unique way of relating to the

self (Whitehead *et al.,* 2018), distinct from general non-attachment that is aligned with higher well-being (Elphinstone, Whitehead and Bates, 2020) and adaptive functioning (Whitehead *et al.*, 2018). Even though non-attachment supports it, the whole environment for happiness and positive psychology or positive hormones benefits the emotional self which enhances them to have a better mood.

Stress is closely related to symptoms such as depression and anxiety (Mariotti, 2015), which the analysis can introduce the role of *anasakti* from the control of emotion and equilibrium (Agrawal, no date). As a result, stress, and non-attachment, helping each other, and relaxing environments mean that they might require safety. The design provides clear structure, boundaries, and routines in a relaxing environment (Golding, 2012).

Brain adaptability implies that self-adaptability is high in a specific environment. Thus, the ability to survive environmental changes is directly related to brain size and function and the ability to process and act upon new information. Unlike people with fixed mindsets, people with a growth mindset would be less inclined to ascribe behaviours to personality. Thus, the changing of personality type depends on the adaptability of their mindsets. Language involves complex relationships among words, brain, and behaviour, which covers the large variety of modern techniques in cognitive neuroscience, including functional and structural brain imaging, and considers language cues and the learning of new languages.

A caring background and spiritual culture are also essential for satisfaction and self-esteem (Szcześniak and Timoszyk-Tomczak, 2020). The parietal cortex of the brain has involved in awareness of self and others and attention processing, seems common among individuals who have experienced various spiritual experiences (Miller et al., 2019). A new model of the empathy-to-compassion process conceives the process (Jeffrey, 2016) as the modulation of egocentric and allocentric representations (Stevens and Woodruff, 2018). The observer understands the other and ultimately focuses attention on the other's well-being (van Boxtel, Tsuchiya and Koch, 2010). Hence, some pressing issues may be addressed by future research into the neuroscience of empathy, compassion, and self-compassion.

8.3.3.3 Social Inclusion

Social inclusion can be interpreted as a process of integrating groups and individuals to take part in society (Nwachi, 2021) by improving the ability, opportunity, and dignity based on their identity (Juvonen *et al.,* 2019). Social citizenship suggests engagement, relationships, and rights. The literature which links authenticity to dementia is scanty, although the notion

suggests numerous possibilities (Hughes, 2019). The literature review shows that, in line with authenticity being a social virtue, it is implied or conveyed by much of the literature on citizenship, by the characterisation of citizenship in terms of coherence. The concept of *genius loci* seems thoroughly linked to authenticity for it is rooted in concrete and unique local conditions (Vecco, 2019). Authenticity or originality can be achieved when the users recognise, use, and creatively work on spaces according to their needs. Hence, the theme of authenticity (as illustrated in Figure 136) consists of two sub-themes: activities, and personal spaces.
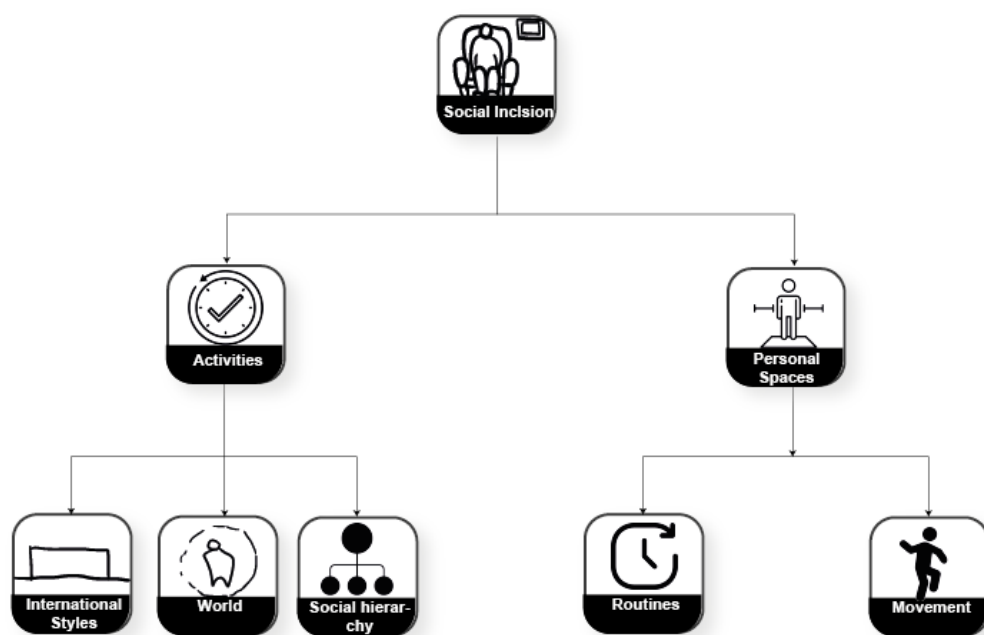
Figure 136 Theme of Social Inclusion

8.3.3.3.1 Activities

The usage of homeliness in dementia care environments has informed the rhetoric of 'home' in most care policies (Soilemezi *et al.,* 2017). Environmental gerontology disciplines show how spatial settings hold meaning and shape relations between older people. Additionally, the importance and meaning of 'place' in older people's lives were highlighted (Willcocks *et. al,* 1986). Thus, the physical environment of dementia care facility is part of the larger whole of a person's experience (Chaudhury, Cooke and Cowie, 2018).

Diversity by design is the idea that it is possible to create an architecture or service that helps people to make diverse choices. Successful examples of 'choice by design' exist, for example, in the area of data protection. In this case, default settings and technical solutions can trigger sensitive privacy choices. Multi-culture/international style (tourist spaces) raise to an open question of how much and what kind of diversity is acceptable in social groupings and activities. Adaptation of culture is concerned with whether personality is a set of universal traits or the result of more culturally specific characteristic adaptations influenced by society, culture, motives, drives, and coping mechanisms. A further understanding of cultural contexts has led to the pursuit of understanding personality on levels beyond concepts of inherent behaviour. Natural resources can support imitation and activities (such as collecting leaves). This is concerned with how nature can evoke a creative way of thinking by making us more curious and able to obtain new ideas as well as be flexible in our way of thinking. Nature also helps to recharge directed attention, which is necessary when analysing and further developing ideas. Nature especially plays a role in the first two phases of a creative process: the preparation phase and the incubation phase. In this case, natural environments which offer the perceived sensory dimensions seem to be of particular importance for becoming creative professionals.

The availability of materials or spaces enables creativity. Moreover, creative users use existing resources for solutions or decision-making. For example, the caregivers use space for playing badminton indoors, and they use existing multi-sensory resources for solving problems or overcoming barriers. Based on his own self-motivation, one of the PTs taught himself Japanese to be able to converse with the residents. This raises the question of what the basis of creativity is.

8.3.3.3.2 Personal Spaces

The sensory environment (especially spaces for personal expression and acceptance) can enhance the therapeutic self, which leads to a positive mood and provides better chances of social inclusion. Each group's socio-cultural background, family experiences and memories, was integral to residents' sense of normality, community and identity (Philpin *et al*., 2013). Subsequently, the shared meaning of mealtimes or other forms of activities for residents, informal carers and staff was constructed (Heikkila, 2022). By remaining in their own homes, people with dementia often accept their dependence on others to uphold their autonomy and lifestyle in accordance with their identified values (Smebye, Kirkevold and Engedal, 2016).

Opening the spaces for familiarity and routines is an integral component of cognitive map theory. Familiarity, as it relates to place navigation and cognitive maps, is knowledge of a

place gained by repeated experience with that environment over time. Therefore, this means that cognitive patterns or 'pattern languages' should be used in planning familiar places in which users can read the spaces. Regardless of this, a sense of space can remind someone of an example of opportunities or actions. Place attachment is a process that takes time to recognise the meaning of the environment (Scannell, 2014). Beyond this, place attachments cause people to experience a sense of flow by participating in occupation or an activity that stretches one's creativity (Betty, 2011). Place attachment is not a passive progress and is not a one-sided activity. Therefore, place attachment has three main elements: time, space, and identity.

Furthermore, self-identity is important for enabling people to reflect their identity in their space. For example, they may display personal objects and belongings in their spaces (materiality). Moreover, daily activities, hobbies, and occupations can reflect their self-identity, reminding them of what they have done. Therefore, the findings differ from the existing definition of cultural prominence, which shows possible physical environment that people with dementia could experience (Thungsakul and Nilsakul, 2018). A past or a memorable symbol, which contributes to social activities, is also reflected.

Finally, space for action (open space) is presented by giving and sharing spaces. Although the sharing space is by definition a 'place-based' approach to understanding sharing activities, we also show that authenticity plays a significant alleviating role in shaping such closeness perceptions. Users whose sense of authenticity is evoked in their sharing experiences are significantly less bothered by negative instances of interpersonal closeness and are thus more liable to use sharing services.

8.3.4   Sense of Esteem

A sense of esteem involves more than simply being acquainted with other people. The concept of esteem is centred on gaining acceptance, attention, and support from members of the group and providing the same attention to other members. People with dementia may experience feeling of insecurity and lose confidence in themselves and their abilities (Riley, 2014), because they may feel they are no longer in control (Halse *et al.,* 2021) and may not trust their own judgment (Hudspeth, 2009). Dementia had a wide-ranging impact on the selfhood and identity of women, with newfound characteristics associated with the symptoms leading to a loss of self-esteem, sadness and anger (Scott, 2016). This domain consists of three main themes, namely aesthetics, dignity, and sense of place (Figure 137).
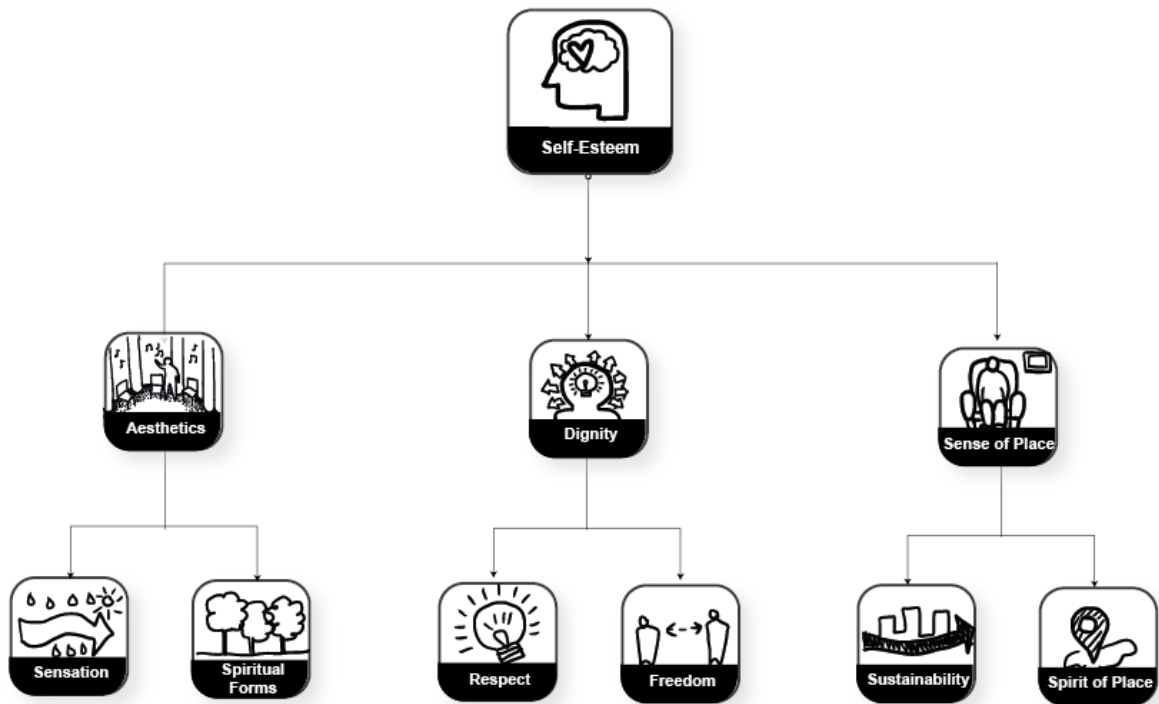
Figure 137 Domain of Self-esteem

8.3.4.1 Aesthetics

Aesthetics can be defined as a design's pleasing qualities (Hughes, 2014). In visual terms, aesthetics resonates and often used by designers to complement their designs' usability and functionality with appealing layouts (Lindgaard, 2007). Many people with severe dementia use art materials in an untraditional way, or they become involved in exploring, selecting, and combining objects that are put in front of them. The concept of 'form' and its relation to the artist's unconscious reflects the core of aesthetic experience in the articulation of unconscious material (Byers, 2011). As a result, aesthetics can be interpreted outside artistic activities. Therefore, *genius loci* should be understood in reference to human perception and sensation, which are rooted in physical and emotional experiences (Pallasmaa, 2014; Vecco, 2019) and pre-conceived knowledge (Vecco, 2019). The followings are sub-themes of aesthetics, including sensation and spiritual forms (as illustrated in Figure 138).
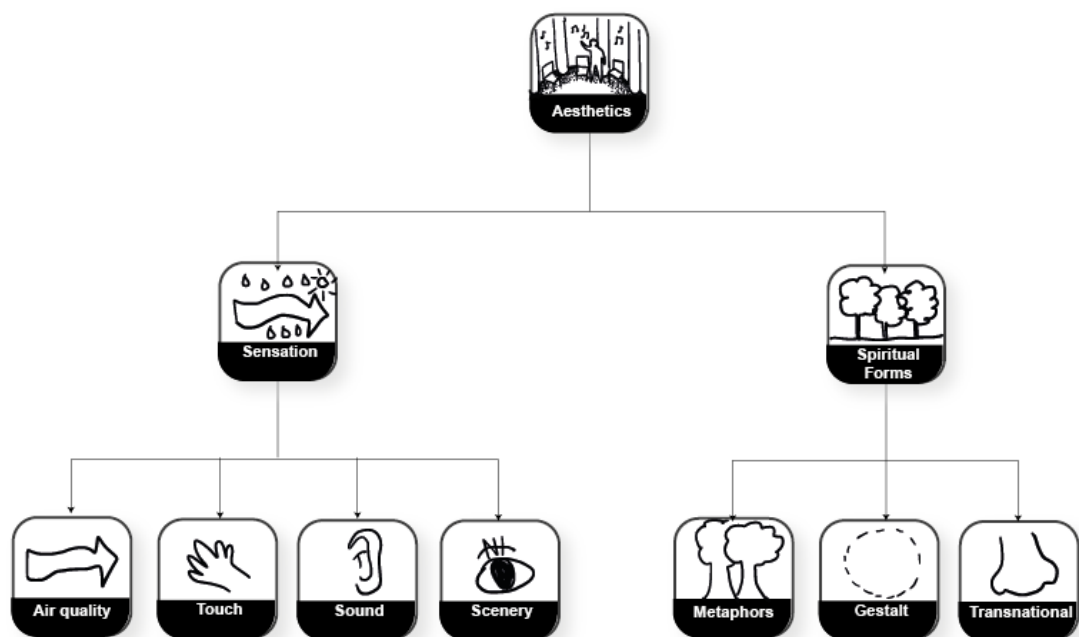
Figure 138 Theme of Aesthetics

8.3.4.1.1 Sensation

Sensory deficits considerably decrease the autonomy of people with dementia in their everyday lives and their relationship with others, which eventually cause social isolation (Smebye *et al.,* 2016). It is difficult for them to enjoy pleasant sensations if they feel cold, hunger, wetness, or pain, which can sometimes lead to negative behaviours. The sensory environment can enhance motivation and behaviours. Atmospheric sensations, both from the natural environment and man-made, can enhance positive behaviours.

Naturally, the sensory environment includes natural environment and scenery, which can enhance motivation. Other factors include air quality, including smells, transitional environments, and natural breezes. In the absence of a known medical cause, an impaired sense of smell can be a predictor of cognitive decline. For the immediate or short-term reduction of agitated behaviour, touch/tactility motivation may be achieved using grass and feet, ventilation, kinesthetics, and massage. The addition of touch to verbal encouragement to eat may help with the normalisation of nutritional intake. Sound, music, or other auditory resources support enjoyable experiences and laughter, where environmental sounds are often

perceived as negative or noise (Shafiro *et al.,* 2011). A soundscape (Talebzadeh, 2019) (e.g., one containing natural sounds) can have a positive effect on health and well-being, which is receiving increasing attention for use in dementia practice (Devos *et al.,* 2019).

The symbolic and transformative role of scent relate to a transitional environment. Sense of smell can be understood as an active role in the creation of meaning (Riach, 2009), not only are current debates surrounding geographies of smell extended, but it is argued that addressing the relatively neglected sensual dimension of the social provides an avenue into more nuanced dimensions of urban transition. Moreover, taste also expresses culture and memory.

8.3.4.1.2 Spiritual forms

Spiritual care is a holistic approach for caring for people with dementia (Ødbehr *et al.,* 2015), which holistically aims to improve their quality of life (Reljic *et al.,* 2021) and provide strength to cope with their conditions (Scott, 2016). In healthcare settings, symbols are used to indicate special needs, as well as in the broader community scales. However, issues such as stigmatisation and the potential for victimisation of this vulnerable population remain in concerns (Hatzenbuehler, Phelan and Link, 2013). So, further research is indicated (Hines, 2010).

Spirituality is an important aspect of humanity, which provides a mechanism to cope with some illness and disability (Daly, Fahey-McCarthy and Timmins, 2016). Moreover, it is possible to find a coincidence between certain types of religious experience and specific structures of works of art (Dohna, 2013). The 'architecture of hope' is this new emergent hybrid genre, consisting of various metaphors that correspond in kind to the many different types of cancer and their various treatments (Jencks, 2015). By engaging with the senses of people with dementia, chaplains can encourage spiritual awakenings to offer comfort and support. Three sub-themes emerge from this inclusion of aesthetics and hope, namely metaphor, Gestalt, and transnational culture.

Metaphors often deal primarily with concepts and cognition, with the intellectual life of perceiving, understanding, and acting. For example, a labyrinth is an ancient symbol which relates to wholeness (as well as nature). As Gestalt psychology is a school of thought that looks at the human mind and behaviour as a whole. Attractive built forms such as resort-style dementia care facilities and tourist attractions are elements that are often created to help ignite an interest in taking holidays. Thus, accessibility in all its various shapes and forms will

improve user experiences. As a result, human beings are responsible to place 'spirit' through their touches (Egri, 1997) and rational experiences (Khan, 2021) between buildings and other places (Egri, 1997). However, motivation can be enhanced by spiritual experiences or the emotional design of the physical environment in order to increase people's self-esteem and confidence. In this way, design can enhance life motivation. Transnational culture signifies hybridity of cultures, where a shared pattern of learned, transmitted socialisation (symbols, values, and experiences) is existed (Hassi and Storti, 2012) and constructed by multiple participants, languages, and ethnic backgrounds.

8.3.4.2 Dignity

In the case studies, the decline in personal dignity of people with dementia was usually caused by cognitive impairments (Gennip *et al.,* 2016), which can diminish autonomy (Wolfe, Greenhill and Butchard, 2021), and changes to the individual's former identity (Gennip *et al.,* 2016). Mild to moderate dementia can result in diminished dignity (Gennip *et al.,* 2016). Dignity can be considered subjectively, as individual differences and idiosyncrasies, and objectively, as the foundation of human rights. Moreover, dignity can also be dually explored as respect for the dignity of others (Horn and Kerasidou, 2016) and respect for one's own personal dignity (Horn, 2016). This theme is composed of two sub-themes: respect and freedom (Figure 139).
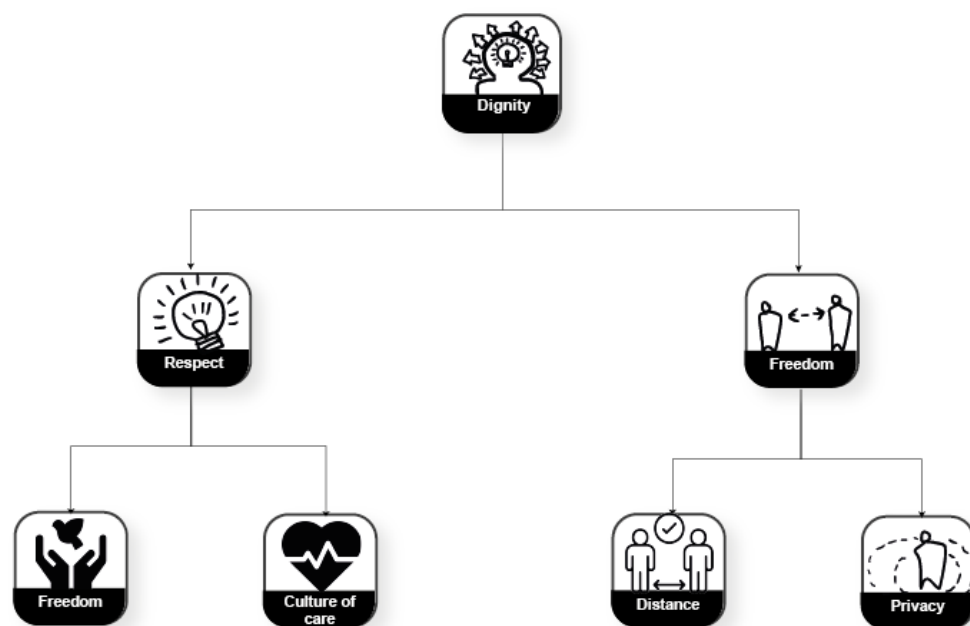
Figure 139 Theme of Dignity

8.3.4.2.1 Respect

Respect, also called esteem, is a positive feeling or action shown towards someone or something considered essential or taken in high esteem or regard (Stets and Burke, 2014). The organisation needs to shift from a task-oriented system to a person-centred approach, where dignity and respect are of the utmost importance. The organisations need to be developed to focus on competence in person-centred care, and leadership to support staff. Care fragmentation, non-value-added activities, workflow inefficiencies, and defensive medicine, among many others, reflect elements of a broken system that result in a low-quality culture of care.

8.3.4.2.2 Freedom

A significant and growing proportion of people with dementia has become 'patients' because little is known about their involvement in their health or social care choices. Many people with dementia felt that they had limited freedom to participate in decision-making in Case study 3 and Case study 4. They had not been listened to sufficiently. As a result, continuing education may help professionals to improve their ability to engage people with dementia in decision-making concerning their care arrangements. However, there is an indication of the frequent occurrence of attachment behaviours and parent fixation in some cases (Browne and Shlosberg, 2006), which pre-morbid attachment style can be observed by an emotional and behavioural expression. For privacy, resistance strategies employed by residents in Case study 1 create private space in a public place. Residents in Case study 1 frequently longed for home, a safe maternal place distanced from the nursing home.

8.3.4.3 Sense of Place

People with dementia often demonstrate attachment-seeking behaviours that include searching and calling out for a parent, exit-seeking, loud and continuous crying, and rejecting attempts by caregivers to engage with them (Walsh *et al*., 2019). Bowlby's attachment theory (Bowlby, 2011) has been applied to uncover the emotional meaning of behavioural responses to loss and abandonment in people with dementia (in unfamiliar surroundings) (Mcchrystal, 2010). As a result, place attachment and identity could explain people's connections with a place through architectural design's roles, where *genius loci* is a vital characteristic of place identity. Shared feelings of belonging and attachment held by people in relation to the place they live, and the development of collective identities that such feelings can promote, should be considered the whole system (Escalera-Reyes, 2020). Thus, architecture concerns itself

with the psychosomatic health of the spiritual (literally atmospheric) dimensions of life for all users; to attach to the quality of the place itself is essential for emotional bonding with the place. As shown in Figure 140, the sense of place domain consists of two main themes: sustainability, which explains the wholeness goal; and spirit of place, which can enhance the spirituality of a place.
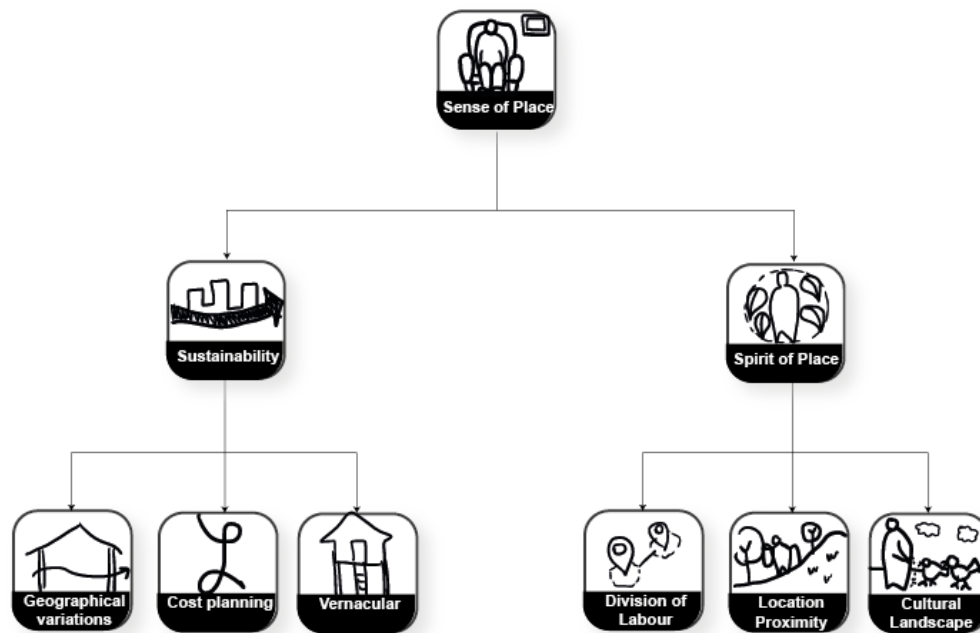
Figure 140 Theme of Sense of Place

8.3.4.3.1 Sustainability

Sustainability can play as a key role of community-based interventions in supporting people with dementia. However, a provision of sustainable interventions is still fragmented due to significant gaps and no reliable funding model (Morton *et al*., 2019). Moreover, cost also means the economic cost for the context, the market-driven economy, and the results for the transnational industry or market chain (care chain), which increases inequality within the context. As ecology is about relationships, it is essentially about wholeness amid the harmony of diverse and interacting relationships. In this case, wholeness has cultural as well as biological and technological dimensions that encompasses underlying values such as spiritual, aesthetics and engineering.

The presence of groups of older people means that some might have health issues. Additionally, these designs should be flexible and adaptive enough to be applied in every ward of such care facilities. In this vein, models have been developed to emulate the medical tourism market in increasingly favoured destinations (Finch, 2014) and various healthcare sectors and disciplines such as real estate, wellness tourism or hospitality. The state is also responsible for the security of the citizen. Furthermore, the planning of feasibility studies and population trends of ageing societies are required to meet these demands, with the use of observation and surveys in their preparation, since population trends can clarify the needs of the population. The term 'community' refers only to a certain user group, especially in the context of rural Thailand.

Importantly, socio-environmental factors in dementia aetiology may result from geographical variation in dementia prevalence and incidence (Russ, 2012). Design guidelines or regulations which are universally applied to designs impose limitations and rural–urban divisions due to budget issues. The urban–rural divide is a societal and political challenge facing local authorities and is rooted in a demographic challenge in urbanisation. However, in the research context, rural areas are more popular in facility development due to pollution and culture (there is still a gap between private and public facilities, and in vernacular architecture).

A model and system of open communities are still lacking. As progressive dementia involves changes in the person's behaviours and cognitive and functional capabilities, dementia caregiving may be a process that demands continuous adaptation to change (Perren, 2006). Vernacular or localised strategies may be applied for each context. However, perception of space and place, especially in rural Thailand, demonstrates social pattern that is interdependency, non-attachment, and question sustainability of autonomy.

8.3.4.3.2 Spirit of Place

'Spirit of place' is the home of the spirit that gives its own identity to a place through its presence and its actions (Markevičienė, 2012). With the progress of civilisation, the gods of places have lost most of their powers, so the expression 'spirit of place' has a mostly secular meaning that refers to the distinctive identity of a location. Its characteristics can be defined as topography, surrounding buildings, plants, relief, and existing functional connections, as well as orientation to the sun, wind, rain, and sight. However, spirit of place is both an inherent and an emergent property which predominantly generates a major node for space and place

concepts that deal with phenomena of cultural and historic memory and remembrance, cultural identity, continuity, and relevance with the symbolic environment.

Due to the division of labour, culture is the main distinction of dementia care. The culture of social actors indicates impartiality in the representation of social actors. Moral, social, and personal values are the most disseminated values, while social morality and traditions have shown the highest occurrence. This is how the modern (European, now global) cultural system constructs the modern actor as an authorised agent for various interests via an ongoing relocation into society of agency originally located in transcendental authority or in natural forces environing the social system. According to studies of national characteristics, the expression of emotion is a cultural issue (Lim, 2016).

In terms of cost planning, cost of resources such as land, construction method and climate, construction costs, land and topography require a balance between sustainability and affordability. Location selection is one of the important factors, because topography is the physical appearance of natural features such as land and area. Topography is the basic issue in architecture: when architecture and topography work together, a structure acquires authenticity. Moreover, site selection strategies also lead to a building life cycle process in terms of planning. Local materials may be used from the area, and the orientation of sun and wind should be considered.

As a natural and cultural landscape, one of the basic nodes suggests *genius loci* being an attribute of human beliefs or historic memories, relating it with the presence of God. As a result, location is one of the main factors to connect the care facilities to existing communities in terms of landscape (flow of landscape). In terms of location proximity, the site is located close to the existing hospitals or other tourist destinations. On the other hand, the site also works as an active node which can attract people to the site. Therefore, the geographical location works as a node which connects the site to the existing communities.

8.4   Conclusion

The main findings indicate how the design of an enabling environment can support the quality of dementia care. Three overarching domains emerge from the users' perceptions, including (unboundedness) form of attachment (including three themes and seven sub-themes), spaces for detachment (including three themes and seven sub-themes), and non-attachment of orders (including three themes and sub-themes). The findings expand the significance of attachment theory of the subjective experiences of people with dementia representing unwilling separation

and disruption of attachment bonds and are related to Holmes's 'triangle of attachment'. However, the context of Thailand has suggested the condition of liquid society, where boundaries are limited to shift and disorient, for example: belonging to no place (Glavind, 2022), not knowing where 'home' is (Ward *et al.,* 2022), underlines the sense of uncertainty (Wigingaarden *et al.,* 2018) and in-betweenness experienced by people (De Leo, 2019). Therefore, this raises the question of the application of the culture of unboundedness form and non-attachment. The next chapter presents the co-design workshops which were implemented to test and validate the proposed design framework.

9   CO-DESIGN WORKSHOPS

9.1   Introduction

Design becomes a research tool to support care by shifting the focus of healthcare toward users, experiences, values, quality of life and their participation in their care, especially in the context of dementia care (Groeneveld *et al*., 2019). Simultaneously, design capabilities are the practical options and resources available for the designers to design effectively (Khadilkar and Mani, 2013) and required co-design as the primary research method. According to the data triangulation, the design of an enabling environment for dementia care illustrates interdependent needs, which can be related to the work of Maslow (1943), which flourishment of universal human needs are celebrated. However, research methods such as ethnography (e.g., user observation and interviews) for design embodiment are mainly discussed and translated by the researcher. Therefore, the end users' perception is a critical factor that should involve the users in design processes and result in new intra- and extra-organisational collaborations (Oygür and Thompson, 2019). As co-designing with the end users can uncover their needs and preferences (Wang *et al*., 2019), the 'reverse engineering' process enables the researcher to determine how a part was designed to recreate the design to meet their needs.

The co-design workshops' main objectives and research questions were intended to internally validate how the design framework could be contextualised in transferable contexts and cultures by involving potential user groups in the design process. The co-design workshops were conducted in the two case studies in Chiang Mai, Thailand, where the gatekeepers had recruited the research participants (including care managers, care professionals, and caregivers). As illustrated in Figure 141, the design framework was established following the previous chapter's triangulation and was prepared to facilitate the workshops discussion. Consequently, audio transcriptions, design toolkits, and ethnography were analysed and revised into a final design framework.

The co-design workshops were held to internally validate five domains, 17 themes, and 34 sub-themes. The four existing domains were discussed and adjusted by the research participants. Accordingly, an emerging domain of self-actualisation addressed the significance of 'agency' (Glaser *et al.,* 2018) when designing for an enabling environment for dementia care. With the lack of person/agency in the design framework, the co-design approaches can empower people with dementia and care stakeholders to engage in the design process (Dening *et al.,* 2020), which can benefit the users' designed products and services (Kenning,

2018). Hence, the combination of dynamic capabilities and capability management makes the organisation more flexible and dynamic, which can easily and quickly adapt to new market trends or turbulences.
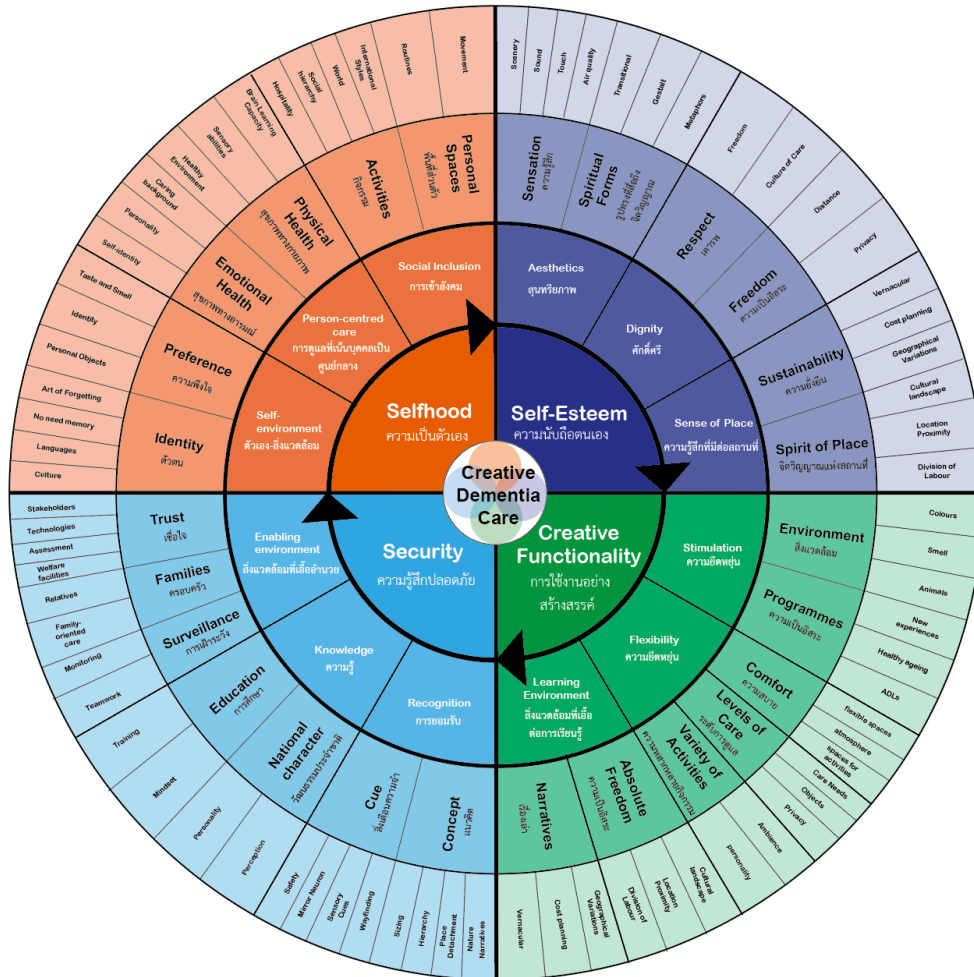
Figure 141 Design Framework of an Enabling Environment for Dementia Care

9.2 Methodology

Two case studies in Chiang Mai, Thailand, were the primary location for the co-design workshops based on the selected case studies and site accessibility. The same case studies were selected for internal validity to establish a trustworthy cause and effect relationship between treatment and outcome. Internal validity can also reflect that a given study makes it possible to eliminate alternative explanations for findings. As shown in Table 5, the two gatekeepers recruited the research participants, including care managers, care professionals,

and caregivers. However, due to the COVID-19 situation, the group was broken into subgroups of a maximum of three members. Each subgroup was asked to work on the same theme or variations and present their work to the rest of the group at the end of the session.

Table 11 Research Participants

Participant	Occupation	Nationality	Case study	Age	Gender
Participant 1	Care manager	Thai	1	40-49	Male
Participant 2	Deputy HR	Thai	1	30-39	Female
Participant 3	Head nurse	Thai	1	30-39	Female
Participant 4	Caregiver	Thai	1	20-29	Female
Participant 5	Care manager	British	2	60-69	Male
Participant 6	Nurse	Filipino	2	30-39	Female

As reverse engineering is the primary method, the design toolkit and equipment used for the research workshop are designed to satisfy the specific study's needs (as shown in Figure 142 and Figure 143). By referring to research themes, design practice can find numerous design tools in the form of cards, the role of which is to bring inspiration and innovation to the design process. The flashcards contained illustrations and terms (both in English and Thai) and were divided into four main themes – selfhood, self-esteem, security, and creative functionality – which were used and discussed with the research participant groups. Alternatively, the research participants could construct a story with the cards by positioning them on a printed design framework. In addition, post-it notes were applied if emerging themes were stated.
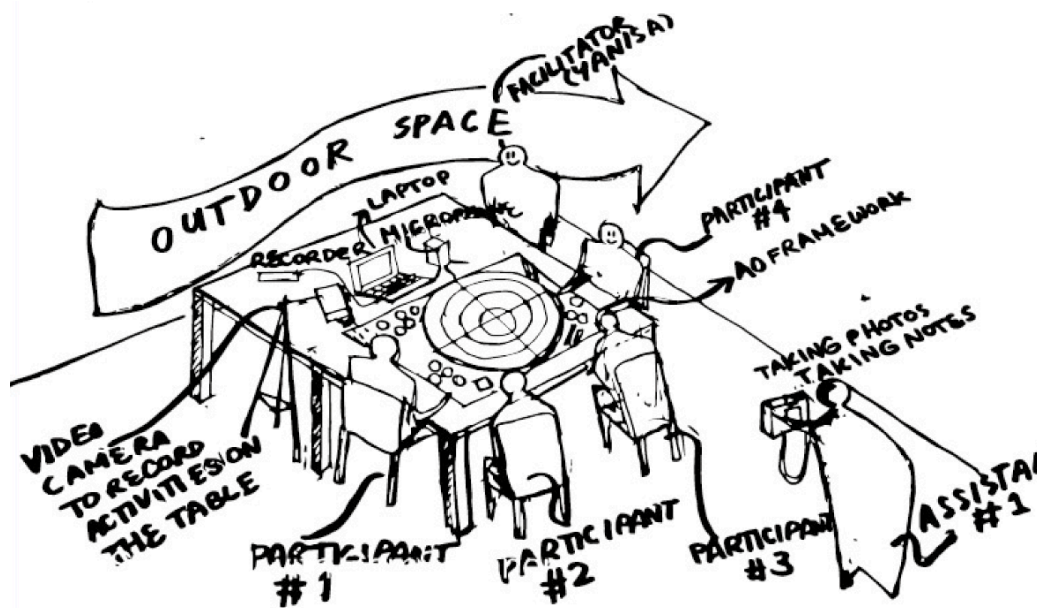
Figure 142 Co-design workshop planning

The onsite co-design workshops were planned to last between 2 and 2.5 hours. Data collection was managed by audio recording, video recording, photography, and ethnography (fieldnotes). The autoethnography of the sketches was completed after the fieldwork. As an illustration of the co-design process, the participants were asked about a theme and their opinions about terms and their relationships based on their experiences. For example, the theme, creative functionality was explained and asked the research participants to choose cards. The selected cards were then discussed and placed on a domain they agreed to belong. Finally, the developed design framework was explained to the research participants. Agreements and disagreements were discussed.
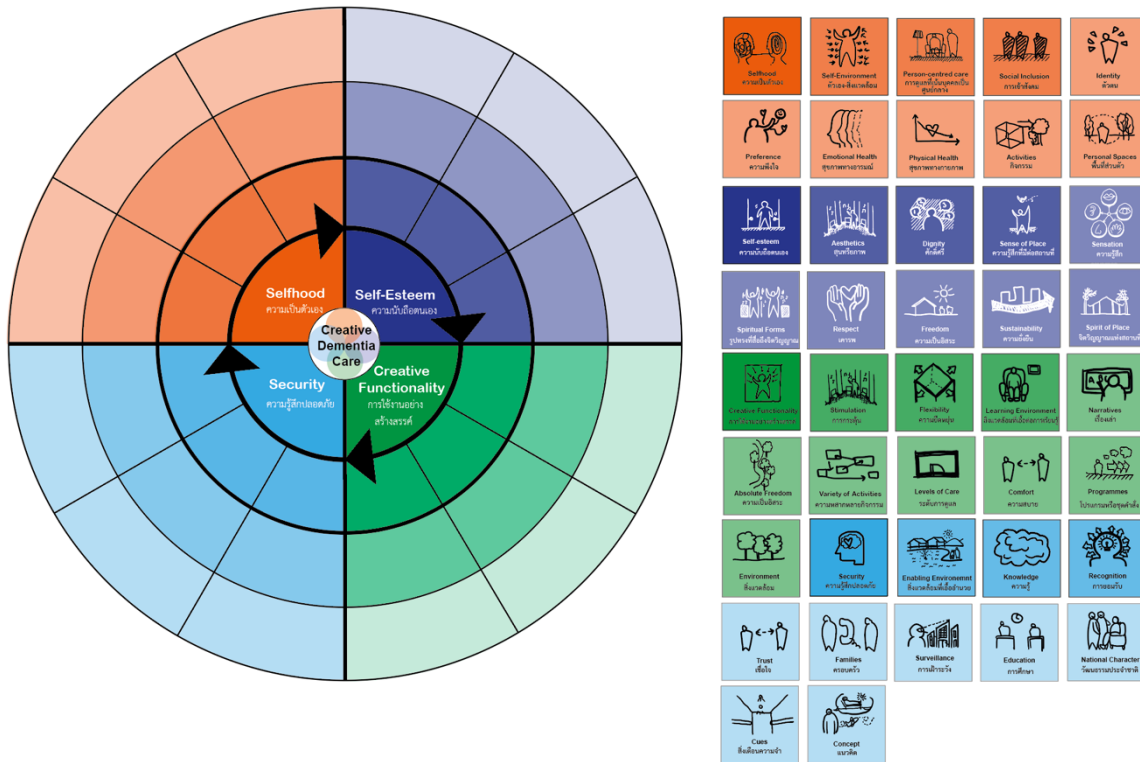
Figure 143 Design Tools in Co-design workshops

9.3   Analysis

Analysis of the co-design workshops was done to determine if the arrangement of themes and sub-themes is different from or similar to the existing design framework. Following Figure 144, the design framework toolkits from the two co-design workshops were analysed by searching for the overlapping themes. The second method was the transcription, which was coded according to themes and sub-themes. The third data analysis was ethnography by coding as content analysis. Triangulation was developed into a revised version to highlight the significance of analysis within design-led approaches in strengthening communication, promoting creative action, and embedding collaborative ways of working. Moreover, a cross-case study was synthesised to compare the organisational climate and external organisational factors. Hence, recognising each organisation was essential because the organisations were different in terms of context, values, culture, and people. A revised design framework was therefore produced.
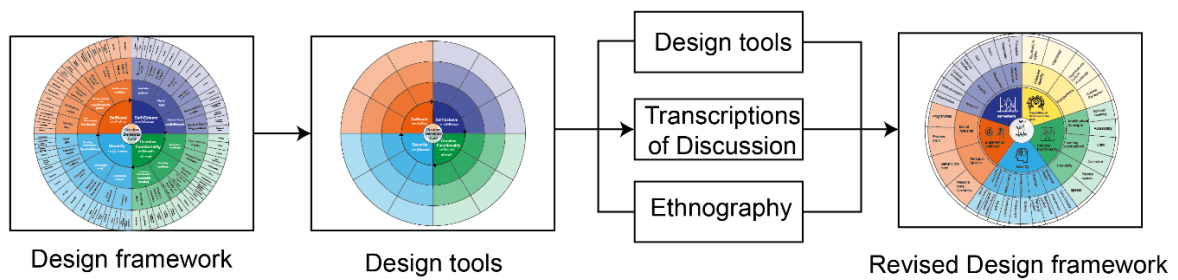
Figure 144 Analysis Procedures

9.3.1 Co-design Workshop 1: System-based Approach

The first co-design workshop developed a comprehensive strategy to support dementia care in the workplace. A caregiving strategy guided organisations in assisting staff with caring responsibilities to balance their work and caring commitments. As shown in Figure 145 and Figure 146, the co-design participants reflected a research-based organisation and a friendly atmosphere for individuals and the workplace. The workshop also reflected on a system-level conception, integrating design and analysis to ensure complex system reliability and operability. The ever-expanding and demanding global space activity required multifunctional, reconfigurable, and adaptive system architectures (George, 2010). The organisational climate has fostered and created mutual respect and sharing knowledge. The participants agreed with most domains but thought there were overlapping themes in some of them, including the care training domain (as shown in Figure 147). Moreover, there were some disagreements between caregivers and the management team. Main disagreements between caregivers and managers are hierarchical needs. The main resolution is training and recruiting the right people. The direct impacts of the system-based approach disagreements are the design of the system-approach encouraging the empowerment of care stakeholders and people with dementia. More importantly, 'people with dementia' are valued by their personal factor, where care management teams design the policy structure, and the care team negotiates the gap.

Figure 145 During the co-design workshop 1
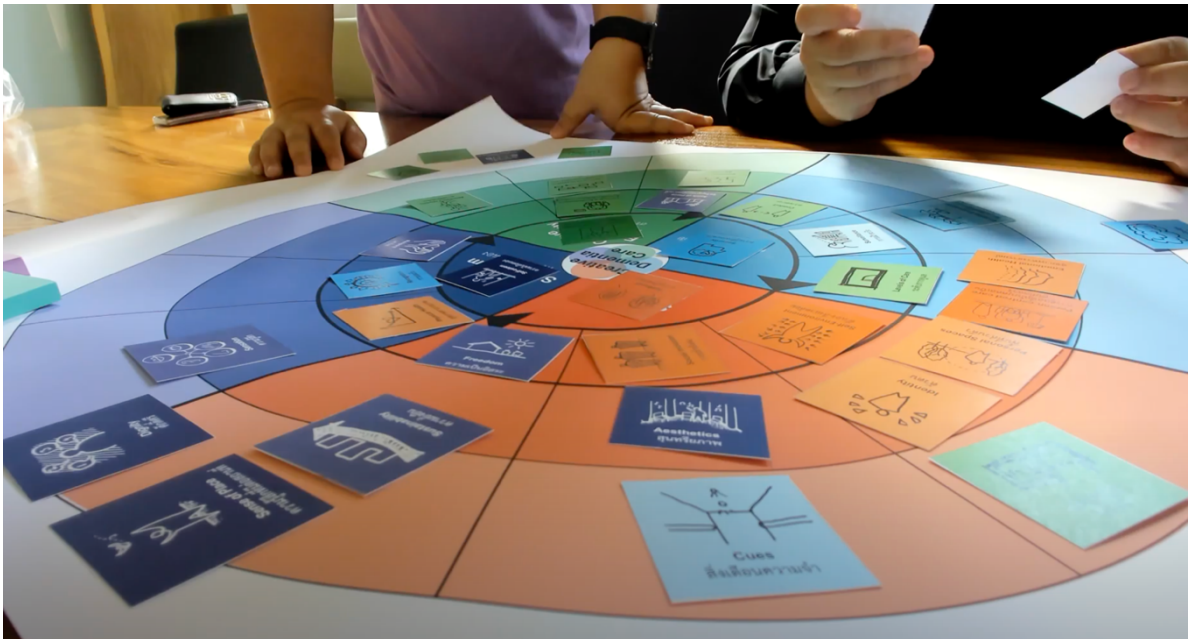
Figure 146 During the co-design workshop 1
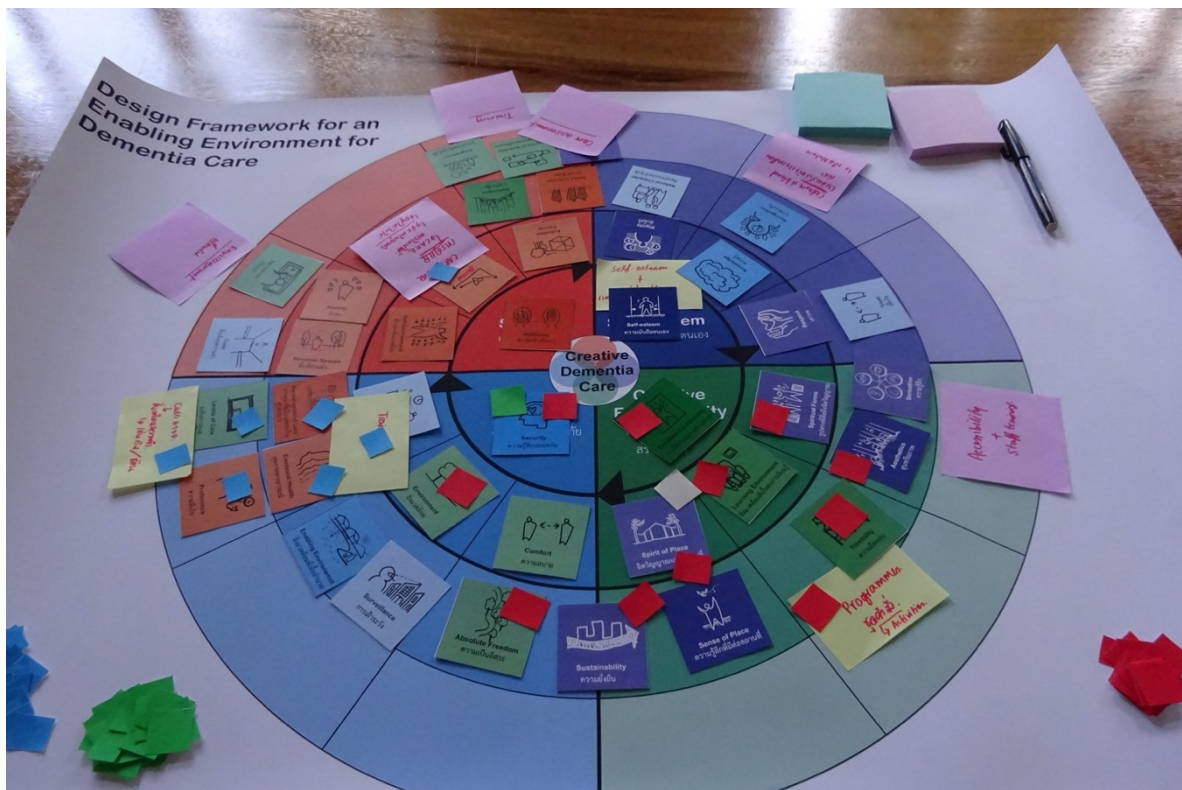
Figure 147 Final design workshop at Case study 1

The main disagreements between caregivers and care managers concern the implementation of the design framework in reality. The management team and the employees must negotiate how employees have to adapt themselves and the environment to meet the needs of people with dementia and their relatives. The organisational policy and culture can cause care burden and stress. Current solutions include dementia care training and the adoption of recruitment criteria to identify the right people for the right job. Thus, disagreement between care managers and caregivers has an impact on the framework, as a system-based approach can represent only an ideal state of dementia care and may neglect the practical elements of caring. The design of the system-based approach aims to encourage the empowerment of care stakeholders and people with dementia. As a result, the design framework should be adaptable and based on policy and context. Moreover, the design framework should be flexible, ergonomic and enable caregivers' capabilities.

9.3.2   Co-design Workshop 2: Use-centred Approach

The second co-design workshop focused on user-centred design, an iterative design process in which designers focus on users and their needs (as shown in Figure 148 and Figure 149). In user-centred design, widespread recognition has surfaced for the importance of designers

to gain empathy with the users for whom they are designing (Kouprie and Visser, 2009). For end users and some aspects of their experience, empathy becomes a design ideology (Heylighen and Dong, 2019) more than a key principle to judge for the value of design solutions (Trischler *et al.,* 2017). Care managers, as designers, become final decision-makers (the notion of empathy) who are always under the magnifying glass to scrutinise subordinates' actions carefully. However, how they value their employees, and the culture conflict is not known. Notably, the conversation was mainly based on the care manager's personal experiences in co-design workshop 2 because the long-term experience of working as a care manager may contribute to an in-depth insight (Svenningsson *et al.*, 2021). The co-design workshop addresses the significance of the care manager's role in developing and maintaining organisational culture and emphasises the types of cultures and managerial characteristics essential to facilitating a healthy workplace. In addition, these cultural characteristics impose on caregiving processes' critical elements, including caregivers' stress evaluation, caregivers' coping strategies, and caregivers' support services (Raina *et al.,* 2004).

Figure 148 During the co-design workshop 2

Figure 149 During the co-design workshop 2

9.3.3   Synthesis: Capability Management for Agency

The synthesis between the two co-design workshops shows the researcher's lack of understanding about agency of people with dementia in the presented design framework. Dementia often limits the person's agency, which external support for making daily life decisions is required. Family members are legally empowered to participate in decision-making on behalf of a person with dementia (Smebye, Kirkevold and Engedal, 2012). As a result, health and social care stakeholders require to understand the caregiving roles in the decision-making-process. Therefore, training mechanisms are needed to be promoted and discouraged (Bosco, 2018). Generally, it is common for designers to base design decisions on their own experiences, specific ability, legitimacy, and validity of the first-person perspective (Smeenk, Tomico and Turnhout, 2016). As illustrated in Figure 150, different care organisations have different care approaches. Hence, co-design approaches can enable people with dementia, and care stakeholders to engage in the design process that benefit users' products and services (Rodgers, 2017). In conclusion, social engagement opportunities in dementia care facilities are provided by the embodied experience of living and caring for people with dementia.

Design framework
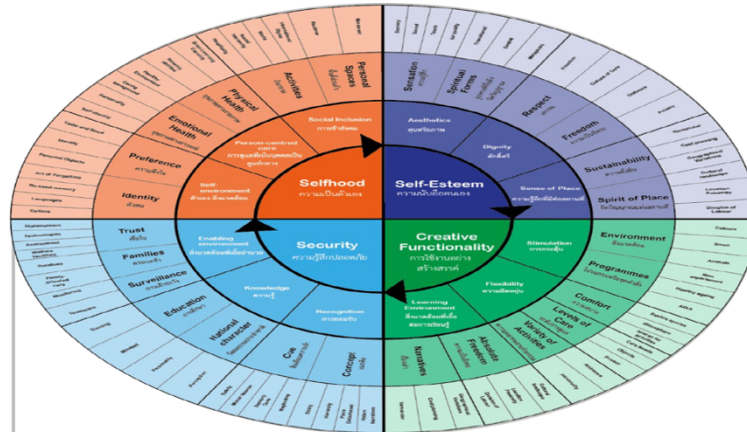
case study 1
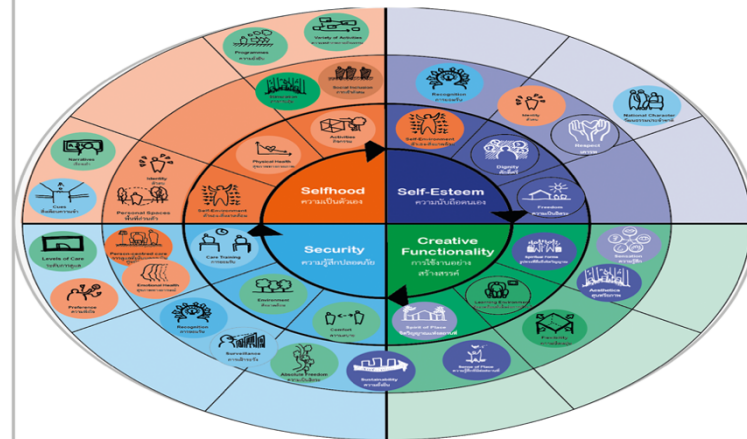
case study 2
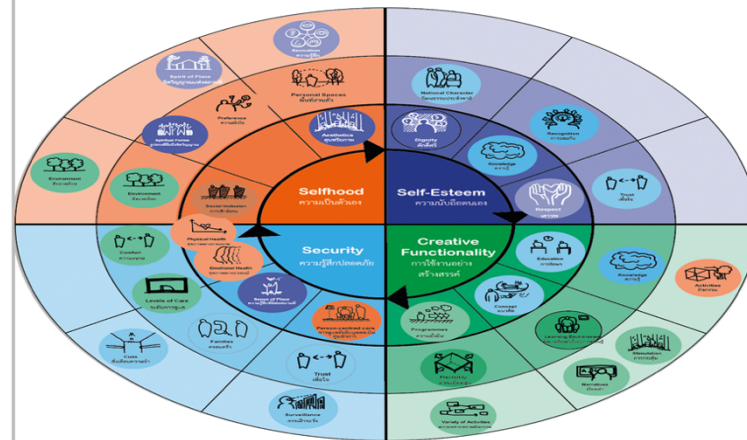
Revised framework
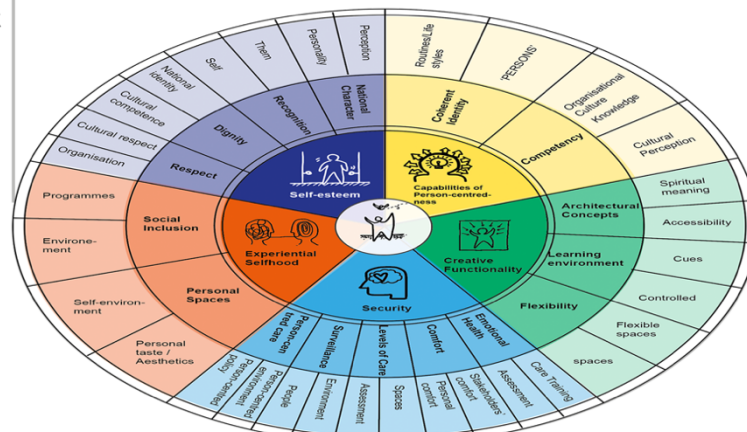
Figure 150 Layers of design frameworks

The themes and sub-themes indicate personal needs and universal human needs. As a duty of facilitators to manage those needs, the sub-themes are derived from the personal and environmental approach of the co-design workshops, which means they must consider different scales, from environmental to personal. Consequently, 'needs-supplies fit' indicates resources provided by the organisation (Beurden, van Veldhoven and Van de Voorde, 2022). The care organisation's supplied resources have to match with the employees' required resources (Edwards, 1996). Figure 151 explains how the needs of people with dementia are related to the care professionals, and how the capability management from care managers or designers can support the needed environment. The resources support the stressors of care professionals and people with dementia to promote health. Thus, designers need to consider the users' surrounding contexts, the individuals' wants, needs and preferences. Nevertheless, as the human needs are met, additional needs are required. In contrast, 'capability' – in seeming contradiction – precisely represents a potential for (often intentional) choice and action (Alkire, 2006). Although their well-being may not be connected (Renes and Aarts, 2018), a person's agency achievement should consider the realisation of goals and values (Sen, 2003; Crocker, 2012).
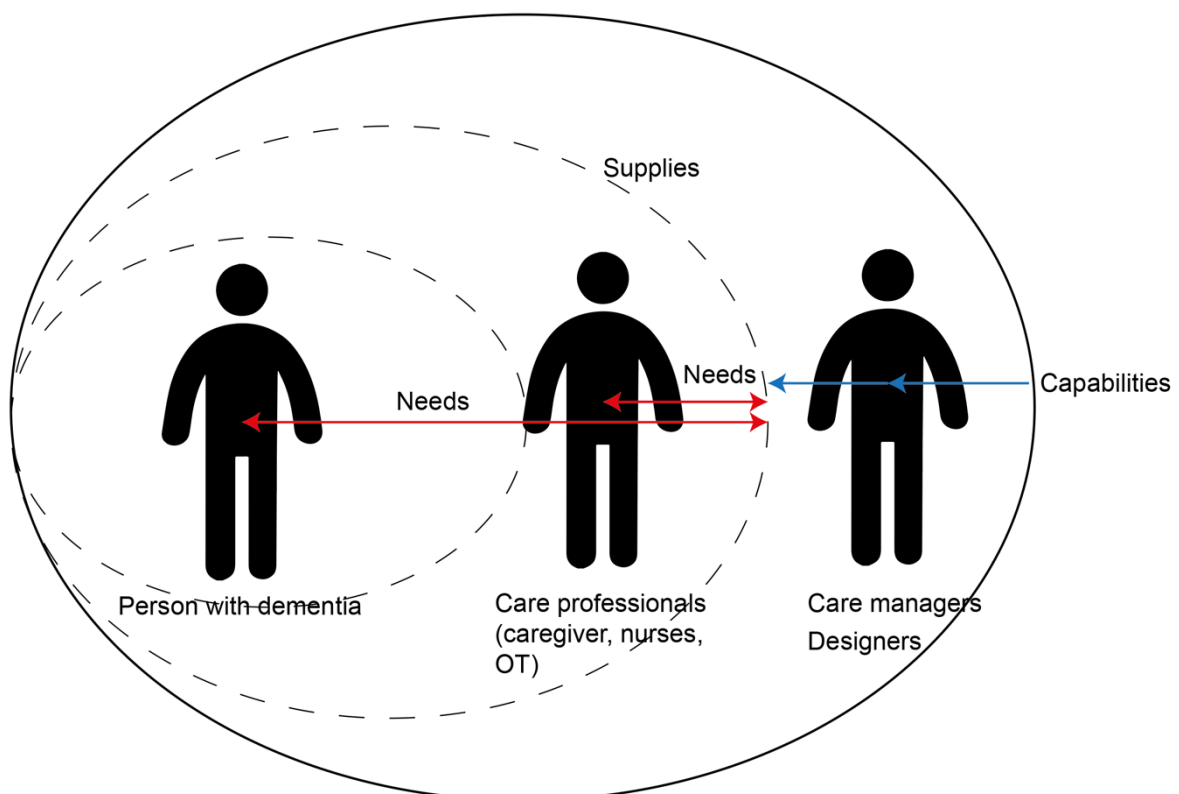
Figure 151 Relationships between user needs and capabilities

Subsequently, external factors of organisational capabilities as a framework, including strategic management, design, and skill training support, emerge when a company delivers on the combined competencies and abilities of its individuals. The designer's role as an individual with capabilities is highlighted to finalise the effective options/resources. The extent of self-actualisation presents within a sample of frontline and upper-level managers in several organisations (Nonaka, 1994). The comparison between case studies indicates that organisational vision dominates organisational capabilities. Therefore, the combination of dynamic capabilities and capability management creates an organisation that is more flexible and dynamic, while an organisation can also easily adapt to new market trends and easily go through market turbulences. With the external factors, Figure 152 shows that each domain of the design framework can be utilised by different users, including care managers, caregivers, designers, and policymakers.
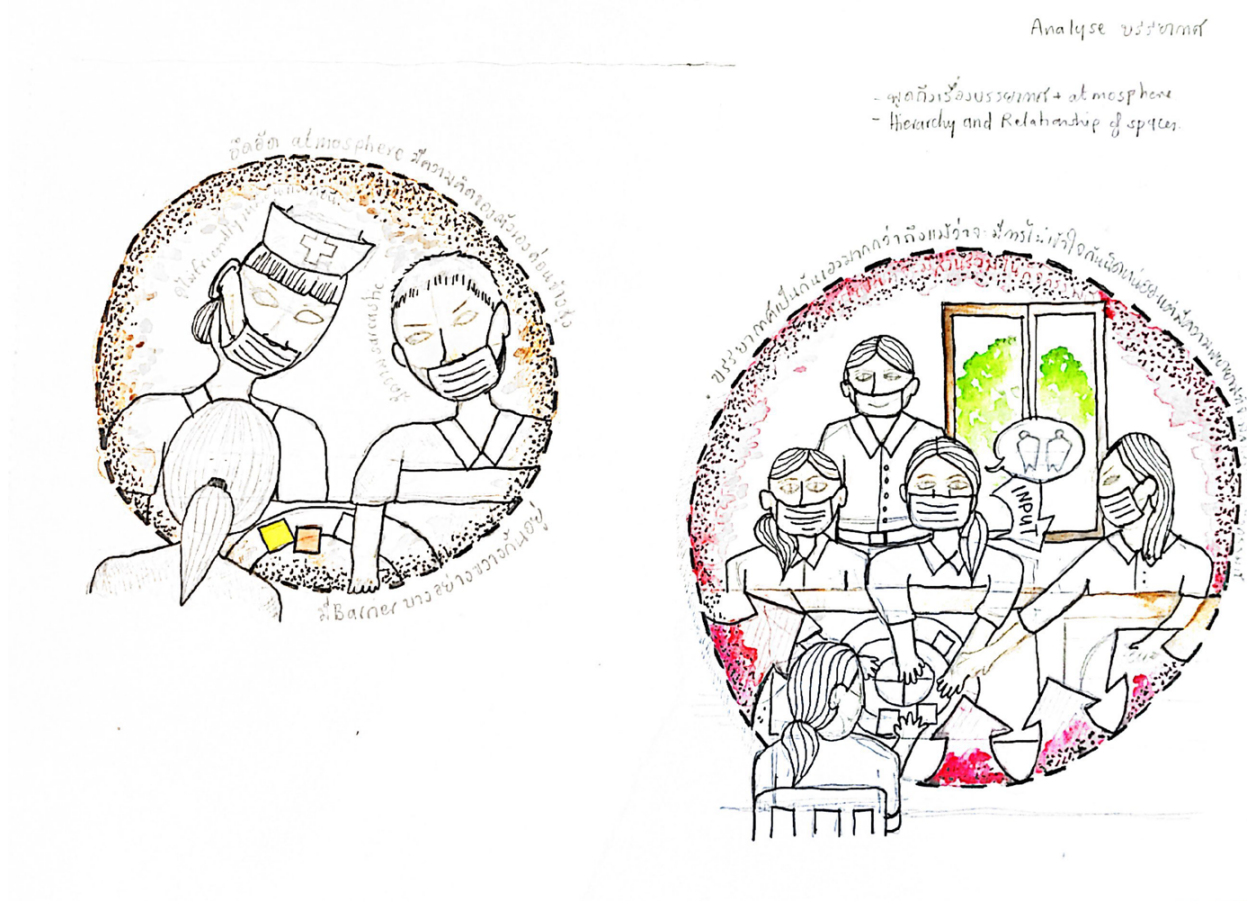
Figure 152 Autoethnography of two care organisations

Figure 153 The Development of Design Framework of an Enabling Environment for Dementia Care

9.4 Domains

From the developed design framework (capability-agency), resources are initially required for the users to support their physical and psychological needs. The needs-supplies fit tends to encourage better activity engagement (Basit and Arshad, 2015), based on the principle of exchange and reciprocity, to stimulate individual creativity (Wang and Wang, 2018). Simultaneously, the hierarchy of needs may support motivation. The needs-led approach can be associated to the work of Maslow, who celebrated human beings' flourishment through universal human needs (Maslow, 1943). Subsequently, competence motivation is a theory that centres on the idea that people are driven to engage in activity to develop or demonstrate their skills. Therefore, these design domains were required for the development of human agency.

The co-design workshops validated five domains, 17 themes, and 34 sub-themes. The first domain, **creative functionality**, consists of three themes: concepts, learning environment, and flexibility. The second domain, **organisational security**, was initially meant as safety and security, which focuses on the individual's needs for personal security and extends to order and control, consisting of five themes: emotional health, comfort, levels of care, surveillance, and person-centred care. The third domain, **embodied selfhood**, consists of two themes: personal spaces and social inclusion. The fourth domain, **interpersonal self-esteem**, was primarily defined as one of the human needs that encompasses confidence, strength, and personal and social acceptance. This domain consists of four themes: dignity, respect, recognition, and national character. The last domain, **self-actualisation**, consists of interpretations of person-perception and comprises two main themes, including roles and the self. The overlapping themes and sub-themes were established into the main themes and sub-themes as follows.

9.4.1 Creative Functionality

The first domain, creative functionality, was previously understood as sensory design or affordances. However, both co-design workshops argued for the meaning of design, which have discovered that creativity, opportunities, and tactics are perceived in the same way as functionality and usefulness (Steen, Manschot and de Koning, 2011). Further analysis confirms that creative functionality is the way care stakeholders use the environment by cognitive components and comprises comprehensibility by believing that the problem faced is apparent (Vogt, Jenny and Bauer, 2013). Moreover, the overlapping themes show that

aesthetics and functionality become intertwined and interdependent of one another. Therefore, the design overlays with cognitive function, which includes multiple layers of mental processes such as perception, attention, memory, and decision-making (Demetriou *et al.,* 2022), and serves a critical role in everyday behaviours and social behaviours (Short, Mollborn, 2015) to support other domains. As illustrated in Figure 154, the themes include concepts, learning environment, and flexibility.
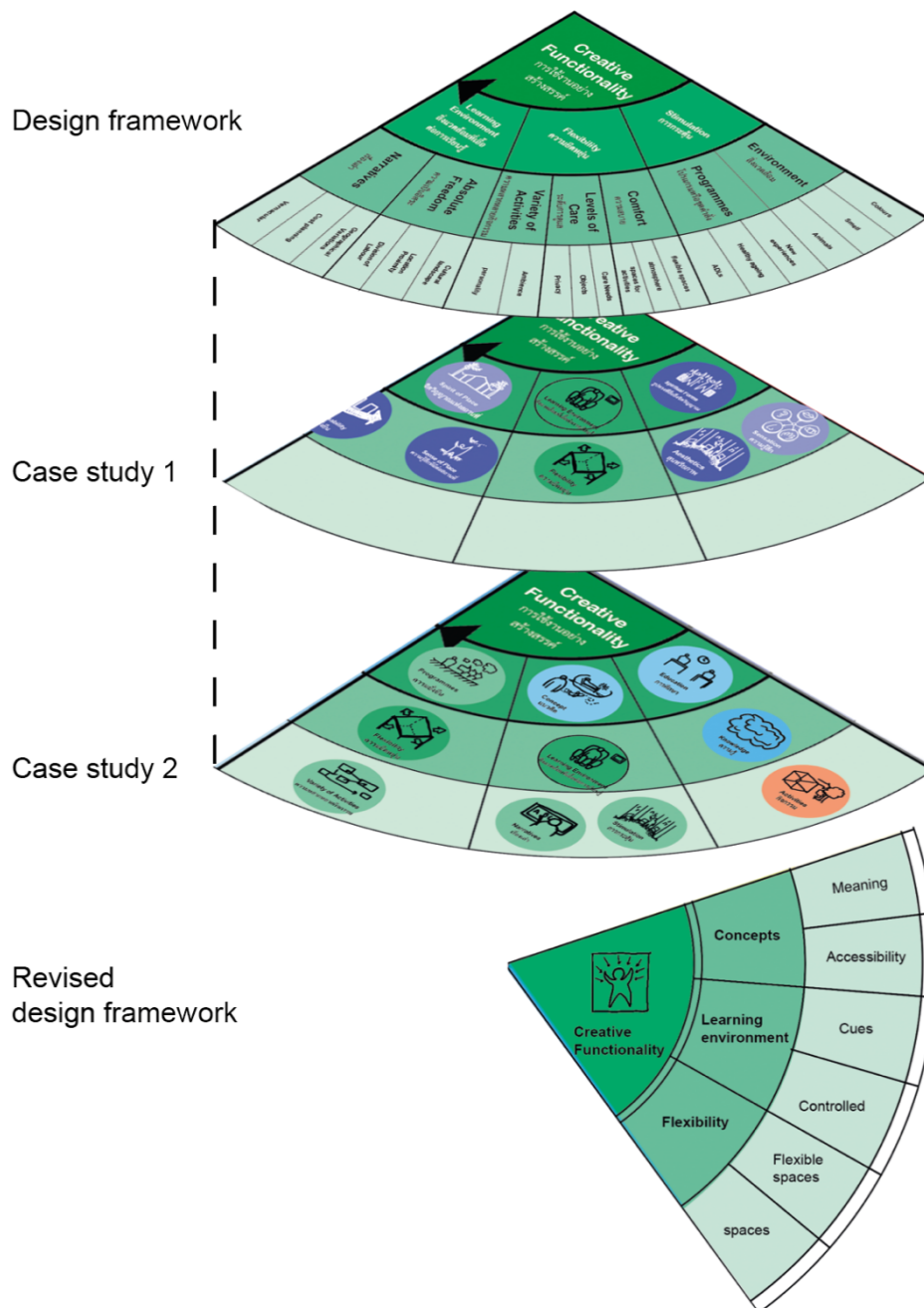
Figure 154 Themes of Creative Functionality

9.4.1.1 Concepts

A concept is an idea, thought, or belief that forms the structure and foundation of an architectural design project. Concept, for designers, becomes the force and identity behind the progress of a project, and it is consistently referred throughout every stage of its development. At the planning stage of design processes, the first conceptual level of organisation has been applied that the process of form development draws upon the way of thinking which brings meaning to the design (Reid, 2007). Consequently, architects or designers become mediators to translate ideas into designed products. Therefore, to design and preserve people with dementia's continuity of self-identity (Fuchs. 2020), the physical and social environment and space as an existential experience for people with dementia (Forsund *et al.,* 2018) must be acknowledged (Landmark *et al.*, 2009).

Participant 2 of co-design workshop 1 stated:

> *The spiritual forms of buildings … from my feelings are the physical buildings that provide convenience to use and enable the residents. Like here, the buildings were designed not to be like nursing homes or hospitals. But, another feeling, we would like the clients to feel like they are relaxing … like they are living in resorts or on vacation. So, we are designing the place to mediate … like for pavilions, the design can mediate to live with their families by having many rooms. In terms of villas, it makes the clients feel like they are living in resorts. So, this mediates the building forms which are different. Also, it links to the feeling/sensation that makes the clients … feel like when they enter the buildings, they are entering a big house, a big house where people live together. In addition, they are doing activities together and can have aesthetics with each other. We have aesthetics together.* (P2, Co-design Workshop 1)

Hence, meaning should be perceived and understood by all users to navigate in the spaces. For some designers, the function of a hospital building can be seen to restrict the creative process, innovation, and aesthetics. Resort programmes, therefore, are essential considerations for relaxation and leisure activities for health and well-being.

On the other hand, concepts should encourage accessibility. Practicality is the quality of being suited to serve a purpose well. Concepts can be defined as categories or groupings (Spitzer, 1975) of linguistic information, images, ideas, or memories, such as life experiences (Spitzer, 1975). In many ways, observing details, categorising, and combining these details into cognitive structures can create. Cognitively, the brain has developed a filing cabinet of sorts

in the mind to organise this staggering amount of information. This concept was emphasised by Participant 5, who claimed:

> *You see ... it is their memory problems; it is not their stupidity. So, there is one system which is an emergency alarm and people will come in time. If you push fifteen times a day and see that it is her again. And you don't rush. Some people push 40 times a day. So, we get the system for people with dementia to get used to the system.* (P2)

As a result, people with dementia can still recognise new technologies (affordances). The design should serve both functionality, which refers to the performance of a product, and aesthetics, which represents the visual and ergonomic appeals of the product.

9.4.1.2 Learning Environment

According to Hill (2011), the nervous system has an ability to alter its activity, so called brain plasticity (Puderbaugh and Emmady, 2022), in response to intrinsic or extrinsic stimuli by reorganising its structure, functions, or connections (Mateos-Aparicio and Rodriguez-Moreno, 2019). Human can learn in the learning environment (Blanchette Sarrasin, Brault Foisy, Allaire-Duquette, Masson, 2020), which refers to the diverse physical locations, contexts, and cultures (Koper, 2014). Since learners must do the learning, a total environment is created for learning that optimises the ability of people to learn. Of course, there is no single optimum learning environment, so individuals, organisations, and societies are all required to become more flexible in order to participate in the ongoing processes of change involved in lifelong learning.

Participant 3 agreed that people with dementia can re-learn daily activities if cues are clear:

> *In terms of the place, it should enable the learning of the clients. This is because … even though the clients have dementia, they do not stop learning. This is because they might forget something. For example, before leaving home, they have to put on shoes, but they might forget what has to be done before leaving. But if the place has a shoe shelf (at the door), they can remember they have to put on shoes before walking out. So, the place must enable them for learning. Otherwise, they might stay inside the room and not leave it. They will not know that before leaving the room, they have to put on shoes first.* (P3)

Correspondingly, overstimulation in the new learning environment should not be allowed. The environment should be controlled and observed beforehand, as Participant 5 argued:

> *I have one relative who wants to bring their father or mother to Thailand once a month. And they have level five Alzheimer's. They will fly back and forth to America, and it will make dementia worse. So, I think flying to Canada is a big mistake. It is a long flight, nearly 30 hours, and jet lag and the wedding are nightmares. People say hi to you and you get your brain working.* (P5)

9.4.1.3 Flexibility

Flexibility is a critical element of person-centred care, which the environments are adaptable to meet care needs (Bartels *et al.,* 2021). Moreover, the surrounding environments aim to preserved self-identity (Qasim *et al.,* 2019), which include abilities, personality, habits, preferences, and cognitive, sensory, and physical limitations (Robnson, Howlin and Russell, 2017). Co-design workshop 1 stated that caregivers must be flexible learners, which is a method that gives users freedom in how, what, when, and where they learn (how the instructor knows). Thus, flexible learning environments address how physical space is used, how students are grouped during learning, and how time is used throughout teaching. In contrast, flexible working arrangements (mentioned in co-design workshop 2) such as flexibility in daily work and programme scheduling promotes both people with dementia and staff autonomy, which, in turn, allows for higher staffing levels, lower staff turnover, and more typical life experiences for residents. Therefore, flexibility means available spaces and the ability to use spaces freely.

9.4.2 Organisational Security

The security domain initially meant safety and security of an individual's needs. The personal security extends to aspects such as order and control, financial security, and health and well-being. The security domain can relate to SOC as an instrumental or behavioural component, which includes manageability by representing the availability of coping resources (Aureli and Schino, 2019). Previously, the domain argued for the physical aspect of how the physical environment provides a feeling of safety. However, in the co-design sessions, security means how the users are trained, and more participants agreed on how the care stakeholders deal with the environment. Hence, the security concept may suggest a clear assessment of people

with dementia by the trained care stakeholders to ensure a safe environment for the end users and the mainstream population (Berridge, Demiris and Kaye, 2021).

Likewise, cooperation between the organisational environment and personal assessment is required. As illustrated in Figure 155, five themes are included: emotional health, levels of care, person-centred care, comfort, and surveillance.
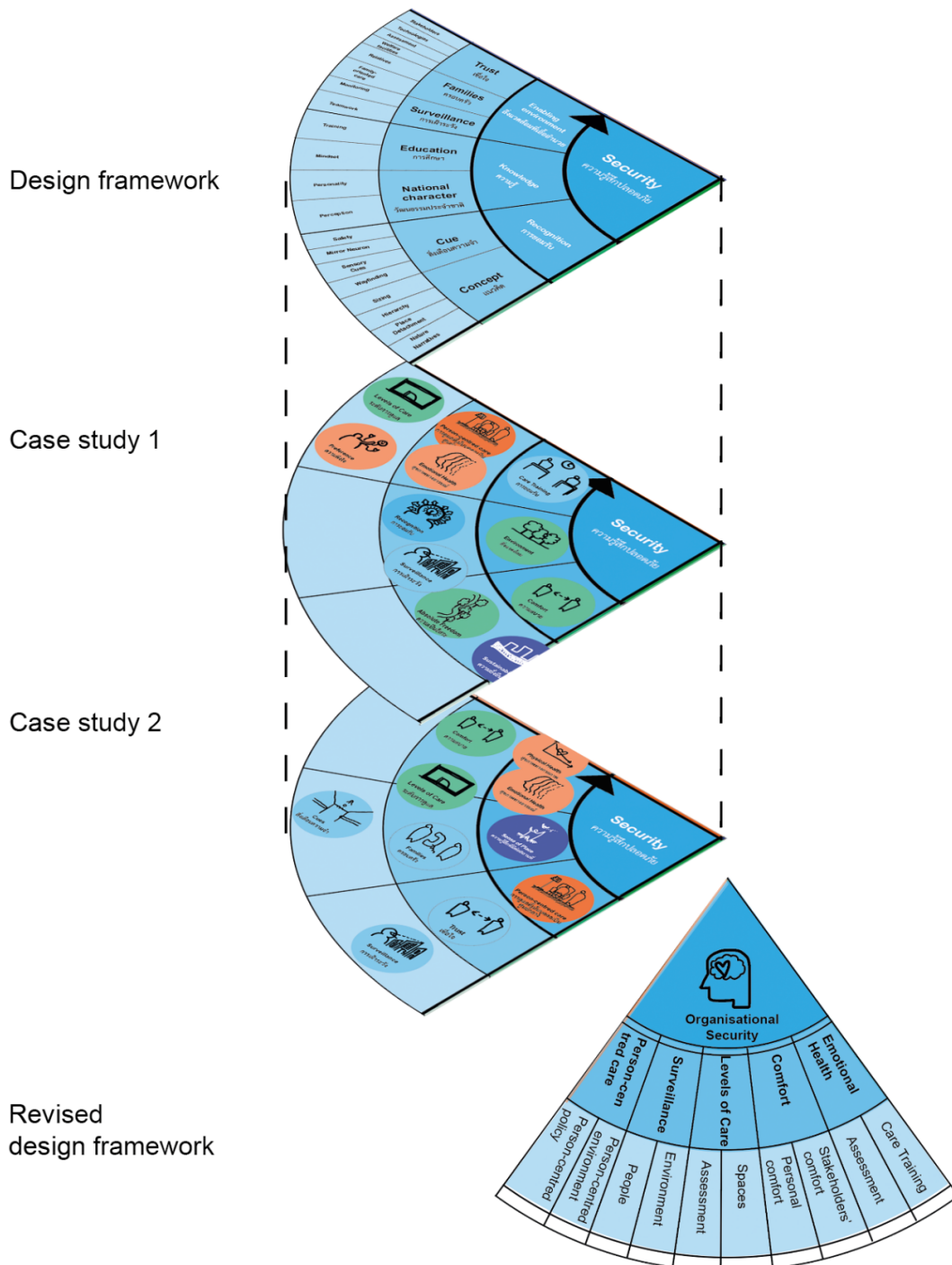
Figure 155 Theme of Organisational Security

9.4.2.1 Emotional Health

The increase of psychiatric aspects of dementia are recognised as main contributors of distress, disability, and care burden, especially for formal and informal caregivers (Onyike, 2016). The co-design workshops argued for emotional health, which has been well established through clinical research, and concerned with how emotions can be experienced. Emotional needs subsequently require a range of skilled assessment and support (Swales and Dunkley, 2020). People with dementia should be promoted with physical and psychological well-being, especially in advanced stage. Hence, in dementia care settings, the concept of emotional safety is described as a key factor of the psychological impact of reiving and providing care services based on patient safety (Grobosch *et al.*, 2020). As a result, care training and assessment are required.

Participants 1 and 2 argued for the requirement of care training for emotional health because people with dementia, especially in advanced stage, are expected to have a highly complex range of physical, psychological, and social care needs (Shuman *et al.,* 2017). As dementia severity increases, psychological and emotional needs are required to assess (Kar, 2009) and to observe non-verbal languages of expressing emotions (Banovic, Zunic and Sinanovic, 2018). As a result, care staff need an experience and a clear understanding of neurological impairment (Chambers-Richards, Chireh and D'Arcy, 2022) on the ability to express emotional needs (Buzgova et al., 2019). Thus, physical needs might be assessed if the facial or bodily expression are impaired and limited.

Correspondingly, by focusing on personal health, both physical and emotional, comfort and levels of care were expressed in assessing their mental state because they can be violent or cannot function by themselves. Most people with a long-term physical health condition (one in three) also have a mental health issue, often depression or anxiety (Ohrnberger, Fichera and Sutton, 2017). Therefore, assessing existing emotional health should be secured on both sides.

9.4.2.2 Levels of Care

The appropriated level of residential care can be assessed and based on the level and type of required assistance for an ultimate safety (Harrington *et al.,* 2020). Defining the stage and levels of care helps physicians determine the best treatments and aids communication between doctors and caregivers. Levels of care means how the person feel comfortable in the

environment. Hence, there should be two types of assessment: environment and the person. Participant 1 in co-design workshop 2 emphasised that assessment is essential for an adequate level of care and health.

> *We have a memory care unit where there are high levels of dementia – level 6 or level 7 of Alzheimer's. They need 24-hour care. They cannot function on their own. Maybe they can't function physically, maybe they can't function mentally.* (P1, Co-design Workshop 2)

The participants of co-design workshop 2 argued that 'level of care' means the right place and a comfortable environment that provides a "greater involvement of patients and their caregivers at every level of health service to deliver safe, meaningful, and appropriate healthcare".

9.4.2.3 Person-centred Care

Thinking, doing, and perceiving people with dementia and caregivers as equal partners (Hoek *et al.,* 2020) in planning, developing, and monitoring care services is called person-centred care (Santana *et al.*, 2018). To meet people with dementia's care needs, people with dementia and their families are located at the centre of decision-making processes (NICE, 2018). Users are seen as experts to work with care professionals for the best outcome (Dening, Sampson and De Vries, 2019). Person-centred care became one of the themes from co-design workshop 2, including trust and surveillance, which means that person-centred care was understood as the vital pillar involving trust and surveillance. People with dementia were assessed beforehand on their physical and mental health. Hence, person-centred care indicates both aspects of person-centred care education and one-to-one safety policy.

Person-centred care in training and emotional health demonstrates a critical challenge facing older people (Nilsen *et al.,* 2021). Globally, care systems have the challenge of meeting the complex care needs of ageing population (Bergman *et al.,* 2013). Although person-centred care has been promoted as the 'gold standard' and a key component of high-quality care (O'Rourke *et al.,* 2022), the significance of care utilisation in person-centred units (Kang *et al.,* 2022), as well as the impact of person-centred care on residents' quality of life and staff job strain in nursing home care (Skoldunger, Sandman and Backman, 2020), has yet to be explored (Backman and Skoldunger, 2019).

> *If the caregivers have this type of knowledge, they can take care with high quality. They will have trust … with each other.* (P2)

In contrast, person-centred care (1:1) involving trust and surveillance demonstrates how safety and risk management is focused on conventional dementia care facilities adopted by the institutional and medical model of care (Ho *et al.,* 2021). Subsequently, person-centred care has become synonymous with high-quality care that sustains the well-being and personhood of care recipients. However, the care recipients' dignity and autonomy are less regarded, which compromises the quality of care and their well-being (Ostaszkiewicz *et al.,* 2020).

9.4.2.4 Comfort

Comfort was initially defined as the environmental comfort of people with dementia pursuing palliative care, in which the quality of care and their quality of life can be enhanced (Fleming, Kelly and Stillfried, 2015). However, the theme of psychological comfort should include the care stakeholders. People with dementia are fully developed care strategies by acknowledging and focusing on their comfort. Some nursing homes and assisted living facilities have adopted and embedded comfort through care staff practices and individualised organisational routines (De Boer *et al.,* 2018). However, comfort is unique for each person with dementia and care staff.

A positive impact on people with dementia can be promoted by an awareness about comfort has. In addition, people with dementia and their relatives can feel more comfortable with good hygiene (Eisenmann *et al.,* 2020). For instances, the healthcare professionals may agree to provide sensory ambience (such as light, sound, and smell) for people with dementia to feel relieve and more comfortable (Jakob and Collier, 2016).

Moreover, psychological comfort was mentioned in co-design workshop 1 in terms of absolute freedom and sustainability reflecting a 'legitimate *freedom* approach' to *sustainable* development, which draws on good reasons. Comfort and mental health can demonstrate a causal model in the sense of having a comfortable psychological space. It was suggested that, to help people with mental disorders improve self-esteem, it might be helpful to support them to enhance the sense of having a comfortable space.

9.4.2.5 Surveillance

Surveillance reflects both environmental and personal factors. Globally, an optimistic care for informal caregivers and people with dementia has become a primary global concern and solution which are provided by surveillance technologies (Vermeer, Higgs and Charlesworth, 2019). However, the needs of caregivers and people with dementia for surveillance technologies are limited in information (Vermeer, Higgs and Charlesworth, 2019; Mulvenna *et al.,* 2017)

First, surveillance means the environment is used to focus on detection in various settings, comprehensively involving methods and techniques of sampling, pre-treatment, and analysis. Furthermore, ramps, handrails, and fences address the challenges and potential improvements in techniques for environmental surveillance.

On the other hand, surveillance means how nurses and caregivers monitor people with dementia by visiting them in their rooms, as Participant 5 stated:

> *So, every one of my guests will get a visit from the nurse every morning. That visit will take five minutes or an hour. They are checking pressure, blood pressure, checking if there is anything wrong with them, but the biggest part of it is talking, talking to the guest.* (P5)

This can create trust, which is a primary constituent of the relational dynamic of most surveillance systems. Issues concerned with trust are often the catalyst for the implementation of a surveillance system.

9.4.3 Embodied Selfhood

The concept of selfhood was initially expressed as the established quality of one's individuality (Yvinec, 2014). It is often perceived by designers as embodied self, which means how people with dementia occupy spaces (Lindgaard and Wesselius, 2017). Primarily, selfhood is represented by pre-reflective self-awareness (Rousse, 2018) and how the embodiment and enactment of familiar habits, practices, and preferences creates the body memory of individuals (Fuchs, 2020). Co-design workshop 2 did not agree with the term based on their experiences and subjectivity. It considers both organisational structures and individual agents' actions and highlights the underlying dynamics of 'home/place'. Therefore, occupied selfhood refers to the culture of occupying time by everyday activities, bringing meaning and purpose

to life (Reed, Hocking and Smythe, 2011). Embodied selfhood can be expressed through scales of individuals, in families, and within communities (Kontos, Miller and Kontos, 2017). As illustrated in Figure 156, the domain consists of two themes, including personal spaces and social inclusion.
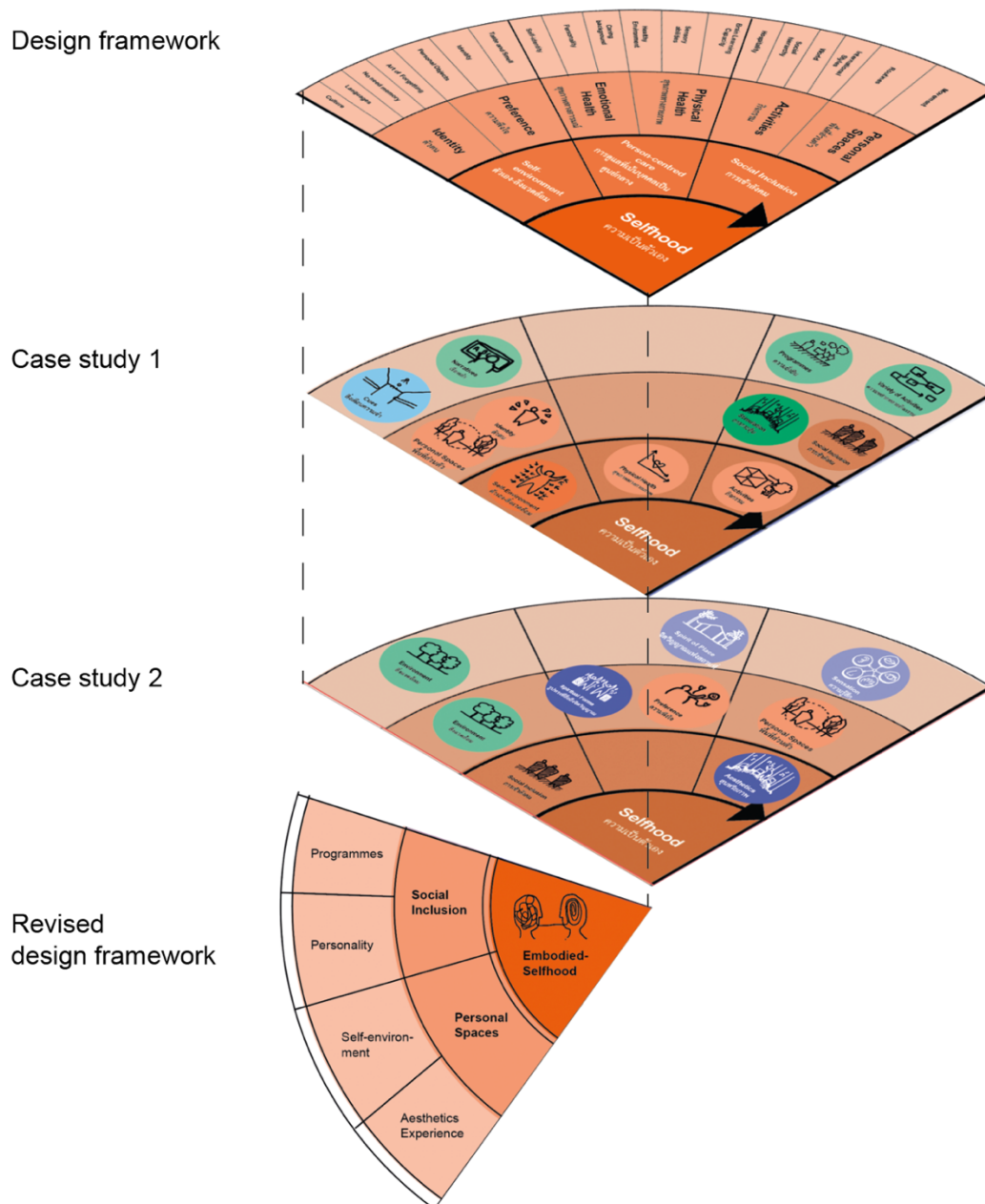
Figure 156 Theme of Embodied Selfhood

9.4.3.1 Personal Spaces

Personal space in dementia care has been a research issue in both social psychology and nursing. The behavioural and psychological symptoms of dementia can question the concept of personal space and other social psychology paradigms, which scarcely play a role (Mintzer *et al.,* 2000). Peripersonal space is the region of space immediately surrounding our bodies and in which objects can be grasped and manipulated (Pellegrino and Làdavas, 2015). This can relate to Donna Haraway (1988), who argued that personal and social bodies cannot be seen as natural but only as part of a self-creating process of human labour. Hence, the emphasis on location, as well as position in a web of social connections, eliminates the passivity of the human body and replaces it with a site of action and of agency (Haraway, 1988), constructed by the care stakeholders.

Nature and the natural environment can engage the human body with intersections between space, sense, and emotion through a variety of experiences and activities. Moreover, space is an integral constituent of the self. The aesthetic response to scenes of nature and works of art involves a bodily sense of self (Etlin, 1998), as Participant 5 stated:

> *They make them calm. It is natural. I don't know why. Nature is relaxed. This becomes relaxing. There are spaces for walking and relaxing … The place is ideal because there are mountains, clean air and trees, it is quiet with plenty of space. But it is not ideal in another way. For the swimming pool ... Steps are a nightmare. Everybody is elderly, steps are a nightmare.* (P5)

As a result, for customer experiences, preferences refer to specific characteristics any consumer wants to have. However, 'practicality' was argued to mean the therapies that have the potential to help improve many dementia-specific issues for people who live in dementia care settings. Supported by caregivers as creative users who construct the places, this can be related to personal narratives (photographs) or embodied spaces. This becomes a theatre space where all physical interactions occur with objects in the environment (Nolbeck *et al.,* 2020). Thus, it is postulated to play a critical role in approaching and defensive behaviour. These stories often mean narratives of a particular place, a site or a group of locations that are meaningful to a community (Farman, 2015). However, such concepts of body and mind are situated within a dualistic framework. Therefore, the body becomes a vehicle of the person or can be translated as an organ of mental faculties (Thau, Reddy and Singh, 2022).

9.4.3.2 Social Inclusion

Social inclusion is a process of individuals and groups take part in society. Those disadvantaged based on their identity are improving the ability, opportunity, and dignity (World Bank, 2013). A potential idea to contribute to the mitigation of social exclusion (Hung, 2020) emerged the concept of dementia-friendly and inclusive community. Social exclusion and isolation have affected on mental and physical health (Hossain *et al.,* 2022), such as depression and cardiovascular disease (Brandt *et al*., 2022). Mediating the interventions may be a necessary first step before peer-related interactions. By using a layered approach that involves developmental and behavioural strategies to target joint engagement, play, joint attention, and language skills, caregivers can successfully improve these skills. However, they might feel rejected even when socially included by others. A psychological mechanism accounting for this response bias could be that objective social inclusion violates the patients' underlying implicit needs of 'extreme' inclusion (De Panfilis, 2015).

Similar to Crispi and Heitner (2008), the effective quality of nursing home visits by informal caregivers was shown to improve due to an activity-based intervention. Participant 3 argued:

> *Like programmes … I am not so sure about the term … [then moves to activities/social inclusion] – it is like the management … or to be in control. Most of them are happening in group activities … like it is an order. So, it might mean that the programmes are in the same space as well. So, it means like a command (1,2,3,4). (P3)*

On the other hand, there are the themes of an 'enabling environment' and an 'environment for social inclusion', because participants feel that true social inclusion cannot be achieved with people with dementia. Participant 5 stated:

> *I rather believe people need their own spaces. What a lot of people forget, not everyone is social. People with dementia, their definition of illness makes them less social. I don't care how social they were 10 years ago. They will not be social here. People have to look at dementia through the eyes of dementia sufferers, not their own eyes. So, my sister comes to visit my mother and my mother starts looking out the window for three hours. She can see through the window. She can see the world around her. But it is the peace. But my sister also takes her shopping, for coffee, and sightseeing. And my mother hates it. (P5)*

From Participant 5's experience, he stated that it is challenging to bring people with dementia into the community. Calmness and consistency with themselves were the goals. Some people may not like it (according to their personality). People with dementia are often living in their world. Therefore, it is their choice whether to stay alone or participate in groups. In these situations, decision-making can be difficult to know what to do. However, they make choices based on the fact they are tired, or it may be because they are feeling bored or cut off from others. Therefore, they see that it can provide a uniquely identifiable reference that reinforces a sense of belonging to a community.

9.4.4 Interpersonal Self-esteem

The fourth domain, interpersonal self-esteem, was primarily defined as one of the human needs that encompasses confidence, strength, personal and social acceptance, and respect from others (Maslow, 1970). Initially, self-esteem means how the design psychology can increase the progress of people with dementia, by making improvements to their physical ability and motivating them. Both co-design workshops argued that the concept of self-esteem was valued in the scale of organisation and indicated that self-esteem can be achieved if the care stakeholders follow the constructed concepts. Because all participants were Thai, they maintained that *self-esteem* was a Western concept and, as a result, they were not focused on self-esteem in everyday life (Kang, 2021). As the concepts of self vary from culture to culture (Sasat *et al*., 2002), self-esteem was acknowledged as a personal factor that they must acknowledge when taking care of Western clients and simultaneously taking care of others without 'self-meaning'. According to Figure 157, the signal of self-esteem development is likely to improve by actions such as approval, availability for support provision, or opportunities for fostering self-esteem in social interaction (Harris and Orth, 2020). As a result, the self-esteem domain will be achieved if an individual's self-esteem is formed around work and organisational experiences (Pierce and Gardner, 2004) and by socially constructed concepts (Taylor, 2018). However, as a one-sided action, the participants reflected that the concepts were too complex for employees to understand due to culture and languages. Hence, the themes of dignity, knowledge, and respect match the concept of organisational-based self-esteem (Oguegbe, 2021).
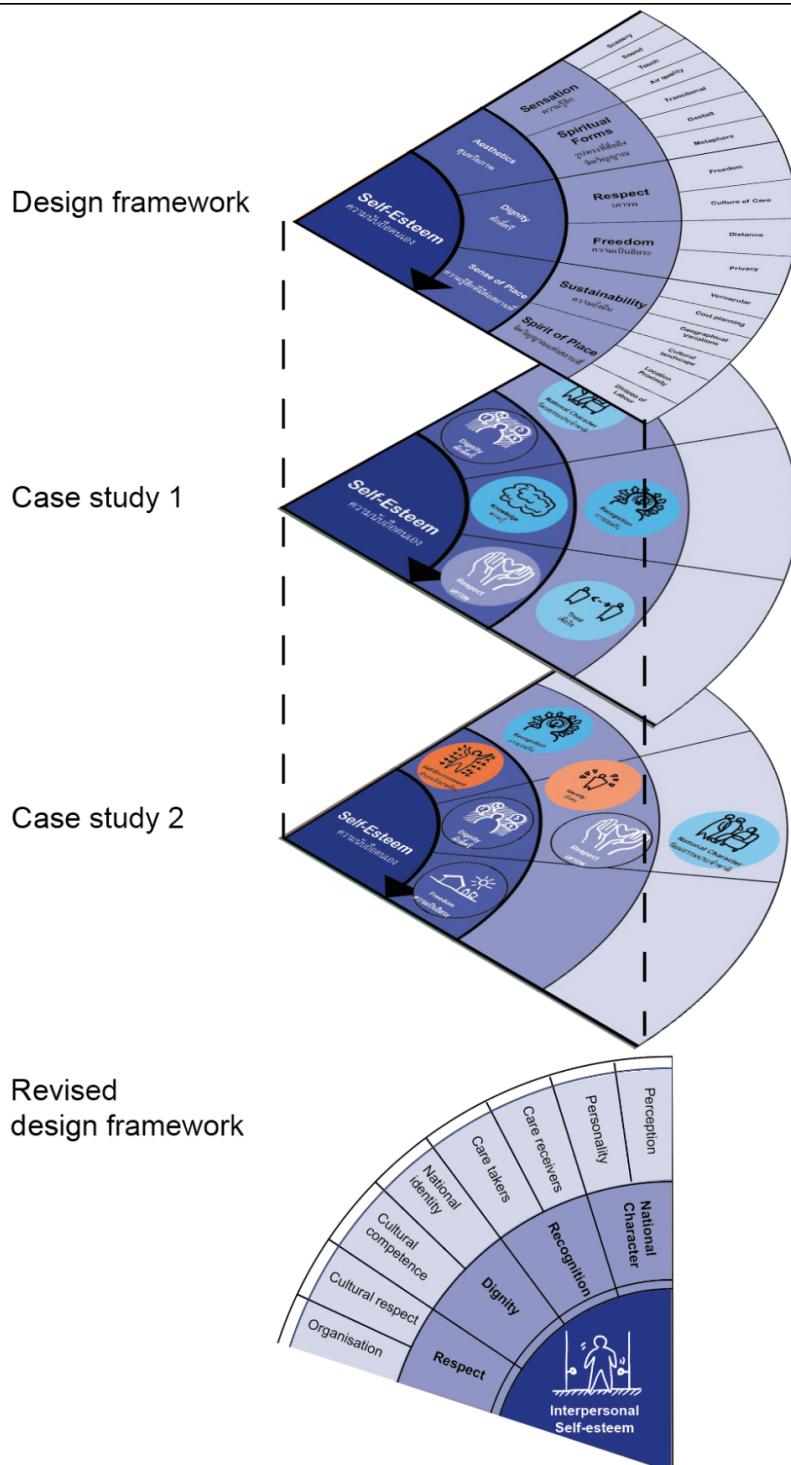
Figure 157 Theme of Interpersonal Self-Esteem

9.4.4.1 Dignity

Dignity is the first theme, which is defined as how caregivers support people with dementia to perceive themselves. Although a diminished sense of personal dignity can be resulted from dementia progression, people with dementia do not usually feel reasonably dignified (Gennip,

2016). By caring for them as clients, the participants reflected on the concept that dignity counts, and Western cultural differences should be acknowledged and valued. In contrast, dignity was defined as a cultural phenomenon, whereas another co-design workshop defined it as a critical factor that should be emphasised by respect and personal identity. By comparing their nationalities, different perceptions and ego orientations were observed. As stated by Kapur-Fic (1998), 'face' and 'dignity' are used interchangeably in Thai context. The Thais do not tolerate any violation of their ego and this attribute frequently creates enormous problems and misunderstandings in cross-cultural situations". As Participant 2 mentioned:

> They [people with dementia] are Westerners. They are very serious about their dignity. (P2)

In addition, the theme was supported by a sub-theme of national character, which reflects on unique cultural characteristics (Flanders, 2011). By perceiving it as a cultural value, this can mean that they have the quality of cultural competence, which consists of the ability to understand, appreciate, and interact with people from cultures or belief systems different from one's own (Shepherd *et al*., 2019).

Dignity was claimed to be the most central theme in co-design workshop 2 and was defined as the essential factor they must conserve. Personal dignity resulting in diminished autonomy and changes to their former self-identity can be resulted by progressive cognitive impairments (Gennip, 2016; Rejno, 2019). The theme was supported by two sub-themes – identity and respect – which revealed that these were the values that caregivers should accentuate when taking care based on their national character. Hence, there was an emerging gap of expected translation between managers and caregivers (Stacey, 2005). This also challenges the power relation of subjectivity and how the culture can include Westerners while simultaneously respecting the existing culture.

9.4.4.2 Recognition

Recognition was previously understood as a cognitive ability which makes it possible to recover stored information and compare it to the presented information. The sub-theme of recognition supported the theme, and they relate to each other because they must recognise the person before taking care of people with dementia. Simultaneously, the problem-solving skills must be acknowledged. Hence, how the care stakeholders deal with their existing knowledge becomes an asset. The participants discussed the second theme, knowledge, as

the requirement of inter-disciplinary collaboration starting from formal professional health education. Participant 4 stated:

> *They [people with dementia] are changing every day, even if I have learned caring techniques from the nursing school; I have to learn new things every single day.* (P4)

In this case, the theme was supported by recognition, which specifies how caregivers must recognise people with dementia first to tailor their environment. It has been debated whether the theme 'recognition' is performance on recall or recognition by people with dementia. Both co-design workshops suggested a similar definition of recognition, which is to recognise the person as a person. However, the main differences are how co-design workshop 1 supports the care stakeholders' capabilities and values. In contrast, co-design workshop 2 suggested that people with dementia were recognised and that the care stakeholders must find ways to adapt to the self-environment. Hence, the former workshop recommended a positive experience of social and psychological acceptance and recognition by others.

9.4.4.3 Respect

Respect was the third theme, which reminds people with dementia that their life still has value and meaning and boosts their feelings of self-worth. However, the sub-theme, trust, was emphasised and had to be achieved before receiving respect. In this case, trust is a belief in employees and respect is trust in action. This links to the theoretical model of respect and proposed criteria for evaluating organisational respect (role, organisational member, and character), which is then enacted by the sender and perceived by the receiver (Rogers and Ashforth, 2014). Therefore, the respect of care was composed by the organisational scale and perceived by the care stakeholders as receivers.

As is custom, respect for older people is embedded in most Asian countries through the social fabric (Ingersoll-Dayton and Saengtienchai, 1999). Traditionally, special deference paid to ageing population has an emphasis on social relationships among Asians (Ingersoll-Dayton and Saengtienchai, 1999). Their awareness of hierarchy within the relationships (Limanonda, 1995) was emphasised. Consequently, the value of filial piety, which is understood as "respect and care for parents and the aged" (Sung, 1995, p. 240), has deep roots in Asian culture, in which values, attitudes and behaviours toward older people are judged and served as a standard (Ingersoll-Dayton and Saengtienchai, 1999).

Similarly, the cultural characteristics of respecting older people should be considered by the culture of respect in the care organisation (Bridges *et al*., 2021). By respecting them as individuals due to custom, forming a respectful culture may challenge ethical issues and the perception of value and worth, which affects employee productivity and turnover rate. Types of respect fulfil the receiver's needs for belonging and status, which facilitates the self-related outcomes of organisation-based self-esteem, organisational and role identification, and psychological safety (Rogers, 2014).

9.4.4.4   National Character

National character can be defined as personality characteristics (McCrae and Terracciano, 2006), shared beliefs, or perceptions of members of a nation (Realo and Allik, 2020) or by a group of people (Terracciano *et al.,* 2005). However, such beliefs are often stereotypical, overgeneralised, inaccurate, or do not apply to every nation member (e.g., groupings of westerners and Thai people) (Allik, 2020). In the co-design workshops, national characters are perceived as the first impression and justifications of an individual's behaviour, enduring personality, characteristics and unique lifestyle. Hence, national character demonstrates a specific culturally focused resilient adaptation (Clauss-Ehlers, 2015). Therefore, adaptation to adversity is a dynamic rather than a static process is dominated by character traits, a person's cultural background, values, and supportive aspects of the socio-cultural environment.

The validation has unearthed a new domain of self-actualisation, which focuses on the development of the caregivers rather than the people with dementia.

9.4.5   Self-actualisation

Self-actualisation is the final stage of the human development in Maslow's hierarchy of needs (Mcleod, 2007), which is the complete realisation of one's potential (D'Souza, 2018), and the full development of one's abilities and appreciation for life (Kapur, 2019). A resistance against the destructive effects of internal and external stress and moving in the direction of growth can diminish the self-actualisation. The examples include individual creativity, spiritual enlightenment, or pursuit of knowledge, and the desire to positively transform society (Gholamnejad *et al*., 2019). In part, people with dementia should be treated as people, whose specific adaptations were made to each capability (Evans *et al.,* 2019). Hence, the capabilities (i.e., composed of identity and competency) are required for people with dementia and care stakeholders to acknowledge their roles. Notably, care quality is fundamental of staff working

in these settings based on the dementia-care competence (Chan *et al*., 2020). Therefore, supportive care staff should focus to improve and understand the needs of people with dementia (Khanassov *et al.,* 2021) by having a specific training and education (Parveen *et al.,* 2021). As illustrated in Figure 158, the themes of the domain include roles and the self.
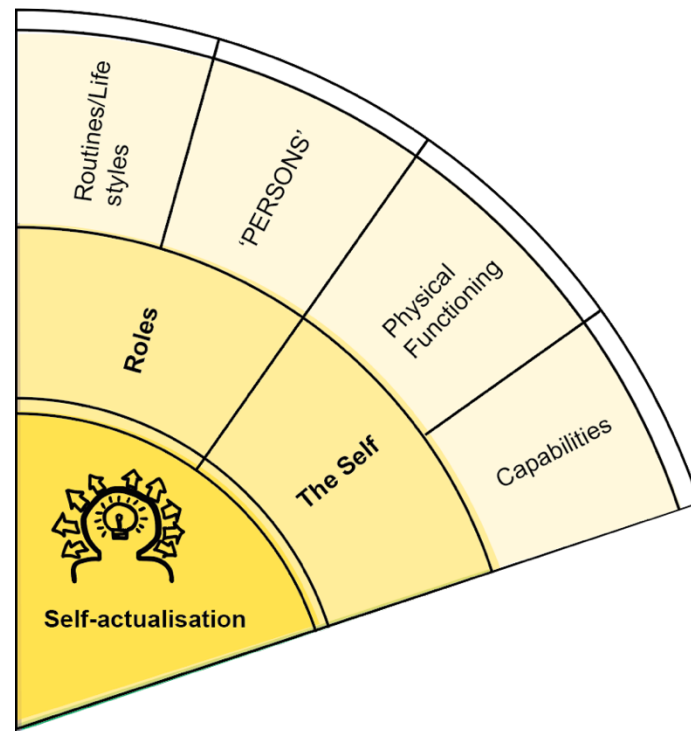
Figure 158 Theme of Self-actualisation

9.4.5.1 Roles

The theme of 'roles' initially explains the coherence between self-identity and work role, arguing that employees' identities and ideals need not necessarily correspond to the mundane work of their constrained roles (Sirris, 2019). In the context of dementia care, by learning and respecting their changed identity, the concept of identity is used on a more personal level. It suggests that people have desired self-images of themselves. Interestingly, the role is an external attribute linked to positions in the social structure. In contrast, identity denotes internal perceptions of the self, consisting of internalised meaning and expectations associated with a role. Thus, individuals aim to transform their current individual characteristics into their self-image (Horst, 2007) by keeping a distance (by perceiving them as clients), maintaining citizenship, and their roles of routines.

The participants in co-design workshop 1 used the term 'clients or guests'. Several studies demonstrated the effectiveness of role-play with a standardised patient to teach interpersonal and communication skills (McIvor and Karnes, 2019). One of the research participants stated:

> *We have used client-centred care as a model … it cannot be assumed that they have symptoms because they are foreigners … It is the 'special' of each person. We don't need to be concerned with their political ideologies or cultures.* (P2)

However, they did not differentiate them as heterogeneous personal factors, but acknowledged them as homogeneous people. This includes personality, part of which is innate, and the other is the result of social learning, meaning the experiences and history of each individual.

Moreover, roles and routines are formed by scripted and unscripted patterns, which are brought into performances following a situational assessment. Performances trigger patterning processes prompting the co-construction of role and routine patterns (Rosales, 2020). The importance of routine and familiarity to people with dementia is profound as a continuum. Routines must be treated as capacities or dispositions, rather than behaviours. For example, undesired behaviours such as aggression, restlessness, and agitation can be reduced by a daily routine (Desai and Grossberg, 2001). As a result, the caregiver will experience less stress and be able to give better care. Disruption adversely affects people with dementia, triggering constructive, disengaged and distressed behaviours, as well as role-play as citizens.

9.4.5.2 The Self

The two recognised distinctions of the self, which are defined as "Me" and as "I" (James, 1890) has lately recaptured popularity in cognitive science (Klein, 2010), especially on the underpinnings of the phenomenal self in the context of multidisciplinary studies (Wozniak, 2018). In clinical settings (including decision-making abilities on treatment or risky diagnostic procedures), the concept of self may perform in daily life activities (including financial matters, nursing home admittance, and contracts) (Varkey, 2020). In this case, these stereotypes can lead to biased perceptions about one's own interest and competence as well as that of others. The concept of intersectionality considers situations in which certain combinations of social categories play together. Hence, how members of a group falling victim to several categories

of stereotyping of their own experiences and behaviours to these common perceptions (Card, 2005) should be understood.

Focusing on physical functioning and merging with organisational culture were emphasised in co-design workshop 1. This can be valuable for direct care staff in applying techniques, tools, and other skills with other staff members and their care receivers. Participant 4 stated:

> *But from each case … it is very rare that they are adapting to us. I mean it is difficult to change the clients' nature. They want to stay here because they want to be themselves as much as possible. They want to have freedom as much as possible, but still have someone to take care of them. They don't want us to concentrate on personality (physical).* The management team argued, *"No one has changed since they entered the facility, if they said that it might be like that because I never experience to take care of them."* (P4)

On the other hand, participants of co-design workshop 2 argued for the absence of cognitive functioning. The different cultural perceptions and languages of Thai caregivers were perceived as their limitations. Other cognitive functions of people with dementia such as decision-making were disregarded. This may be based on the perception of how and who they are. Hence, their capabilities were not supported by the care organisation.

The following is a table which summarise domains and its explanation of how to apply these domains in design thinking for dementia care facilities. Therefore, the main objective of design framework is to acknowledge the concepts behind what to include in the resort typology. The design framework was added and developed into a design tool (used by architects). The concepts such as learning environment, flexibility, social inclusion, person-centred care, sensory needs were translated into architectural spatial features such as spatial layout or high ceiling of a unique typology of resort. These architectural features can promote medical tourism in the context of Thailand.The themes and domains of the design framework will be translated into architectural design features in the section of design recommendations (in Chapter 10).

Summary of Design Framework of an Enabling Environment for Dementia Care

Table 12 Summary of Design framework

Domains of Framework	Explanation
Domain 1: Creative functionality	Creative functionality relates to sensory design or affordance and impresses on designers the importance of creativity, uniqueness and opportunity. Simultaneously, functionality and usefulness should be perceived as how care stakeholders use the environment and include comprehensibility as a cognitive component. Therefore, physical resources of the sense of coherence have to offer manageability, comprehensibility and meaningfulness to their users.
1.1 Concept	A concept is an idea, thought or belief that forms the structure and foundation of an architectural design project. The concept should become the force and identity behind the progress of the project, and constant reference should be made to it throughout every stage of development. Consequently, a conceptual level of organisation should be applied in the form-development process at the planning stage of the design process, with meaningful design guiding thinking. The concept, then, should solve problems of how end-users (including care stakeholders and people with dementia) understand and correctly perceive the physical environment.

1.1.1 Meaning (metaphor)

The purpose of architectural design (developed from the initial concepts) is to translate ideas into designed products. Concepts for people with dementia should be recognised easily within the design of an enabling environment, and the design should illustrate conceptual traits that preserve continuity and self-identity. The users must be acknowledged by universal meaning in the physical and social environment as an existential experience and the importance of all users being able to navigate the spaces should be recognised. Positive and meaningful outcomes, indicating that their lives are going well, should be interpreted as well-being. In design, good living conditions (e.g. housing and employment) can be seen as fundamental to well-being. Consequently, the design of dementia care facilities should be concerned with overall quality that improves the quality of life of all user groups.

1.2 Accessibility

The practicality of dementia care facilities concerns whether they are suited to serve their primary purpose. Design should encourage accessibility. The concept of accessibility includes also the communication of linguistic information, images, ideas, memories or life experiences. Accessibility should be expressed in the design, allowing diverse users to perceive and use spaces. Hence, design for accessibility should guide audiences to

	perceive and understand the design of the physical environment as meaningful, and to be able to use spaces conveniently. The initial concepts of buildings need to ensure wheelchair accessibility. Designs for wheelchair accessibility and to assist wheelchair users should be applied in both private and public spaces. Accessibility includes wheelchair accessibility, access to the natural environment and access to local communities. The design of the physical environment should eliminate the obstacles that people with dementia face in processing information. Dementia care facilities should support the overall concept, which should be easily accessible to and interpreted by users. In addition, dementia care facilities should provide resources for the creative use of care stakeholders.
1.2 Flexibility	Flexibility is a critical element of person-centred care, and attempts to personalise care to the user's needs. The environment must be flexible for its guests. In this case, caregivers must be flexible learners, with the freedom to decide how, what, when and where they learn. Care staff should have a flexible working environment to benefit the total outcome of their daily tasks. Hence, flexibility can be applied as an architectural design feature, especially in architectural planning (e.g., connecting rooms), and its policy, which may help reduce high employee turnover and low productivity.

	1.3.1 Flexible spaces Designers should employ flexible space management within resorts/hotels to blend in with the surrounding landscape. In this case, the availability of shared space is almost synonymous with the notion of flexible space. Hence, empty space must be flexible, ready for use by those with ideas and a need for space. **1.3.2 Flexible Planning** Flexible planning examines the care organisation's position and environment and chooses an appropriate strategy for its end users. The design for the dementia resort typology has different types of rooms from which users can choose according to their suitability, the user's capabilities and the preferences of the user and their relatives. Open spaces in dementia care facilities should be designed to meet the needs of most users. The flexibility principle, as a dynamic of qualified open-space creation, can facilitate the creation of spaces that provide multiple opportunities for public users as well.
1.3 Learning environments (sensory)	The design of a learning environment should take into account diverse factors such as physical location, context, proximity and the cultures in which users can learn, and is translated into architectural features by the design of a multi-sensory environment. The design should focus on recognising the learning styles of people with dementia, which can help foster cooperation in

everyday activities. Hence, the design features should promote new user experiences (such as cooking) with a balance of multi-sensory stimulation and physical comfort.

1.3.1 Multi-sensory environment (sensory cues)

Depending on their capabilities, people with dementia can learn and relearn daily activities with clear cues. The environment should enable the learning of clients. Although people with dementia find unfamiliar places difficult, they are able to progressively adapt to new and unfamiliar environments. However, the new environment has to be a neutral or natural environment that they can easily recognise (new experiences) with natural scenery (positive effects of outdoor natural landscapes on health and well-being). This can be achieved by integrating the natural landscape into the dementia-care facilities. In urban areas (buildings and integrations), green spaces or natural views may be emphasised. Experiences such as walking should be promoted in dementia-care facilities. Walking loops or walking spaces which allow people with dementia to wander freely should be recommended in both interior and exterior environments.

1.3.2 Controlled Environment

Overstimulation in the new learning environment (resort typology) should be avoided. The environment should be

	controlled and observed in advance and options provided for end-users to choose from. The design of the physical environment should be controlled systematically by the use of lighting or colour contrasts between walls and floors. As dementia progresses, people with dementia are unable to interpret discomfort or pain. Human touch and a sense of closeness should be enhanced in the environment to create a sense of comfort and well-being. Dementia can impair the areas of the brain that control the sense of taste and the ability of the individual to taste foods. The sense of taste should be acknowledged in food or cultural artefacts in dementia care facilities.
Domain 2: Organisational security	Organisational security refers to an individual's need for personal security and a psychological feeling of safety. Hence, the design of the physical environment should improve the psychosocial qualities (basic psychological factors) of the spaces for both groups of stakeholders.
2.1 Emotional health	Emotional health should be seen as a significant factor within dementia care facilities in terms of how caregivers understand people with dementia and their symptoms. **2.1.1 Care training** People with dementia, especially in its advanced stages, are likely to have highly complex physical, psychological and social care needs. Hence, care training and a care

	policy are required to educate caregivers and support their emotional health. **2.1.2 Assessment/ Audit tools** Assessment tools to evaluate the physical environment in local communities should be developed and applied as policy. The assessment tool can be used by care stakeholders and may involve people with dementia and their relatives with different perspectives. Completing the tool together may also encourage constructive conversations about the care policy and the purpose of care.
2.2 Comfort	The theme of psychological comfort should include care stakeholders by acknowledging the person with dementia fully and developing care strategies focused on their needs. As comfort is unique to each person, those developing policy should be educated in dementia care facilities and assisted living communities so they are able to adjust and personalise approaches to improving comfort and facilitating positive experiences through practice and routines. **2.2.1 Safety (sense of comfort)** A comprehensive safety plan becomes essential in dementia care facilities as dementia progresses. Improving the safety design may prevent injuries and support people with dementia to feel more comfortable and less anxious, and to maintain independence for longer. The role

	of design, therefore, can reduce anxiety and aggression in people with dementia.
	2.2.2 Personal Psychological Comfort Psychological comfort refers to freedom and sustainability, reflecting a legitimate approach to sustainable development, based on sound reasoning. Comfort and mental health can demonstrate a causal model in the sense of having a comfortable psychological space.
2.3 Level of care	An appropriate level of care should be assessed based on an individual's circumstances. The grouping of residential care buildings is essential for the level and type of assistance needed to be physically, socially and emotionally safe. Defining the stages and levels of care helps physicians to determine the best treatments and aids communication between doctors and caregivers. Hence, assessment is needed of both the environment and the person. **2.3.1 Person** Each person with dementia shows different symptoms and is at a different stage. Designers or care stakeholders must assess the level of care needed before users participate in group activities. **2.3.2 Environment and spaces** The physical environment must be adjustable and flexible as well as varied enough to suit users from all groupings.

| 2.4 Surveillance | The surveillance system should consider both environmental and personal factors. Surveillance technology should be promoted and used based on the needs of both caregivers and people with dementia.

2.4.1 Environment
The consideration of surveillance in spatial planning requires an examination of the larger system in the design of the physical environment. Apart from active technologies, passive home-based technologies may be applied that do not depend on the active engagement of individuals at home. These use networks of sensors, transmitters and receivers to operate in a home environment or a dementia care setting.

2.4.2 Care Staff
Surveillance enables nurses and caregivers to monitor people with dementia by visiting them in rooms. People can create trust, which is a primary constituent in the relational dynamic of most surveillance systems. Issues concerned with trust are often the catalyst for the installation and application of surveillance systems in dementia care facilities, for example, sensors or CCTV. |
| **2.5 Person-centred care** | Person-centred care should be applied to ensure that the care offered meets user needs by focusing on people with dementia and their relatives. The users are placed at the centre of decision-making processes |

	and perceived as experts to achieve the best outcome. Hence, the architectural design features of person-centred care should be adaptable to end users' needs and care staff's demands.
	2.5.1 Person-centred environment A person-centred care environment should offer training in emotional health, reflecting a critical challenge facing people with dementia. The design of care systems should solve and meet individuals' complex care needs. Person-centred care impacts the quality of life of people with dementia and caregivers and job strain in staff. Therefore, environmental design is crucial for person-centred care. **2.5.1 Atmosphere** Person-centred care (1:1) involves trust and surveillance, with a focus on safety and risk management. Hence, the atmosphere in dementia care facilities should be carefully controlled. The social climate should be enhanced with the perception of the environment as shared by a group of people.
Domain 3: Embodied Selfhood	The concept of selfhood was initially expressed as the constituted quality of one's individuality. This is often perceived by designers as the embodied self, and refers to how people with dementia occupy spaces.
3.1 Personal Space	Personal space in dementia care has been the subject of research in both social psychology and nursing. The concept of

	personal space and other social psychology paradigms scarcely play a role. In this view, peripersonal space immediately becomes a boundary surrounding people in which personal objects or narratives can be understood and operated.
	3.1.1 Self-environment The design of the self-environment should focus on customer experiences and preferences. In practice, this often means the therapies that have the potential to help improve a range of dementia-specific issues for people living in long-term care settings. Caregivers should be supported as creative users because they construct places which can be related to personal narratives or embodied spaces. **3.1.2 Aesthetic Experience** The design of the natural environment can engage the human body at intersections between space, sense and emotion through a variety of experiences and activities. In addition, space is an integral constituent of self. A sense of aesthetics should be achieved by designers.
3.2 Social inclusion	Social inclusion is based on the identity of individuals and groups within society. The dementia-friendly and inclusive community has emerged as an idea that has the potential to reduce social exclusion. Hence, social inclusion can be translated into architectural design features by the design of policy and spatial arrangements. Examples

	of design features for social inclusion include an enclosed semi-public form to gather people together. The spaces should allow people to see and be seen.
	3.2.1 Programmes Participating in suitable programmes can give people with dementia pleasure and purpose in life and support them in completing tasks. As various activities play a significant role in addressing challenging behaviours, designers should plan and provide appropriate activity spaces – for both private and group activities – for people with dementia. Hence, each space should be adaptable to suit each individual. **3.2.2 Public spaces** Accessibility to public spaces and amenities should be promoted, with a range of outdoor environments or community spaces – such as shopping centres or public parks – made accessible. As people with dementia are often disorientated and find it difficult to interpret and navigate unfamiliar spaces, the design of dementia care facilities should scale down public spaces to form neighbourhoods.
Domain 4: Interpersonal self-esteem	Interpersonal self-esteem should be translated into the environmental design by defining human needs that encompass confidence, strength, personal and social acceptance and respect from others. Initially, self-esteem refers to how the design psychology can increase the progress of

	people with dementia by improving their physical activity and motivating them.
4.1 Respect	Respect tells people with dementia that their life still has value and meaning and boosts their feelings of self-worth. However, trust must be achieved before respect can be given. In this case, trust must be gained by the employee, and respect can be seen as trust in action. **4.1.1 Organisational/cultural respect** Respect for older people is embedded in the social fabric of most Asian countries and should be emphasised in social relationships with Asians. An awareness of the hierarchy within relationships should be considered as part of a culture of respect in the care organisation. **4.1.2 Acceptance (allowance)** The acceptance of dementia should follow after diagnosis to help people with dementia to accept the present. Time will be needed to acknowledge and accept the diagnosis. Specific actions initiated by the care partner and care staff can help in this process.
4.2 Dignity	Dignity is defined as how caregivers support people with dementia to perceive and value themselves. A sense of personal dignity may be diminished by progressive symptoms. The cultural phenomenon can be promoted as a critical factor that should be emphasised by respect and personal identity.

	4.2.1 National identity National identity reflects unique cultural characteristics. When perceived as a cultural value, national identity offers the capability to understand, value and interact with people from cultures or belief systems different from one's own and can improve the quality of cultural competence. **4.2.2 Independence** People with dementia may be unable to carry out daily activities and may become less independent. As a result of this sense of loss, a sense of autonomy and confidence must be enhanced in their daily activities by individual training in ADLs to empower them and maintain some degree of independence.
4.3 Recognition	Recognition was previously understood as a cognitive ability which makes it possible to recover stored information and compare it to newly presented information. Recognition is relevant here because the stakeholders must recognise the 'person' before caring for people with dementia. **4.3.1 Knowledge** Knowledge of the person with dementia affects how care stakeholders act. Dementia often results in stigmatisation, discrimination, social exclusion and barriers to diagnosis. An awareness and understanding of the condition can be enhanced by dementia care training, educational programmes and media.

	4.3.2 Communication (give/take) Clear communication can help people to live well with dementia. Deep listening to understand the needs, wishes and emotions of people with dementia should be promoted as their dementia progresses. However, communication techniques should be shared with care stakeholders to support training and communication with people with dementia. **4.3.3 Identity** People with dementia may lose their sense of self-worth, or feel depressed, agitated and withdrawn as their symptoms progress. This change of identity should be countered through ADLs and group activities.
4.4 National character	National character should be enhanced in dementia care facilities as a perception of personality characteristics based on shared beliefs. Groups of people from a particular nation may share certain characteristics or behaviours. **4.4.1 Perception of dementia (existing culture)** Stakeholders should have an accurate perception of people with dementia to counter misconceptions. In general, dementia can interrupt or slow cognitive processes, and this changes how a person understands the world around them. Hence, care training can enhance the standard of dementia knowledge.

	4.4.2 Personality The current personality of a patient with dementia should be examined because, in the early stages, people with dementia may experience behavioural and personality changes such as increased irritability, anxiety and depression.
Domain 5: Self-actualisation	In Maslow's hierarchy of needs, self-actualisation is the final stage of development. It represents the completion of one's potential, and the complete development of one's abilities and appreciation of life. Individual creativity, a quest for spiritual enlightenment, the pursuit of knowledge and the desire to give to and positively transform society are examples (Gholamnejad *et al*., 2019).
5.1 Roles	The theme of 'roles' initially explains the link between self-identity and work roles, arguing that employees' identities and ideals need not necessarily correspond to the mundane work required in their constrained positions (Sirris, 2019). In dementia care, by learning and respecting changing identities, the concept of identity is used on a more personal level. It suggests that people have desired self-images of themselves. **5.1.1 Lifestyles** Roles and routines are formed by scripted and unscripted patterns, which are brought into performance following a situational assessment. Performances trigger patterning processes, prompting the co-

	construction of the role and routine patterns (Rosales, 2020). However, lifestyles should be observed and expressed in their daily activities.
	5.1.2 Person (role-play) Dementia care facilities may call people with dementia 'clients' or 'guests'. Effective role-play demonstrates a standard patient in order to teach interpersonal and communication skills (McIvor and Karnes, 2019). Therefore, management policy should enhance role-play to improve the care of end users.
5.2 The Self	For designers, the Self should be applied as a design concept for end users. The distinction should be regained, as shown in experimental studies on the underpinning of the phenomenal self and perception of oneself as a person. **5.2.1 Physical functioning** Designers should focus on physical functioning as it overlaps with organisational culture, which should be an area of focus. Educating caregivers in applying techniques, tools and other personalised skills with other staff members and their care receivers can be valuable. **5.2.2 Cognitive Functioning (capabilities)** The different cultural perceptions and languages of caregivers are perceived as limitations. However, the cognitive functions of people with dementia, such as decision-

	making, should be evaluated before they participate in activities.

The development of the design framework for an enabling environment for dementia care was re-translated into different layers of architectural design and spatial interpretation. The tools were added with three dimensional renderings and diagrams which should be used by designers and architects.

9.5   Conclusion

In the context of dementia care, the focus of healthcare was shifted towards their experiences, values, and quality of life and their participation in care and treatment, which design becomes the main research tool (Groeneveld *et al.*, 2019). Simultaneously, the capability to design effectively (Khadilkar and Mani, 2013) required co-design as the primary research method. According to the data triangulation, the design of an enabling environment illustrates interdependent needs, which can be traced back to the work of Maslow. The co-design workshops' main objectives and research questions were intended to internally validate how the design framework could be contextualised in transferable contexts and cultures by involving potential user groups in the design process. The co-design workshops were conducted in two case studies where the gatekeepers had recruited the research participants (including care managers, care professionals, and caregivers).

Consequently, in addition to the co-design workshops, five domains, 17 themes, and 34 sub-themes were also discussed. The co-design workshops led to a revised design framework structured along five main domains.

10 DISCUSSION

10.1 Introduction

This chapter presents the five key domains, which support the design of an enabling environment for dementia care. The chapter discusses each domain. Referring to the five domains, which include creative functionality, organisational security, embodied selfhood, interpersonal self-esteem, and self-actualisation, the design framework links motivation by human needs to a human-centred design process for capabilities, which leads to an environmental design for action. In addition, it recommends that the care stakeholders achieve these needs. This indicates the duality of scales which involves personal and communal (collective). Consequently, the chapter will introduce the relationship between design purpose and design creativity. Design recommendations will be explained at the end of each domain.

10.2 Development of Design Framework

The research findings of this PhD demonstrate that the design of an enabling environment for dementia care should be based on the needs of the end users. An enabling environment that is safe and comfortable can reduce specific behavioural stressors, support available competencies, and reduce caregiver strain (Ruotsalainen *et al*., 2015). The tools aim to encourage and promote the development of inclusive environments. However, interpretation and translation between designers and the users are different. The end users' needs require the support from creative users who know how to use the resources (as shown in Figure 159). The first domain, creative functionality, does not collide with any existing tools. This means that functionality initially means the safety and usability of the physical environment. The second domain, security, is the most frequent domain in the existing design and assessment tools. However, security includes safety and surveillance. The third domain, belonging, describes the meaning of place for the users. This expands the meaning of social and interaction aids, which also concerns feeling and place-making. The fourth domain presents self-esteem, which is one of the most essential themes to explain about universal quality and the dementia care ethics. The last domain, self-actualisation, relates to policy and care training. The hierarchy of needs and growth needs does not lessen but increase from a desire to grow as a person (Kenrick *et al*., 2010). People with dementia and caregivers may achieve the highest level called self-actualisation once these growth needs have been relatively satisfied (Runco, Ebersole and Mraz, 1991).

Figure 159 The Developed Design Framework

10.2.1 Design Framework for Design Thinking

According to Figure 160, the design framework was analysed into two main areas: the environment and a person. Briefly, the environmental perception and behaviour approach is based on a human–environment relationship paradigm that considers a recursive process of interaction or transaction between people and their environment. This argues that the developed design framework is an enabling environment for affordances between people with dementia and their caregivers. The dual qualities of interpersonal support are explored by Kyttä (2003), who uses the concept of affordances on children's environments in transactional person-environment research, emphasising the importance of the emotional dimensions and the motivational basis of activity, especially between caregivers and people with dementia. The design framework links motivation by human needs to a human-centred design process for capabilities, which leads to an environmental design for action. Design, therefore, can be interpreted as creative problem solving, which uses creativity to develop new ideas and to solve problems. By separating divergent and convergent thinking styles, the process is focused on creation at the first stage and evaluation on the late stage (Lim and Han, 2020). Designers must create objects' affordances to conform to users' needs based on these users'

physical and perceptual capabilities, goals and past experiences. Based on affordance concept, the design of learning space should be applied teaching and learning activity, especially learners' behaviour, physical space condition to support the design thinking process.

Design is a cognitive process that consists of three interacting processes – goal elaboration, design generation, and design evaluation (Khadilkar and Cash, 2019). In this case, design thinking is variation of new semantic and material combinations, which relates to the discipline of occupational therapy practices (modification of environment and client-centred design) (Hammell, 2015). In specific terms, as outlined in the framework, the occupational therapy process consistently uses the previously mentioned design thinking principles effectively by applying empathy via the therapeutic use of self within the framework of client-centred delivery (Mollo and Avery, 2017). The first domain empathises with the users by the design purpose and meanings. The second domain is to define the users' capabilities. The third domain is acknowledged of how to occupy their personhood. The fourth domain is recognition and how to prototype it in the context. The final domain is how to test it in the context. The creative process can also be viewed as a humanistic force in ongoing growth and development – in actualising one's potentialities. Maslow, who spoke of self-actualising people, viewed self-actualisation as a peak in his hierarchy of needs, and self-actualising creativity (versus special talent creativity) as linked to this (Richards, 2011). The design domains of enabling environment for dementia care should be developed into the whole system. Hence, the whole design should match with the users and be modified according to the end users. For duality of design, contrasting intellectual traditions constitute a duality, where the concept implies an ontological distinction between two different ways of seeing and engaging with the worlds (Rylander Eklund and Simpson, 2019). The main contribution is to theorise a duality of building institutions and quick capital investment.
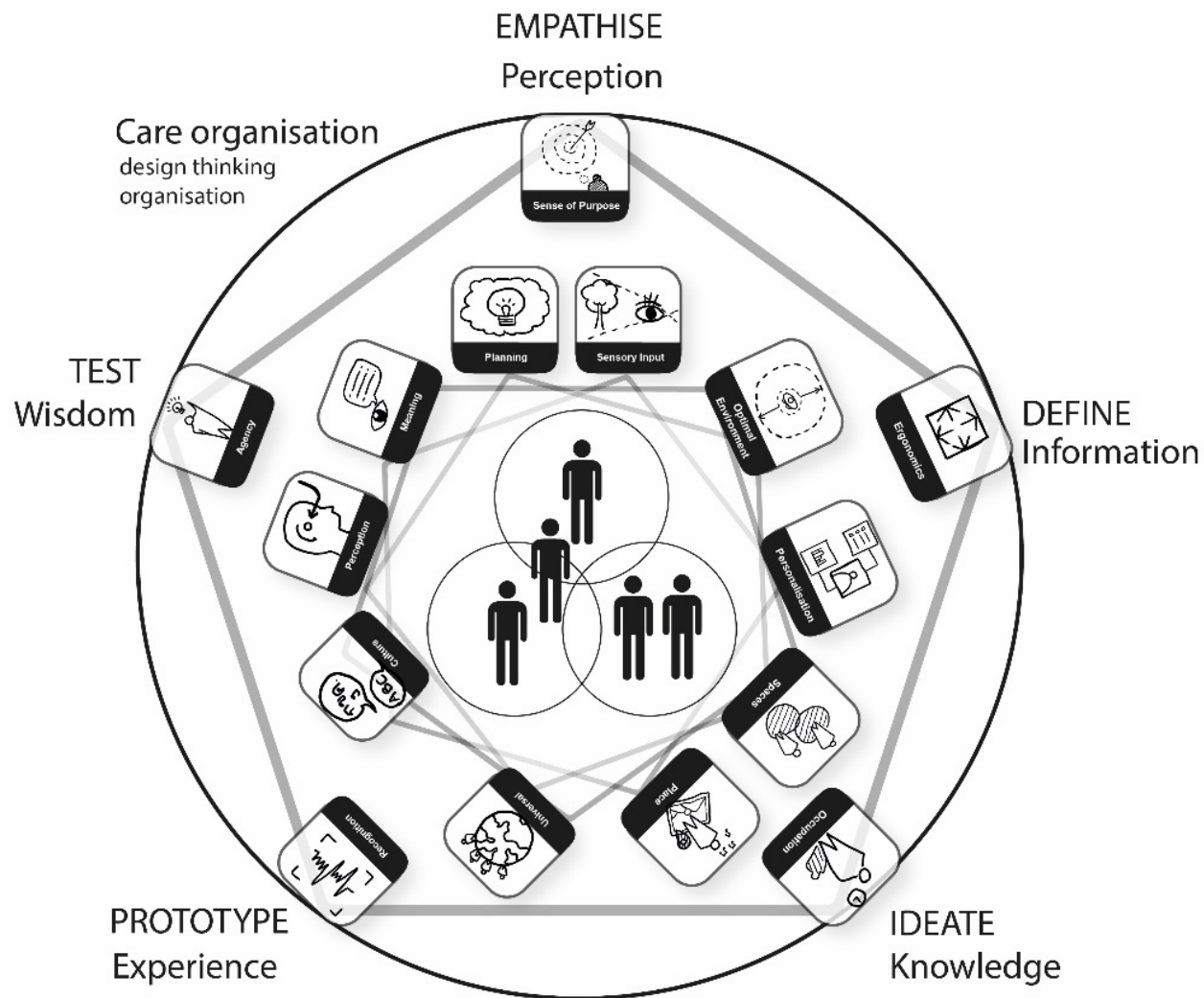
Figure 160 Relationship of Design Framework and Design Thinking

Organisational design culture creates empowerment in care organisations. The process on capacity enhancement of individuals and groups by care training can transform these choices into desired actions and outcomes (Krist *et al.,* 2017). The contemporary view of capacity building transcends the conventional perception of training and identity. The conventional application and interpretation of inclusive design have mainly focused on physical inclusion, usefulness, and usability rather than the psychological or social dimensions of inclusion or exclusion. The dominant role of perception of the creative design process is considered as a perception-in-action process (Tschimmel, 2011). This links to a model of the methodological design paradigm proposed by Schön (1983). According to Figure 161, the five procedures are not linear but intersect with each other (Tschimmel, 2011). Aragon, Jimenez and Valle (2014) introduce a distinctive focus on using workplace learning to develop practices that enhance the capacity of the manager and work team to support the ongoing relational work of its individual members. The workplace learning research develops practices that enhance the capacity of the manager and work team to provide compassionate care. Therefore, the translation between meaning and purpose in life contains a spiritual component, which may relate better to constructs of meaning and purpose and successful psychosocial development, reflecting a spiritual nature (Varahrami, 2001).

In the context of dementia care, Kitwood (1997) identified several fundamental psychological and social human needs for culture change. As a result, person-centred care and care environment should involve creative problem-solving. Person-centred design should be dynamic (Figure 162) (Kettley and Kettley, 2015) and should place the person at the centre of their own care (Coulter and Oldham, 2016). The care procedures are contributed with the person who is supported and facilitated (Babiker *et al.,* 2014), through a decision-making, equality of communication with a mutual respect (Mitchell and Agnelli, 2015). In this case, problem-solving in everyday activities is essential in dementia care (Mienaltowski, 2011; Kimbler, 2013). Loss of competence in complex tasks of daily living is a hallmark feature of eliminating illness (American Psychiatric Association, 1994). The physical environment provides supportive design for the day-to-day functioning (Woodbridge *et al.,* 2016) cueing behaviour and signalling required responses (Freeberg *et al.,* 2017). Likewise, the concept of 'being in the moment' and situating it within a continuum of moments alternatively contextualise and frame the lived experience of dementia (Keady *et al*., 2020). However, traditional forms of creativity are associated with arts or other mundane forms. The everyday life specifically shows how such creativity is used by people with dementia, their formal caregivers and relatives as a way of negotiating changes in their everyday lives (Bellass *et al.,* 2018). Hence, socially inclusive activities help to affirm personhood and redress the focus on loss and deficit (Bellass *et al.,* 2018).
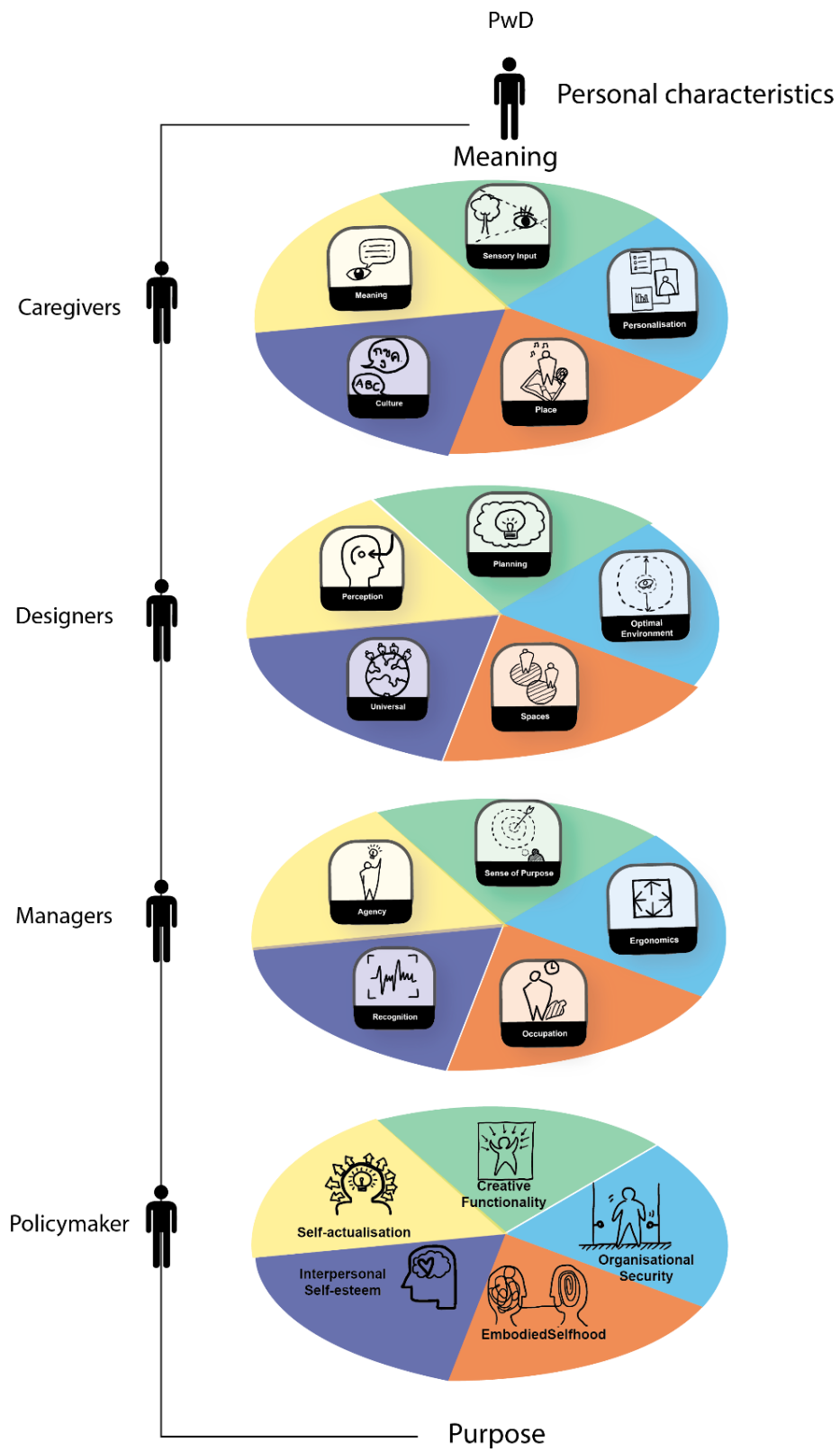
Figure 161 The Relationships between People with Dementia and Stakeholders
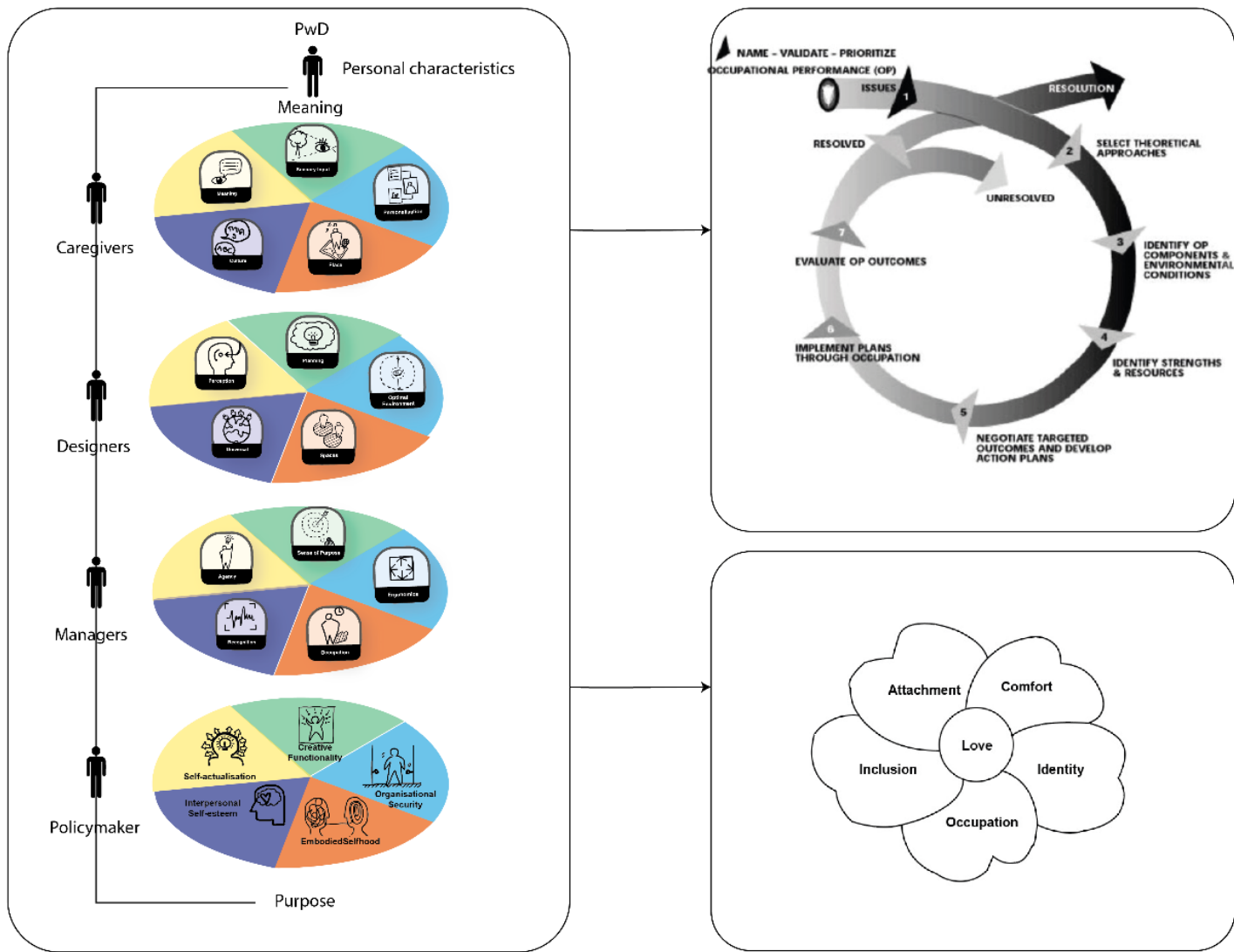
Figure 162 Comparison with Person-centred Care

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To date, there are no existing design tools for an enabling environment for dementia care. Most design for dementia care is evidence-based by comparing it with the current design tools and guidelines that focus on people with dementia. According to Figure 163, the first tool, Sheffield Care Environmental Care Matrix (SCEAM), measures the quality of the physical environment (Nordin *et al.,* 2015). The main domains are classified into eight different domains (Nordin *et al.,* 2015) such as universal needs of older people, cognitive support, physical support, safety, normalness, openness and integration, privacy, comfort, and choice (Omondi, 2018). However, the domains specifically focus on the physical environment of dementia care. Secondly, MEAP offers five main categories but does not match the findings' domains. Moreover, some of the DDAT categories by DSDC are also similar to the results. However, the themes of DSDC's tool focuses on the sensory design of the environment. Thirdly, PEAP offers ten domains, some of which are similar to the findings, for example therapeutic environment, however, the tool is only focused on the physical features.

According to the comparison, the domains are the inclusive needs of the care stakeholders rather than just people with dementia. Individualised data and personalisation are crucial in providing person-centred care for people with dementia. The development of the design framework evaluates and facilitates the work of designers and healthcare professionals in personalised dementia care (Wang et. Al, 2021). Figure 163 indicates that the existing design and assessment tools for dementia care have not been designed for use in the early design process. The main differences are how the users and designers see things/environments. As a tool for care, care has made unspecialised provisions which need a sense of coherence and inclusive approach (Kontoum Charitaki and Soulis, 2018) to the total environment (Habell, 2013).

The human dimension comes from the fact that reserves of humanistic development of economics, politics and culture are to be found in man himself, the development of his consciousness and spiritual capital. Without the development of anthropological capital, further development and improvement of society become impossible. In 1967, Antonovsky commented on an external factor which can be impacted and mediated by the psychological social and cultural resources (Vinje, Langeland, 2022). Despite of matter of luck or chances, the term adaptability can be interpreted in psychological, social, and cultural contexts (Chou and Lin, 2016), and was focused on the active adaptation of stress-resources environment (Antonovsky, 1987). Design for the sense of coherence works as a space for possibilities (Super *et al.,* 2016), which exposes a coping capacity for life stressors (Galletta *et al.,* 2019), including comprehensibility, manageability, and meaningfulness (Super et. al, 2016). Meaningfulness refers to whether how life's difficulties are perceived as 'welcomed'

challenges (Kauppinen, 2013) and are worthy for an energy investment, rather than a burden (Eriksson and Mittelmark, 2016). Ergonomics refers to the study of humans in their working environment (Salvendy, 2012), which an ergonomist designs or modifies the work to fit the worker (Sluchak, 1992). More specifically, the goal is to eliminate discomfort and risk of injury.

10.2.2 Ergonomics in Hospitality

Human factors and ergonomics are concerned with the fit between users, equipment and environment that accounts for the user's capabilities and limitations by ensuring that tasks, functions, information and the environment suit that user. The capabilities of dementia care are often discussed alongside assistive technologies. Simultaneously, architecture can be compared with assistive technologies. Organisational resources are all assets available to a firm for use during the production process. However, it can be designed in a scale of the built environment. People with advanced dementia are difficult in life planning and accomplishing practical reasoning for human capability (Dening, Sampson and Vries, 2019). As a result, capability approach by Nussbaum can ensure the normative structure which can ensure nurses to understand beyond basic needs. Other capabilities that are vital for a dignified life were considered (Melander *et al.*, 2018).

Consequently, 'needs-supplies fit' indicates resources provided by the organisation. As resources are provided by the organisation that employee is expected, needs and supplies are matched (Edwards, 1996). This explains how the needs of people with dementia are related to the care professionals, and how the capability management from care managers or designers can support the needed environment (Desai and Grossberg, 2001). The resources support the stressors of care professionals and people with dementia to promote health. Thus, designers need to consider contextual factors in which users live, and the different manifestations of the individuals' wants, needs, and preferences (Boustani, Schubert and Sennour, 2007). Nevertheless, as the human needs are met, additional needs are required. In contrast, 'capability' – in seeming contradiction – represents precisely a potential for (often intentional) choice and action (Alkire, 2006). A person's agency achievement refers to the realisation of goals and values (Sen, 1995), although it may not connect with well-being (Sen, 2003; Crocker, 2012).
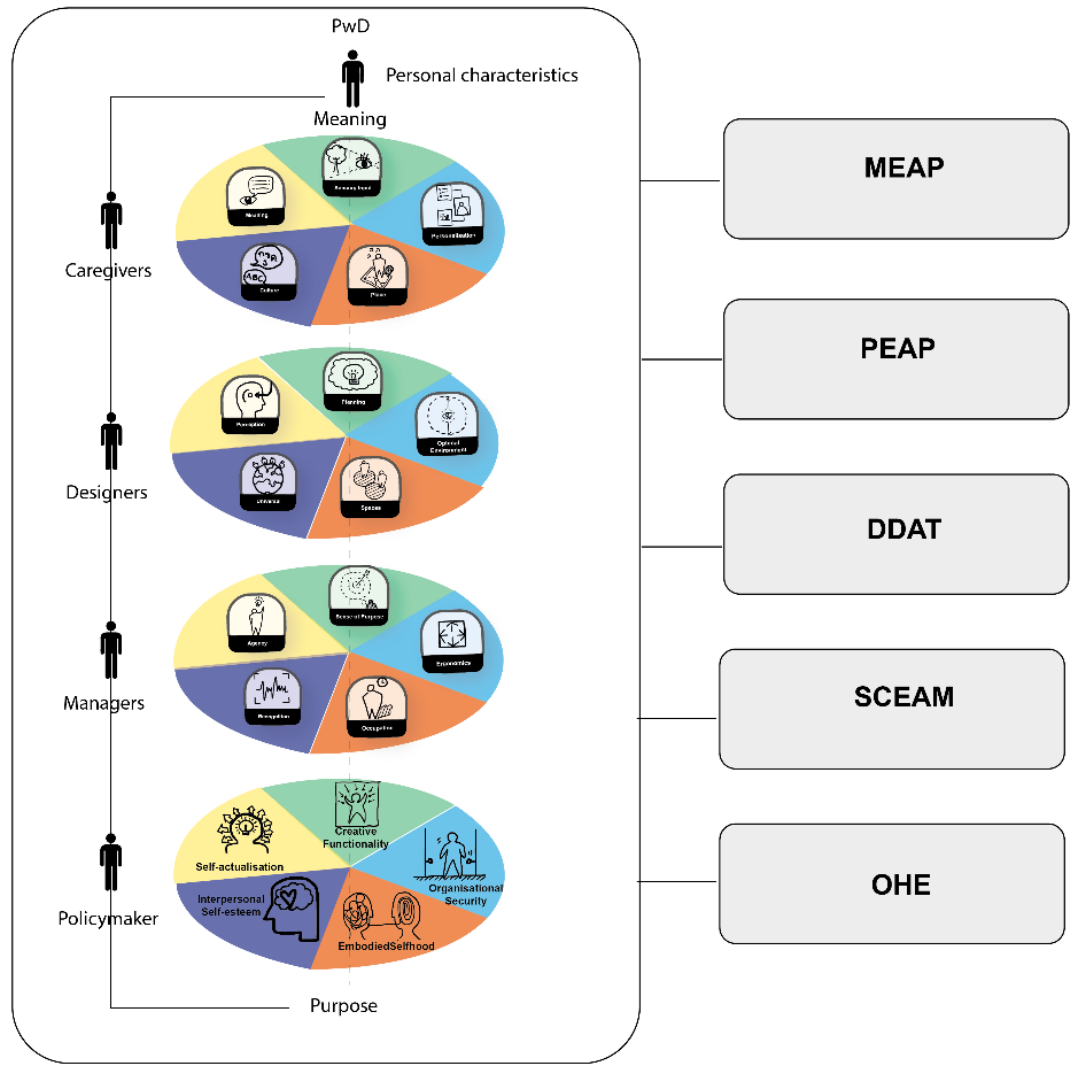
Figure 163 Comparison with Existing Design Tools

By focusing on the person and system centred, De Paula, Dobrigkeit and Cormican (2018) developed a conceptual model – a design thinking capability model (DTCM) – to map out the design thinking capability in business organisations. These dimensions are all in the scope of design management and product development literature (Micheli *et al*., 2012; Liedtka, 2015). By implementing with hospitality disciplines in care industry, dynamic capabilities allow rapid adaptation to the environment by generating competitive advantage and hotel performance. In many economies and innovative environments, creativity has become a key factor for a wide range of productive activities within large corporations or in small-scale social enterprises anywhere in the world. Dynamic capabilities become crucial due to core capabilities (Culek, 2019), which reconstruct the environment to sustain capabilities approach (Cillo, Verona and Vicari, 2007). Rather than architectural design, service design capabilities explore current service design practices on value creation and enables designers to facilitate the emergence of design capabilities that are latent in communities and individuals (Morelli, de Gotzen and Simeone, 2021). However, this depends on organisational design, and the process of aligning the structure of an organisation with its objectives. The setting of duty of care as guests and clients as neutrality can serve as a benchmark. If care organisations have a clear policy, the employees usually possess a clear duty of care (Kieft *et al.,* 2014). In the hospitality business, one must enact emotional neutrality, a technique for suppressing emotions while displaying unemotional behaviour; here, this suppression is the performance itself (Ward, 2015).

Furthermore, a tourism experience can be interpreted as activities that people engage based on their personal will (Vada, Prentice and Hsiao, 2019). Person travel narratives and experiences are created by each tourist (Rakic and Tivers, 2012), which satisfy personal needs (Owsianowska, 2014), and a meaningful life goal (Cavagnaro, Staffieri and Postma, 2018). Another challenge is designing such holistic tourism systems while embracing diversified tourists' sustainable values of experience (functional values, social values, emotional values, and epistemic values). However, evidence suggests that people with dementia receive the medical treatment they need but are sometimes left feeling depersonalised and alienated with their overall treatment, while the tourism sector is starting to recognise the dementia concept. Gestalt theory (proximity) and attachment theory emphasise the sociable nature of the child (Sternek, 2007); hence, they try to consider all the factors within the whole system. The field theory, developed by Kurt Lewin (1963), can be similarly reflected as the so-called "life-space" (Heft, 2022), which a person and environments are regarded as a dynamic constellation of interdependent factors and, therefore, the behaviour of the person is influenced by this constellation (Sternek, 2007). Thus, accessible tourism (neutrality) is an approach for all people, regardless of their physical or mental capabilities (Popovic, Slivar and Bozac, 2022) to be accessible to tourist destinations,

products, and services (Tatar *et al.,* 2019). Therefore, across societies, humans consistently seek inclusion over exclusion, and develop a need to belong (Allen *et.al,* 2021). As a result, care should be respectful and responsive to individuals with dementia's preferences, needs, and values.

Hospitality management describes an act of otherness that can demonstrate the feeling of detachment. The critique of transnational care argues that the needs of proximity with regard to the current nursing practice can be understood as striving to be in close proximity to the patient while in tension with pervasive requirements and societal changes (Lundin Gurne et al., 2021). Despite the attachment theory, reflection and discussion are necessary for nursing practice in an interprofessional context. This context requires the ability to strike a balance between emotional engagement and detachment, which constitutes the complexities of this relationship (Bailey et al., 2013). However, emotional labour's conceptions and associated practices vary widely across cultures, especially between the East and the West (Yang et al., 2019). Subsequently, the distance may be the primary tool for balancing the emotion of care labours by setting emotion regulation that involves stimulating to alter the psychological distance (Powers and LaBar, 2019). Therefore, the emotional labour engaged in by care stakeholders to provide personalised care for people whose cognitive degeneration renders conventional relationship-building quite difficult may depend on organisational culture and characteristics. Moreover, cognitive deficits can affect daily activities and functional mobility, thereby reducing the quality of life as well as caregivers' (Cipriani et al., 2020). Internationally, the concept of proximity is primarily used within the geography of innovation (Zamyatina and Pilyasov, 2017). Proximity focuses on evaluating and analysing potential interactions between different objects with regard to their relative position and similarity in various parameters. This concept, similar to that of economic–geographical position, considers significantly larger factors. In fact, proximity can be defined as a multidimensional economic–geographical hierarchy position between cultures. This straightforward law states that objects close to each other tend to be grouped together, whereas objects further apart are less likely to be grouped together (Bennett L. Schwartz, 2017).

In the research context, design hybridity indicates how contemporary craft and design practitioners negotiate and apply 'tradition' in the materiality of creative making. It aims to demonstrate how hybridisation is crucial to an innovative renewal of traditional craft practice (Horghagen, 2014). Initially, the design process of dementia care facilities starts with specifying the top-down approach, the global system state and assuming that each component has global knowledge of the system. The solution is decentralised by replacing global knowledge with communication with care stakeholders by the bottom-up approach

which the design starts with specifying the requirements and capabilities of individual components, and the global behaviour is said to emerge out of interactions among constituent parts, between parts, and the environment (Crespi, Galstyan and Lerman, 2005). The design research argues for Michel De Certeau (2011), which elaborates the ways of action and production created by the consumer against the 'strategies' of the system in daily life as 'tactics' of the user/consumer. Strategies are planning or frameworks of the dominant institutions and tactics are the everyday activities and how ordinary people use and appropriate the products by the dominant institutions. Hence, this establishes the construction of new cultures and perceptions of semiotics. At last, the design transforms into a culture-making process in new cultural forms and meanings are spatially and symbolically expressed in the environment.

10.2.3 Designing for Context

Consequently, context is critical, where a typology of context categories is relevant for understanding the significance of context for learning (Figure 164). The categories are location, which is understood both in a physical-geographical and an institutional sense, knowledge domain, sequence of occurrences, activity, historical period, social relationship, and horizon of significance. This addresses the contexts, structures, and processes of design co-creation methods considered essential practices in systemic design. Consequently, it is a combination of the Thai perception of hospitality/foreigners and Thai national characters (from cultural meanings) and safety perception. However, this depends on the management of care organisations (Olden, 2016). This shows that, in a certain culture, creative agents can be created who can shape behavioural design for dementia design and design for specific use. Hence, a sense of purpose and narratives for people with dementia are designed to engage in goal-directed activity which may experience everyday purpose and use (reduce agitated behaviours) (Tatzer, 2019). The relationship between people's access to resources and their likelihood enhances the formation of a new business. In this case a personal level resources might be more potent for new business creation in countries with financial and educational systems that are more oriented toward entrepreneurship, higher levels of trust, and cultures that are less hierarchical and conservative. Therefore, strategic design and dementia care support sustainable construction practices that consider the ecological, social, and financial performance of building. Therefore, the research study examines how to implement sustainable strategies that support healthy and safe living environments for both people with dementia and their families.
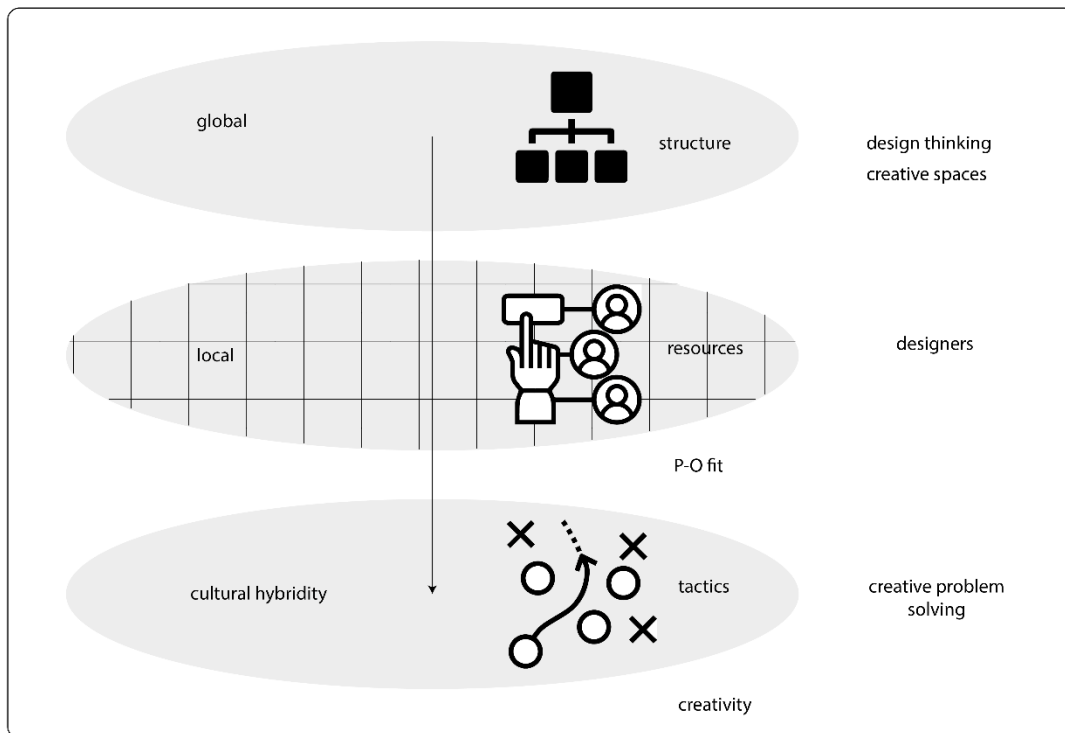
Figure 164 Context and Dementia Care

The sense of place is not monotonous, where places are cultural preconceptions that shape the way people respond to the place, and in some measure reshape the place to fit those preconceptions (Cross, 2001). As illustrated in Figure 164, the design of an enabling environment shows that Case Study 1 – a purpose-built resort typology – is a hybrid building designed to produce a mixture of the public and private activities occurring within, and is the mixture of general-resort typology, which blurs the identification of guests and patients. Case Study 1 mostly focuses on the atmospheric design, where Chiangmai, Thailand was sensibly chosen as the destination. The facility location and a destination indicate the advantage of site selection, by exemplifying the practice of new facility location for both businesses and governments to provide required resources such as climate, the natural environment, and availability of flat land. The strategic planning of tourism establishes performance architecture, which is an innovative direction of the architectural discipline and focuses on the sensorial and experiential elements of space. The results reveal that servicescape plays a significant role in determining place attachment. Consequently, an intermingling of Eastern and Western culture implies to a new mutation replaces the established pattern with a mutual and mutable representation of cultural difference that is positioned in the in-between, with translation and negotiation occurring in the third space. Thus, as the work atmosphere influences the

workplace, the innovative model of the tourism design system embraces diversified tourists' sustainable values of experience by involving environments in the care ecosystem.

Atmosphere of the communities are oriented towards the space around them with a particular mood or emotional tone, which their users can attune to. Community building is a subject of practices directed toward creating or enhancing community among individuals within a regional area. Within a dementia-friendly community, locals acknowledge the concept of dementia (Lin, 2017; Odzakovic *et al.,* 2021), and people with dementia can continue to live in their chosen community (Hebert and Scales, 2017). The design of an enabling environment for dementia care illustrates interdependent needs (Carnemolla *et al.,* 2021), which can be traced back to the work of Maslow (1943), who proposed the flourishment of human beings when a range of universal human needs are fulfilled (Acevedo, 2018). Therefore, the end-users' perception is a critical factor; they should be involved in design processes and results in new intra- and extra-organisational collaborations (Oygür and Thompson, 2019). As a person's perception depends on a context, the concepts of the world and placelessness are reviewed. In terms of "world", the totality of entities or the whole of reality were interpreted or defined as "[t]he totality of all space and time; all that is has been and will be". In other words, normative theories are based on the notion of the ideal standard, on what is "right" or "normal"; they have a more optimistic view of the world and generally focus on human rights and human security. It is the understanding of culture and depends on the perception of the world. Perception is based on the model of the world constructed by our mind, such that life reflects the beliefs and opinions people hold. Hence, perception is coloured by the experience of reality. Consequently, psychological processes influence culture, and culture influences psychological processes. Individual thoughts and actions influence cultural norms and practices as they evolve over time, and these cultural norms and practices influence the thoughts and actions of individuals (Lehman et al., 2004).

People are exposed to information about the world by the media (Figure 165). As architecture is a form of media, this information shapes one' s opinions about the world, attitudes toward the media themselves are also developed in the course of news consumption. As co-designing with the end-users can uncover their needs and preferences (Wang et al., 2019), reverse engineering enables the researcher to determine how a part was designed and then recreate the design to meet their needs. Co-designing by care stakeholders can engage with the reciprocity which a designers' (as an individual and/or a design firm) capability is the available (internal and external) effective options/resources to design (a product) Khadilkar and Mani (2013). However, there is limited research on design capabilities in dementia care. *Cognition is a* mental process of transforming, storing, and utilising information, (Chan, 2008), language

becomes universal and has broad, systemic effects on human social experiences because people actively construct meanings by their experiences through languages. The constructed meanings cause language to be a powerful leverage point for people to influence their own well-being and the well-being of others.
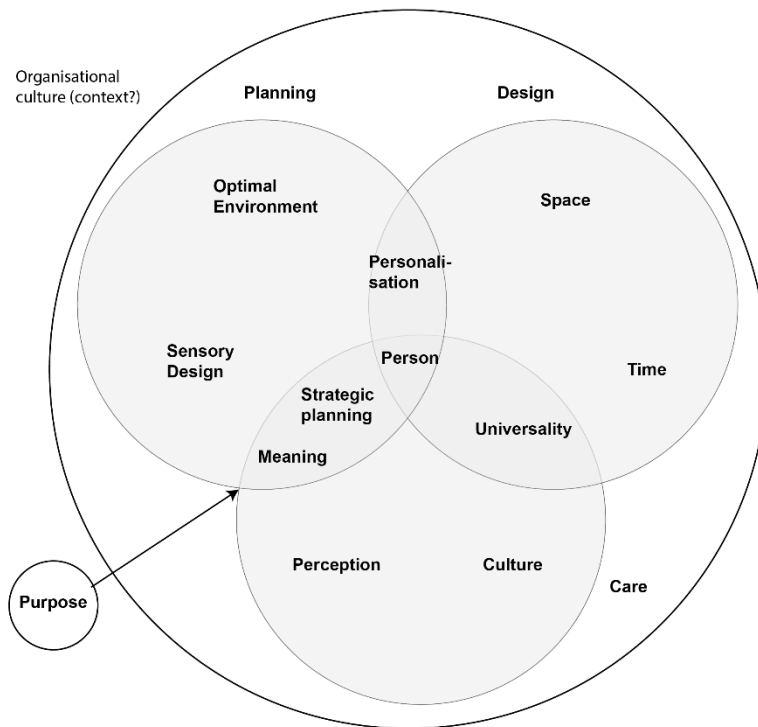
Figure 165 Conceptual Model of Design Framework

The following are the design recommendations from the analysis, which comprises five main domains: creative functionality, security, belonging, esteem and actualisation. The main principles of design of an enabling environment for dementia care (such as learning environment, social inclusion, and flexibility) are translated from concepts into the full architectural design features. The design of resort typology is influenced by the hospitality concept to enhance the multi-sensory experiences and positive tourist experiences. The recommendation was divided into three levels: planning, design and care. The design recommendations include the following:

- Planning (including business planning and master/neighbourhood planning)
- Design (including sensory stimulation and optimal comfort)

- Care as a strategy for an enabling environment for dementia care (including an area for walking and an efficient working environment)

In addition, an enabling environment for dementia care should be recommended as a policy for Thailand. Each section will explain how the emerging themes can be implemented in dementia care settings and were revised according to the resort typology.

10.3 Design Recommendations of Dementia Resort Typology

The dementia resort typology is unique and innovative in dementia care facilities, and enables people with dementia, their relatives, and care stakeholders to function as a comprehensive system. The typology aims to provide symptom management in palliative care, an innovative approach for dementia care facilities (Malhi, McElveen and O'Donnell, 2021) and offers an opportunity to expand and complete its facilities. The resort element offers essential services, including accommodation and catering. Unlike existing typologies of dementia care facilities, the dementia resort typology often starts with an initial design stage (from top-down to bottom-up) (Bentur and Sternberg, 2019). It is difficult to generalise about the trajectories of resort development for different destinations and local economies. In this case, disciplines of occupational therapists should be involved, applying their clinical reasoning to deliver skilled interventions with targeted outcomes (human function and sense of coherence = flow of design meaning) (Shafaroodi, 2017). The themes include the overall processes of planning, design and care. To develop the overall design for a dementia care facility, the earlier design stages should include planning, design and care. Following Figure 166, the scales of design recommendations (from planning to caring) will be explained below.
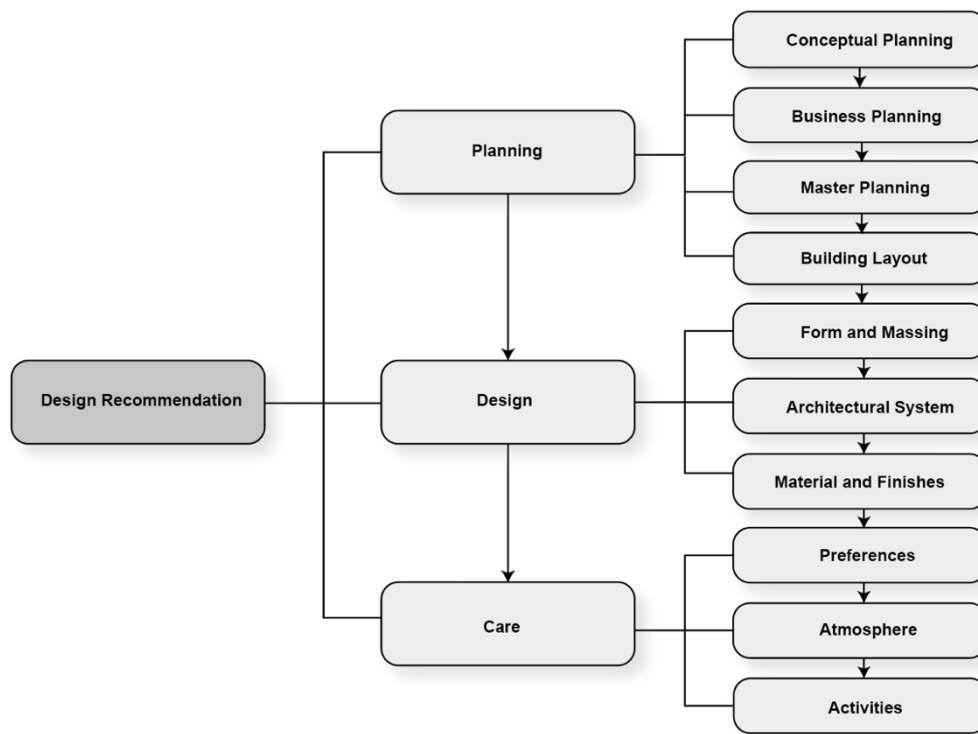
Figure 166 Design Recommendations

10.3.1 Planning

The planning phase for dementia care facilities initially involves conceptual planning – to generate a central concept and vision; business planning – to create a financial strategy for the care business to ensure it operates sustainably, and master planning to design an efficient physical layout for the facilities (as shown in Figure 167). Dementia care facility planning requires a framework to solve the problem, one which focuses on generating plans for a series of executable actions to solve an identified problem (Sarathy, 2018). The planning of dementia care often focuses on community planning or the master planning of dementia care facilities. However, the priority in the initial design phase is to assess the client's brief and the wicked problems of global dementia care.
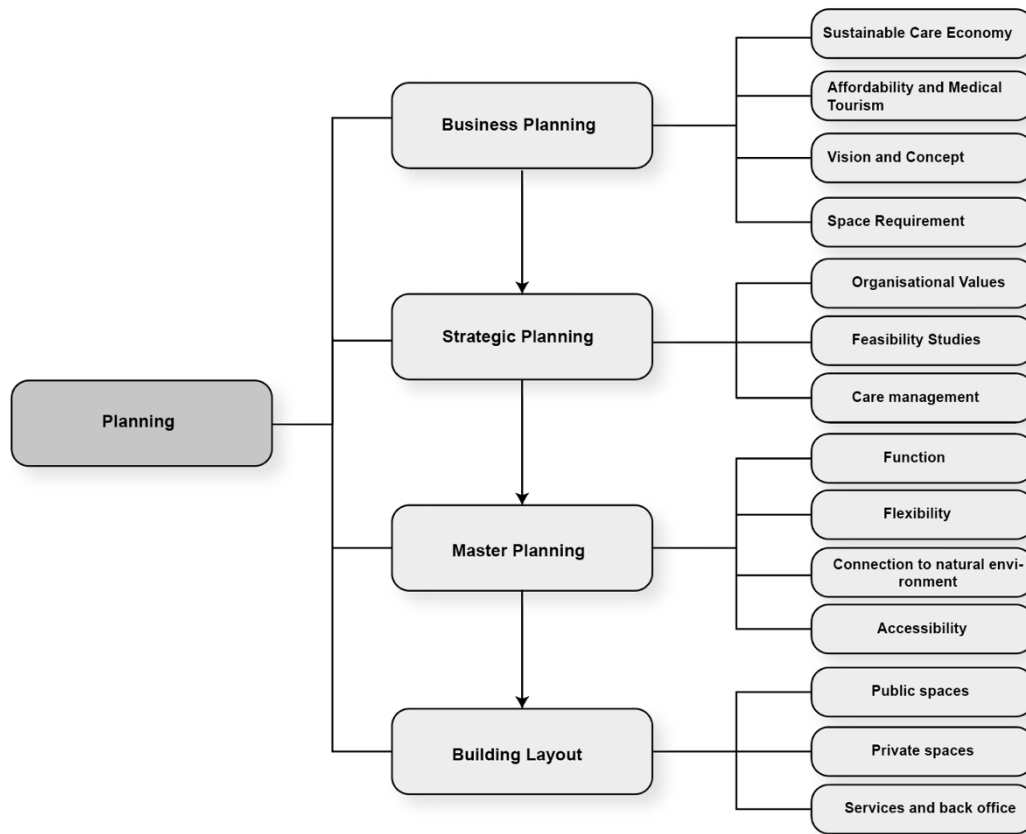
Figure 167 Diagrams of Planning Phase

10.3.1.1 Business Planning

The business planning of dementia care facilities is conducted by management, planning for business success (Weir, 2017). The process starts a collection of ideas that outline a business summary. Thus, the activities in or design of dementia care facilities are primarily based on budgets, feasibility studies and owners' perceptions (as shown in Figure 168).
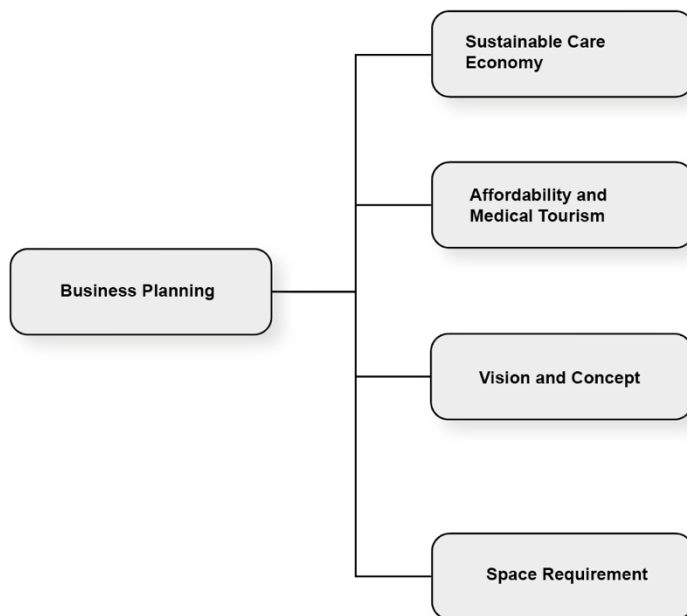
Figure 168 Diagram of Business Planning Phase

Sustainable Care Economy (Critical Issues)

Based on the business planning (as shown in Figure 168), the primary needs of the target market group are critical. Presently, the demand of older people, especially people with dementia, is increasing in all regions because of the growth of care economy (Cylus, Figueras and Normand, 2019). Even though the care facilities create a significant number of jobs, there needs to be more workforce. However, the care workforce worldwide is controversial because of low wages or non-compensation. Hence, the quality of dementia care should be improved.

- Regulations for the care quality can enhance dementia care business, which should follow both universal and contextual care regulations and design regulations of dementia care (Rodrigo, 2005). Moreover, the design regulations in the context must be developed and assessed by the local government in the context.

- The dementia care business should consider a partnership of different disciplines or expertise of other global care chains (Pratt and Johnston, 2022). The local government should also support the business and invite potential entrepreneurs by training skilled

caregivers in the local context. In addition, there should be campaigns or promotions to attract entrepreneurs to invest in care businesses. However, transnational care businesses must be sustainable.

- Care business models open new opportunities for hospitality (Kandampull, 2006), and care stakeholders should not be separated because they deserve and promote to live and work in the better quality of life. Hence, the freedom to travel and enjoy life is essential for all stakeholders.

- There should be affordable and sustainable resources for care staff in the context (Harris *et al.,* 2018; Keating *et al.,* 2021). The business owners or business stakeholders have to make sure that there are enough care resources in the selected context. Moreover, government regulations or policies must support the business model or capabilities.

Affordability of Medical Tourism

The leading target group should specify the care services. Medical tourism as palliative care services should be promoted for the needs of people with dementia and their relatives. In this case, people with dementia and their relatives are influenced to buy products and services as a target market group. The followings are some recommendations.

- Hospitality services should be adapted and applied to allow caregivers to experience a friendly hospital environment (Masclee *et al.,* 2022). Caregivers' sense of safety and comfort during hospitalisation can be shaped.

- In the form of a dementia resort, healing programmes are provided in dementia care facilities. Healing programmes, for example swimming pool, spas, and a fitness centre, should be provided inside the care facilities. Healing programmes are curated within the resort with the help of care facilitators.

- Pleasant and memorable places for individuals are formed as a set of activities to engage in tourism experiences (Lan *et al.,* 2021). The structured tourism experiences allow them to explore their experiences. In addition, a process from pleasure to a search for meaning are progressively created for their persona needs.

Vision and Concept

A concept, as an idea, theory, or notion, can provide a direction or approach to the design (Hodges, 2017). The dementia concept should be acknowledged in the more positive meaning concepts as the backbone of the invention by creating a cohesive and open-minded narrative. As a result, the idea can curate how the public perceives people with dementia. The followings are recommendations.

- A positive psychology approach enhances dementia care facilities to acknowledge about dementia-related knowledge and how to maintain their symptoms. Various types of exposure to the condition can be organised by family members, working with people with the symptoms, and undertaking dementia education.

- Symptoms and positive approach for people with dementia are enhanced in psychosocial environment (as the central concept) (Johnston and Narayanasamy, 2016). To maintain the atmosphere, positive psychology designs to complement and extend the problem-focused psychology.

- In the case of spirituality, sensory experiences and natural environments can lead to a spiritual approach (such as hope, positive thinking, design value, and wholeness). A design value is applied by designers and managers as a statistic describing a given location's sense of place. Hence, the natural environment can make users feel relaxed because life purpose is encouraged.

Space Requirements

Space planning requires the principles, which involve satisfying a defined criteria on a priority basis and refers to a complex process (Litman, 2020). Consequently, space planning is regularly about compromise to plan out the space requirements of a building. As a result, space requirements require programmes and its size as well as the site location to match the space requirement. Therefore, the dementia care facilities should have programmes as followings.

- The dementia care facilities should have suitable healing programmes inside the facilities. Therapeutic programmes are required in dementia care facilities such as living areas, dining spaces, and other leisure programmes. Natural environments are

vast areas of green spaces in dementia care facilities. Moreover, the context should be closed to available natural environments and scenery.

- Living areas for therapeutic environments (in dementia resort typology) are quite different from basic ones. This is included the design of living spaces, which are more like resort lobbies or very airy rooms to be very comfortable to sit in. Dining spaces in therapeutic environments have various choices for users to make. There are both restaurants and smaller-scale dining spaces, which are more casual.

- As people with dementia may experience agitation or anxiety, sensory experiences should be very calming (Sanchez *et al.,* 2015). Comforting music and smelling a familiar scent are accessible to help reduce agitation and encourage relaxation, improving overall well-being and quality of life.

- The dementia care facilities should locate in proximity to local communities and health infrastructures such as hospitals or local clinics. Accessibility to healthcare is different in geographical inequalities, which have only recently become a global health issue (Mulyanto, Kunst and Kringos, 2020). The chosen location should be significant in terms of a culture of care or famous for hospitality services where people are friendly to foreign customers.

- Accessibility to communities and tourist destinations differs from the previous planning for dementia care facilities. The resort typology can provide accessibility to nearby neighbourhoods. The scale of health promotion settings can be expandable.

10.3.1.2 Strategic Planning

In the strategic planning of dementia care facilities, the organisation's leaders define their vision and identify their organisation's goals and objectives (Weir, 2018). The organisational goals are established, and a process formulated to reach this stated vision. Strategic planning includes the application of context to dementia care facilities and encompasses three main themes: organisational values, feasibility studies and management.

Organisational Values

The organisational values of dementia care facilities are the beliefs and principles that guide how people think and act, and their behaviours, and may even inspire the company's creation (Alzheimer's Society, 2017).

- Care policies should focus on the psychosocial environment in dementia facilities: how stress is responded to, and how various sources of stress affect individuals and communities. The care settings are explored with the challenge of educating those who care for people with advanced dementia (Surr *et al.,* 2017). Owners or care managers should outline opportunities to learn about dementia care and the developments required. Hence, strong leadership should be promoted.

- With reference to Figure 169, education should be enhanced to train caregivers to give better care. Furthermore, dementia care plans should align with existing mental health policies, care coordination models, activities and programmes, and hospitality services.

- Public programmes should offer education and raise public awareness of dementia care. Partnerships between schools, universities and community organisations have mutual benefits for all involved (Curwood, Mackeigan and Farrar, 2011) by valuing the contributions of all participants and capitalising on the expertise and knowledge that each brings.

- Technological interventions may be combined with multisensory stimuli and digital media to create personalised environments for people with dementia. Dementia care facilities should operate with a combination of human workforce and technology.

- The personality of the workforce should match the cultural values (Yeke and Semercioz, 2016). In this case, cultural values are defined as shared beliefs and modes of conduct in particular contexts, which can influence the expression of an individual's personality traits. Importantly, leadership skills, traits and knowledge that are valuable in delegating, inspiring and communicating effectively should be applied as criteria for recruitment.

- Partnerships with skilled experts, those with expertise in providing care to the older people and other policymakers and academics should be enhanced in a collaborative design process.

Figure 169 Example of Educational Spaces in Case Study 1

Feasibility Studies

A proposed project may be initially explored to determine its merits and the viability of the dementia care facilities. This feasibility study aims to provide an independent assessment of all aspects of a proposed project including technical, economic, financial, environmental and legal considerations (Shim and Kim, 2022). Construction costs and costs of care are also included.

- The construction costs of dementia care facilities are calculated according to the overall costs incurred during the design development phase. Thus, the construction costs should reflect the actual construction works and may be determined by the value of the contract,

- The location is also an important factor in terms of building style and type which can affect the cost (Cunningham, 2013). The dimensions of the land should be sufficient

for the main space requirements, with room to expand. The ratio of end users to available space should be calculated.

- The costs of care, care packages and services are influenced by the total cost of dementia care which is estimated to increase rapidly (Braun *et al.,* 2020). The dementia care facilities should also provide and plan service spaces for other user groups, such as local tourists or local people, to enjoy the space as well.

- Care-workforce resources (including considerations of affordability, culture and staff ratio) and site analysis in long-term care (LTC) systems should be able to adapt (Lee *et al.,* 2022). The service demands of older people, especially people with dementia, on the workforce will gradually increase, raising concerns over financial sustainability.

Care Management (in context)

A promising team-based and people-centred approach to care management will be designed to assist people with dementia (James, Valois and Zweig, 2015). Medical conditions are supported by the management system, which coordinates all the activities required to manage the symptoms. Grounding and strategies, including regulation and target market groups, are required.

- The dementia care business should follow both universal and contextual care regulations and design regulations in dementia care. Moreover, the design regulations in the context must be developed and assessed by the relevant government.

- Person-centred care should be the main care philosophy for dementia care stakeholders (Fazio, 2018). In this case, care, dignity and respect are the most important values when working on a dementia care policy.

- The flexibility of facilitators and available resources can enhance the creativity of care stakeholders (Crable *et al.,* 2020). For example, the resources available can offer possibilities for care stakeholders to use tools for problem solving.

- Staff ratios and well-being are major factors in determining the activities and motivation of care teams (Rosen *et al.,* 2018). Proactive management of the duties and roles of care stakeholders can reduce their workload and stress.

- Occupational therapists should be recruited as key team members to manage the needs and ambience in the care teams.

10.3.1.3 Master Planning

The master planning of dementia care facilities develops and improves the built elements and use of land through a long-term plan that balances and harmonises all elements (Gaugler *et al.,* 2014). The master planning process is completed in the initial phase and helps to define and unify the vision of the space. It involves collaboration with the broader social sector, including regulatory ministries of, for example, the environment, transport, infrastructure and housing). It must promote the concept of dementia-friendly communities which support the living conditions of people with dementia, their caregivers and their families. Thus, flexibility, site orientation and layout, as well as site accessibility and functionality, should be included in the design element of the master planning process.

Function

Function plays a core and beneficial role in architectural design (Architects' Council of Europe, 2019). In this case, 'function' refers to the intended uses and activities or, as architects term them, programmes. Function describes the human side of the operation, from the inside out. Hence, forms, features and building placement must reflect their intended use and respond to users, while allowing future adaptations or improvements. The following are the design recommendations for the function of the care facility.

- In the spatial hierarchy, the site layout of the neighbourhood (as shown in Figure 170) should take into account the need for surveillance and the efficiency of monitoring. Thus, the private rooms should be in the centre of the property as far as possible, while public facilities such as restaurants or cafés should be located at the entrance of the care facility to invite customers in and monitor end users before leaving the property.
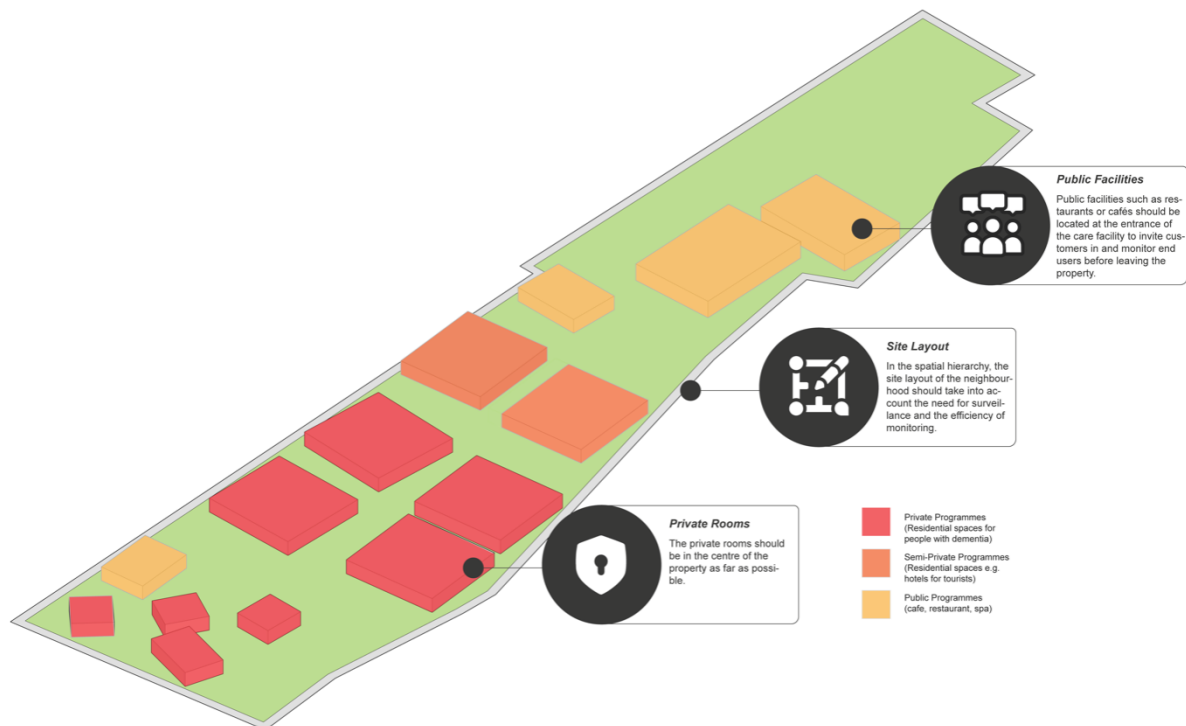
Figure 170 Master Planning Recommendation

- In line with Waller and Masterson (2015), within the nursing areas, nursing stations should be located centrally in order that nurses can observe how people with dementia walk in the wards or within an indoor environment. Gates are designed to set boundaries within the site.

- The spatial organisation should unite a series of disparate shapes, which can be organised into patterns that relate to the interaction between programmes. Such spatial relationships are used in building design to promote various organisational approaches.

- Residential rooms should be situated in groups and clusters (10–12 people) to use the care staff ratio to maximum effect (as shown in Figure 171).
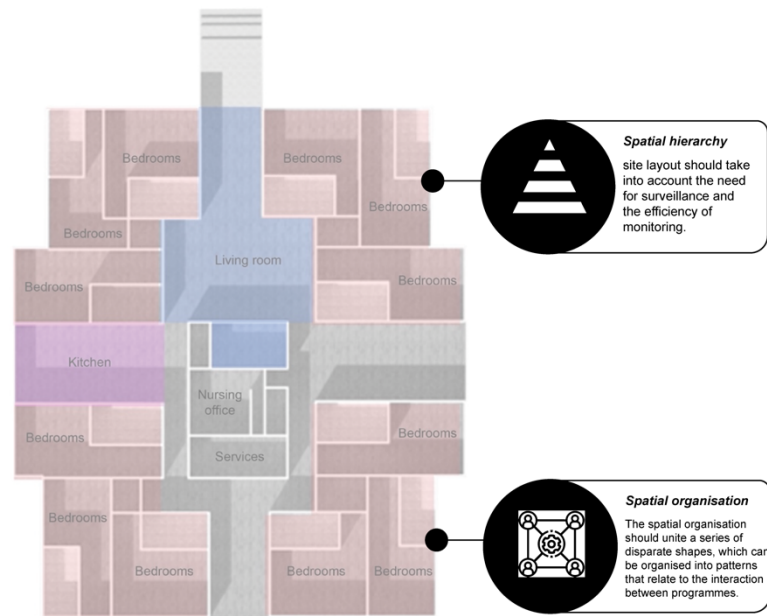
Figure 171 Example of Floorplan (Case Study 1)

- The programmes should be arranged horizontally to support user accessibility. If space is limited, the number of floors should not exceed two.

Flexibility

Design flexibility allows a building's design to evolve according to user needs. Elements of the design can enable changes in operational requirements (Reisinger, Knoll and Kovacic, 2021), allowing for different types and sizes of space for each programme and perhaps using modular multipurpose furniture that can be moved for different programmes. However, a wooden building might become obsolete. The following are the design recommendations for flexible planning.

- Various room types and sizes should be available in dementia care facilities to match different personal needs and budgets.

- Different types of multifunctional space should be available in both indoor and outdoor environments (as shown in Figure 172) to meet the various needs of people with dementia and their caregivers. Flexible spaces for different weather conditions (rain or sun) should be provided.
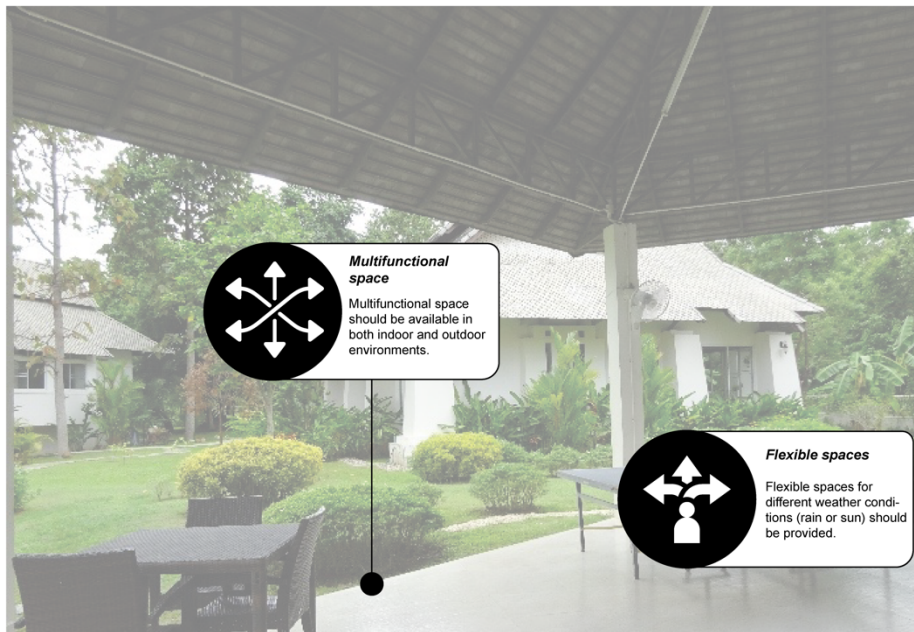
Figure 172 An Example of Multifunctional spaces in Case Study 1

- Various programmes (as shown in Figure 173) within dementia care facilities should be enhanced to allow end-users a choice. The available types of activity should allow them and their caregivers to plan and select their lifestyles and schedules.

Figure 173 An Example of Outdoor spaces in Case study 1

- The design of the physical environment should be flexible and have the capacity to expand to suit space and lifestyle requirements (as shown in Figure 174).
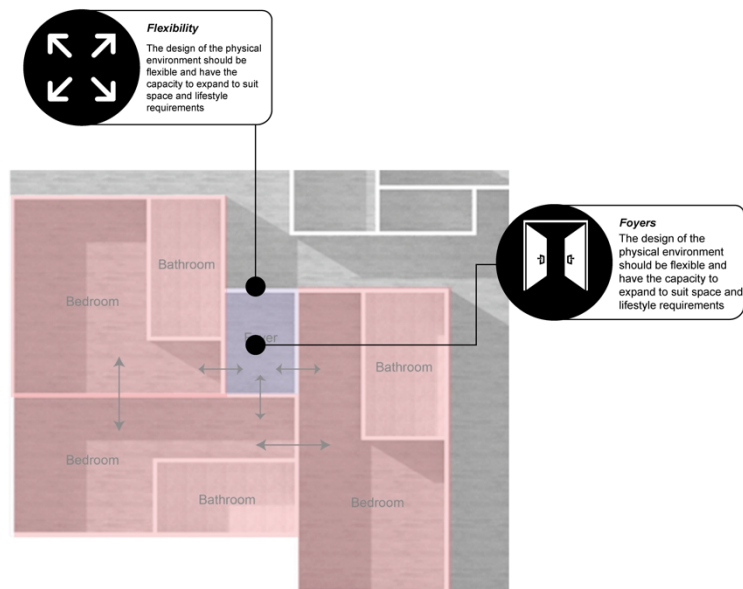
Figure 174 Example of Room Flexibility

Connection to natural environment

Human beings must interact with the natural environment within their physical environment to experience both natural and artificial materials (Myers *et al.,* 2012). A connection to the natural environment can benefit people with dementia, giving them an increased sense of well-being and allowing them to relax and feel familiar with a place. Moreover, such connections can support their sense of home and spirituality within the location. The following are the design recommendations for a connection to the natural environment.

- Building orientation and how each programme interacts with the context can affect the relationship of buildings to the wind and sun. The building design should integrate the natural environment with the building orientation.

- Natural sunlight should be taken into account in locating buildings on the site relative to their context. The direction of the sun is relevant in measuring shade. Optimising the orientation of a building is easier for solar exposure in a new building design. Other factors to be considered include the direction of the prevailing wind, views, topography and surrounding landscapes, communities, and streets.

- In landscape design, gardens may be designed to include therapeutic activities specifically to support people with dementia (Murroni *et al.,* 2021). Therapeutic gardens aim to maximise retained cognitive and physical abilities and to reduce confusion and agitation, which may be symptoms of dementia (Murroni *et al.,* 2021). Furthermore, a sensory garden can be included in dementia care facilities to stimulate the senses of sight, touch, taste, sound, and smell in people with dementia.

- In addition, water features and lakes can be situated in dementia care facilities (Figure 175). Exposure to green and blue spaces in natural environments can benefit physical and mental health (Zhang *et al.,* 2021). If space is limited, a fountain can be included to generate the sound of water.

Figure 175 An Example of Scenery from Multi-functional Spaces in Case Study 1

Accessibility

Accessible design allows users to enjoy and benefit from the flow of the built environment (Zallio and Clarkson, 2021). Accessibility should be enabled and supported by wayfinding strategies and space for walking. A colour-blind person can still differentiate between distinct design elements. The following are the design recommendations for accessibility.

- A wayfinding strategy is essential in informing people of their surroundings in an unfamiliar built environment (as shown in Figure 176). In this case, information is shown strategically to guide people with dementia in the right direction.

- Signage with easy-to-understand graphics or wording should be provided. The font should contrast and be large enough for easy reading. Lighting should be provided at night.
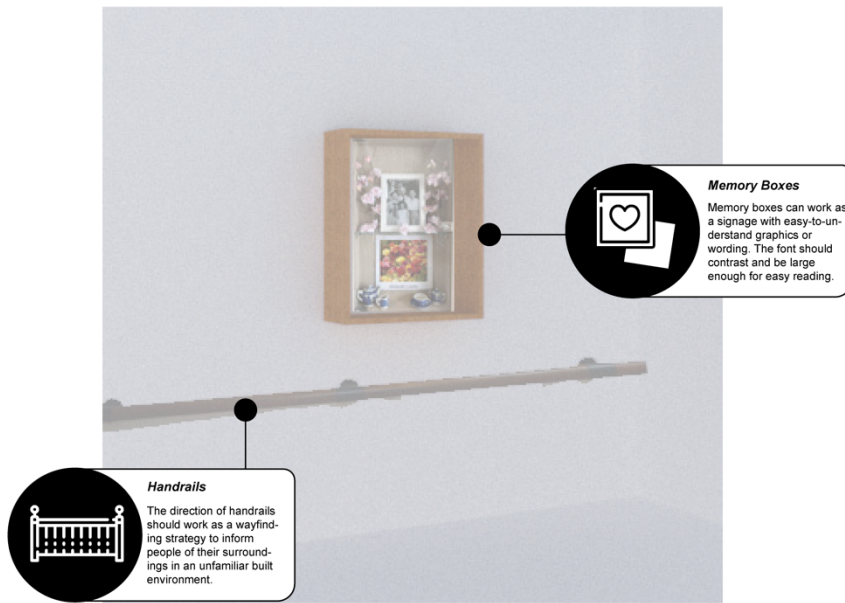
Figure 176 Example of wayfinding tool at corridor

- Sufficient space for walking should be allowed (as shown in Figure 177) and the surface of the walkway or corridor must be smooth and even. Steps or ramps should be proportional and not excessively high to reduce the risk of falls. Most of the flooring should be flat. Ramps and one-floor buildings offer greater accessibility.
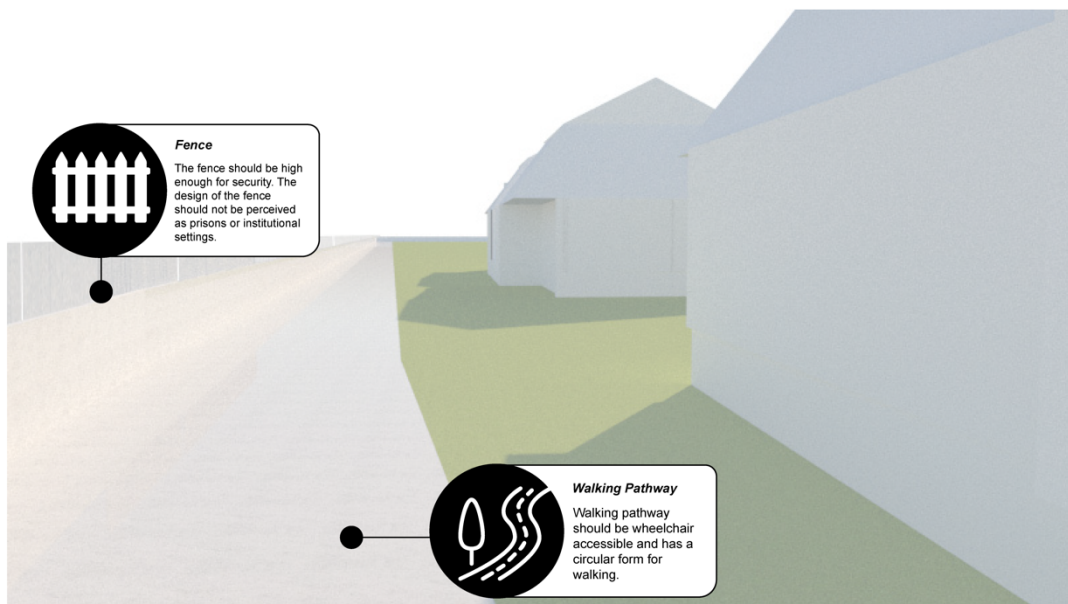
Figure 177 Design recommendation of accessibility

- Mobility supports should be provided, including handrails and wheelchair ramps. The corridor should be wide enough to allow wheelchairs to access and pass through all spaces (as shown in Figure 178).
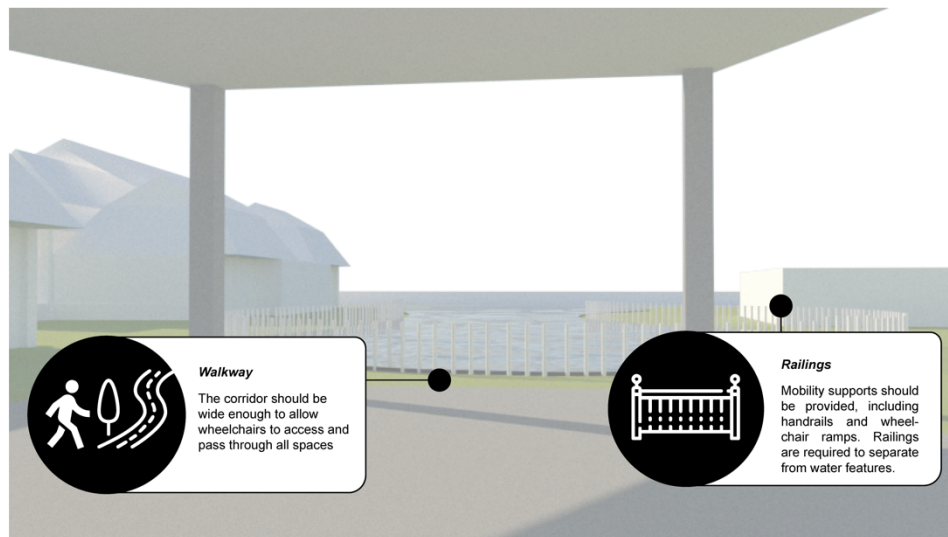
Figure 178 Design Recommendation of Accessibility

10.3.1.4 Building Layout

The building layout can help people with dementia and other stakeholders navigate the dementia care facilities (Innes, Smith and Bushell, 2021). The space may be owned and maintained by an individual, family or institution (Rakel, 2016) rather than being completely in the public domain and this has implications for people with dementia. Hence, the building layout must be focused when planning dementia care facilities. The following are the design recommendations for the building layout of dementia care facilities.

Public spaces

People with dementia should be encouraged to walk and access suitable outdoor spaces. The public infrastructure is intended to meet users' needs to access communities. However, some dementia care facilities are limited in that design principles cannot be applied to all public spaces due to budgetary and cultural restraints. Public spaces such as restaurants or cafes

should be situated at the front of the dementia care facilities. The primary public spaces are living spaces, kitchens and outdoor environments.

- Living spaces are multi-functional spaces where users can eat as well as relax at the same time. They should be flexible spaces where users can arrange the furniture themselves (as shown in Figure 180 and Figure 179). They contain different furniture for people with dementia to select based on their preferences and needs.
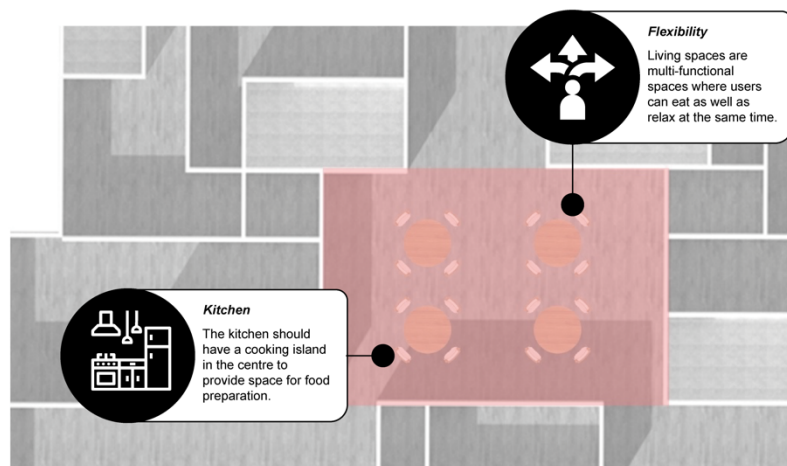
Figure 180 Plan of Public Spaces (Case study 1
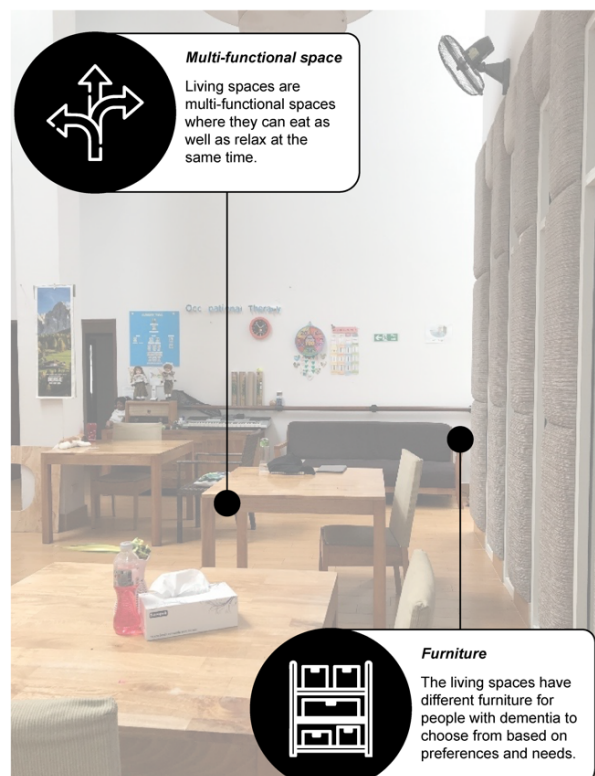
Figure 179 Example of Public Spaces (Case study 1)

- A communal kitchen should be located at the centre of the living space so that users and caregivers can see others while cooking and eating (Figure 181 and Figure 182). The doors should be opened because the smell of food may stimulate the appetite of people with dementia (Verwijs *et al.,* 2022). The kitchen should have a cooking island in the centre to provide space for food preparation.
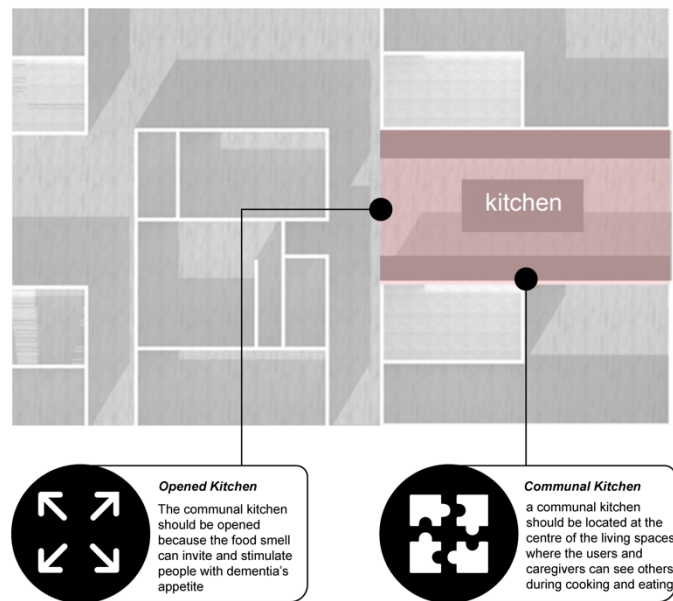
Figure 181 Plan of Kitchen Spaces (Design Recommendation)
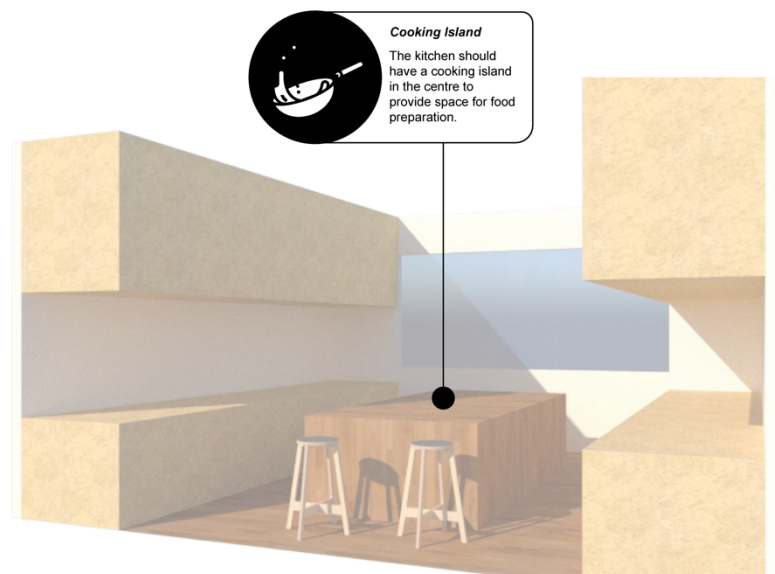
Figure 182 Rendering of Kitchen Spaces (Recommendation)

- Dementia care facilities should provide living spaces inside and outside (as shown in Figure 183). Outdoor spaces with a portico provide the opportunity for gardening activities. The outdoor environment should provide multi-functional spaces for users to choose between.
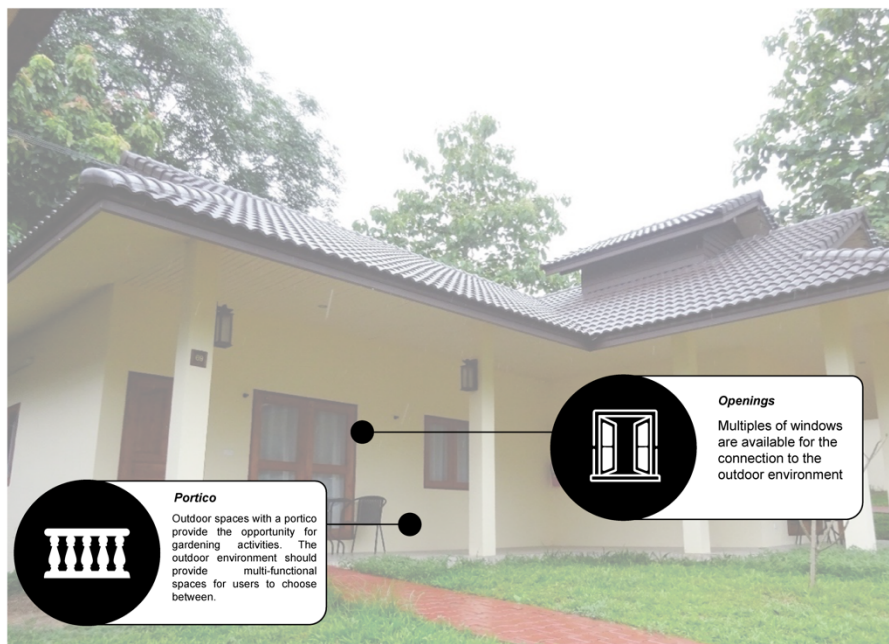
Figure 183 An Example of Balcony (Recommendation)

Private Spaces

Private rooms have been recommended for special care units (SCUs) in the context of dementia care (Morgan and Stewart, 2016). These private spaces have an impact on the behaviour of people with dementia. As people with dementia require a peripheral space, a private room with an ensuite is recommended. The following are the design recommendations for private spaces.

- Private bedrooms should have a minimum area of 20 square metres with a private bathroom (as shown in Figure 184 and Figure 185). The furniture inside a private room should not be fixed in order to accommodate users' symptoms, orientation, and preferences. All furniture should be of an appropriate size and allow sufficient space. Moreover, there should be a transitional space between public and private spaces.

Bathroom

bed

Bedroom

table

wardrobe

console

Transitional spaces
There should be a transitional space between public and private spaces.

Flexibility
Private bedrooms should have a minimum area of 20-25 square meters with a private bathroom
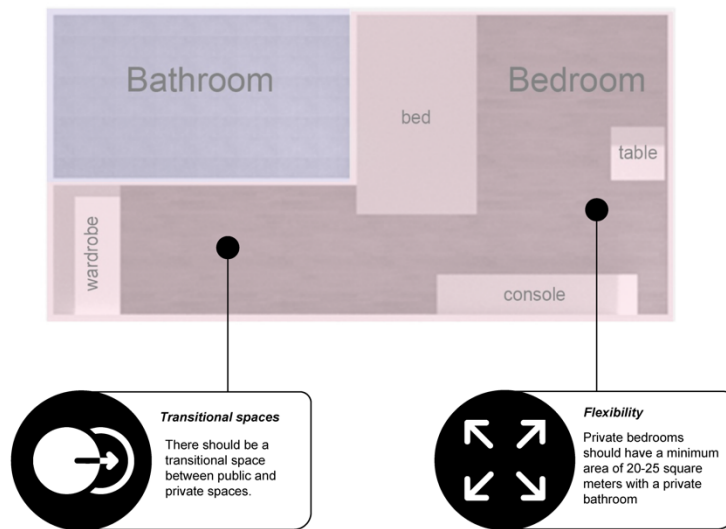
Figure 184 Plan of a bedroom

Sizing
Private bedrooms should have a minimum area of 20 square metres with a private bathroom

Personalisation
All furniture should be of an appropriate size and allow sufficient space.
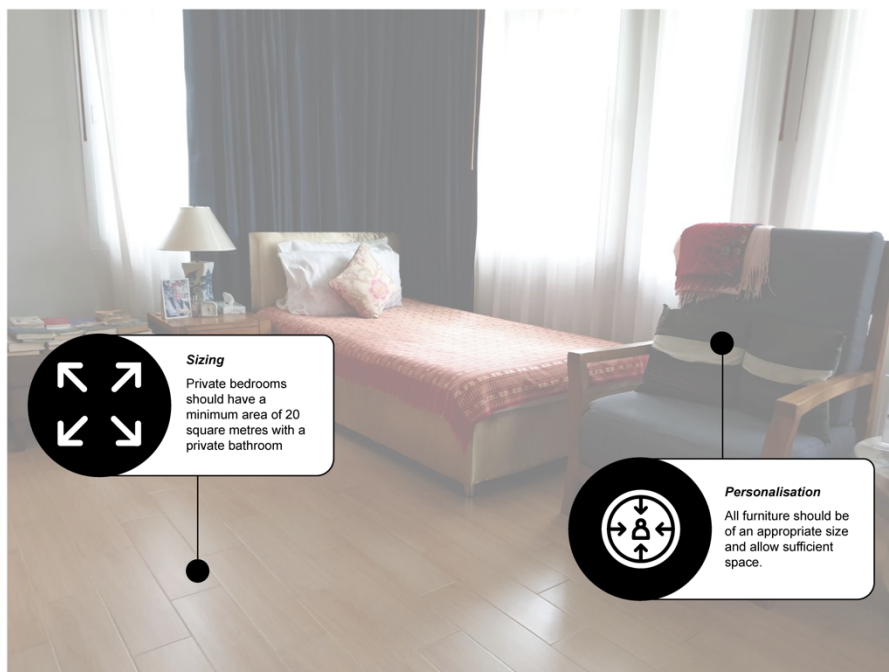
Figure 185 Design Recommendation of Bedrooms (Case study 1)

- Private bathrooms should have a minimum area of 10 square meters with a toilet, a sink, and a shower area. The fixtures inside bathrooms should be easy to access. Importantly, the bathrooms should be wheelchair-accessible. Sliding doors are recommended for ease of use.

Figure 186 Design Recommendation of Restrooms

Services and back office

The design of hospital or other healthcare facilities can improve staff efficiency, minimising steps required and reducing fatigue and stress (Reiling, 2006). Certain design components, such as standardised rooms and floor plans, can result in greater efficiency. The back office and services should be designed with the needs of the nurses' office and staff facilities in mind. The following are design recommendations for the services and back office.

- The nurses' office should be located at the centre of the nursing home for easy surveillance, with the medicine store next door, with a lockable door (as shown in Figure 188 and Figure 187). Service rooms such as the laundry and storage rooms should be provided.

Nurse offices
The nurses' office should be located at the centre of the nursing home for easy surveillance

Medicine rooms
The medicines are store next door, with a lockable door.

Figure 188 Design Recommendations (Case study 1)

Medicine Storage
The medicines are stored next door with a lockable door.

Office
The nurses' office should be located at the centre of the nursing home for easy surveillance.
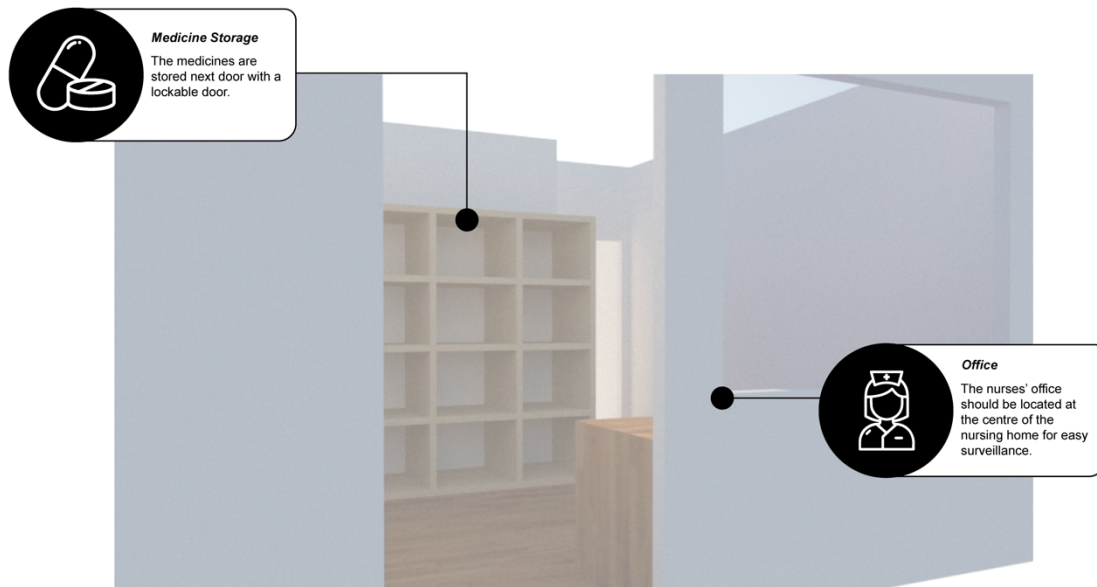
Figure 187 Design Recommendation of Nursing Office

- Staff facilities should include a staff canteen, which should be ventilated and not crowded (as illustrated in Figure 189). Smoking areas should be provided in a private space outdoors. Moreover, if space and budget allow, a staff dormitory could be built for those who finish their shifts late.

Figure 189 Design Recommendations of Staff Facilities

10.3.2 Design (Schematic Design)

As shown in Figure 190, the schematic design includes and explains the complete description of the building systems. A schematic design should contain sufficient information to allow readers to fully understand the main design concepts and orientation (BC Housing, 2019) and should solve problems arising from how care stakeholders operate and use the spaces in dementia care facilities. Consequently, the design conveys the designers' sense of purpose in their framework. This includes the form and massing of facilities, designing the optimal environment (technical systems), and creating a home-like environment. The following are the design recommendations for the procedure, from the schematic to the design development phase.
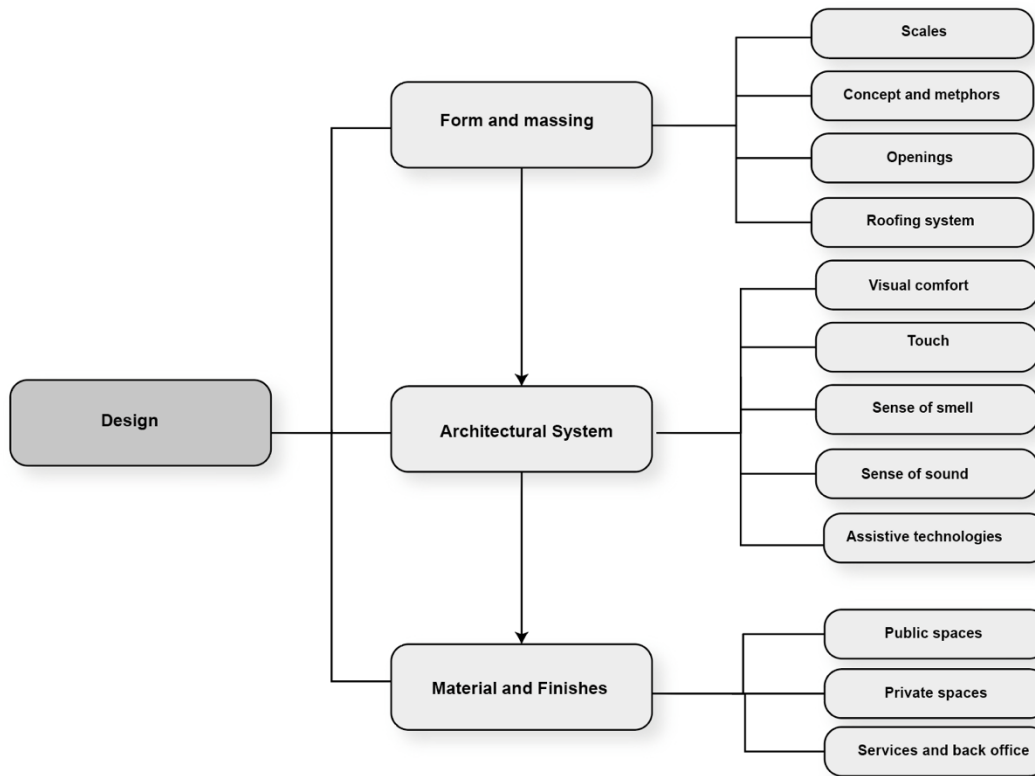
Figure 190 Diagram of Design Phase

10.3.2.1 Form and massing

Architectural massing refers to a perception of the structure in three dimensions (form) rather than an outline of its form from a single perspective (shape) (Ching, 2012). It gives a sense of how the buildings influence and enclose the spaces around them to define both interior and exterior environments. Form and massing include concept.

- The scale scheme comprises mid-rise and high-rise architecture with components such as building height. The vertical mass extension in the context will be distinct from the scale of the immediate neighbourhood, which includes the human scale and the ceiling height of each space.

- The scale of the buildings may influence human behaviour and the feelings of people with dementia (Wiener and Pazzaglia, 2021). The experience of scale is especially influenced by the form and massing of architectural spaces. For example, spatial qualities including high ceilings and airy spaces, or transitions between public and private spaces, can create positive user experiences.

- Ceiling height should be considered in the various functions and programmes. High ceilings can alleviate emotional aspects for users (as shown in Figure 191). As voids in the architectural form are translated through cognitive and functional reasons, communal spaces designed with high ceilings will avoid feelings of overcrowding.

Figure 191 Design Recommendations of Spatial Qualities

- The spatial qualities of high ceilings in communal spaces maximise the effects of natural sunlight. However, energy efficiency should also be taken into account.

- In terms of aesthetics, cognitive voids relate to human perception and are used to generate motivational visual effects (Kuloglu and Samlioglu, 2012). However, construction costs and budgets should be balanced.

Concept and Metaphor

The core design principles include aesthetics, the pleasing qualities of the design (Han, Forbes and Schaefer, 2021). Aesthetics can be expressed in visual terms of balance, colour, movement, pattern, scale and shape (Hu *et al.,* 2022). Functionality and meaningful layouts are enhanced by the application of design aesthetics. This includes creating a resort or home-

like environment as a design concept for dementia care facilities. The following are the design recommendations for concept and metaphor.

- The resort typology offers a conceptual metaphor which can be understood by its audience and easily interpreted as a resort or sanctuary with dementia care facilities (as shown in Figure 192).
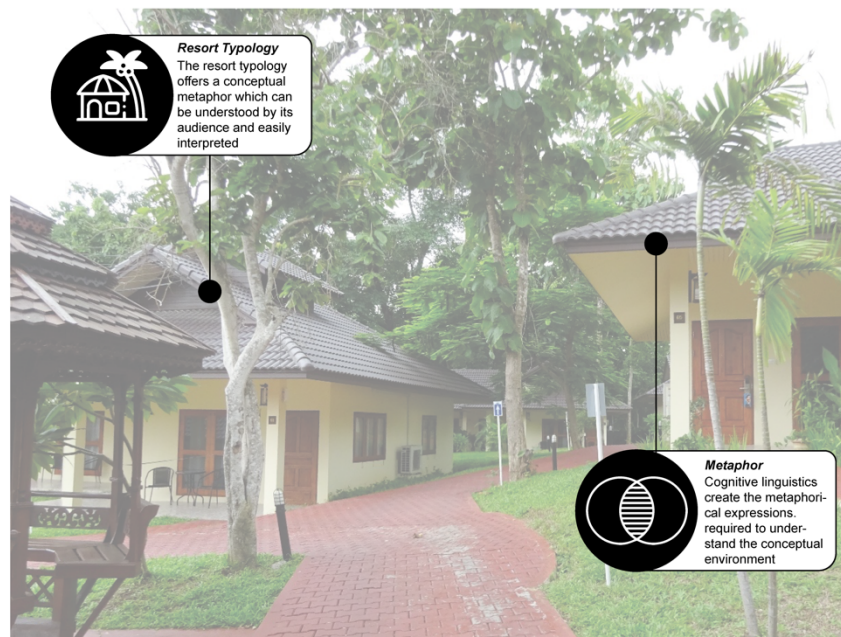
Figure 192 Examples of Accessibility

- The conceptual domain can be expressed as cognitive linguistics, which create the metaphorical expressions required to understand the conceptual environment (that can state the resort function).

- Perceptions (symbols) of the home-like environment influence the design form and should be clear, avoiding misunderstanding. However, the home-like characteristics should be enhanced. Architectural elements' design and architectural languages or building types (such as prisons or hospitals) should be included.

- The design of a home-like environment can also be enhanced by the human scale (as shown in Figure 193, and features such as gable roofs can be symbolically enhanced.

Figure 193 Examples of Home-like Environment

Openings

The openings should meet optimal performance-based architectural design (Zhao and Angelis, 2019). The design of the building's openings is commonly supported by effective performance improvement. The optimisation workflow integrates the design in a process that enables people with dementia to navigate through spaces. Hence, the design should include window and door design.

- Windows must be present in most spaces of the dementia care facilities, as most users spend most of their time in interior spaces. As a result, openings should bring access to health benefits such as sunlight exposure for vitamin D absorption, circadian rhythms and mood improvement through higher energy levels.

- Openings include any means of ventilation (whether the opening is permanently open or closable) that can be opened directly to external air. Types of openings such as

louvres, progressively openable ventilators or window trickle ventilators should be installed. Doors should be opened directly for external airflow (Figure 194).

Figure 194 Example of Openings

- Doors in dementia care facilities should be wide enough for wheelchair access. Sliding doors are more easily used than standard opening doors. In addition, the entrance doors to each cluster unit should be designed to be transparent (to avoid feelings of being trapped inside).

- Openings or functional voids are designed considering emotional factors, to meet the specific needs and requirements of care stakeholders and people with dementia (as shown in Figure 195). However, the design decision-making also depends on budgets.
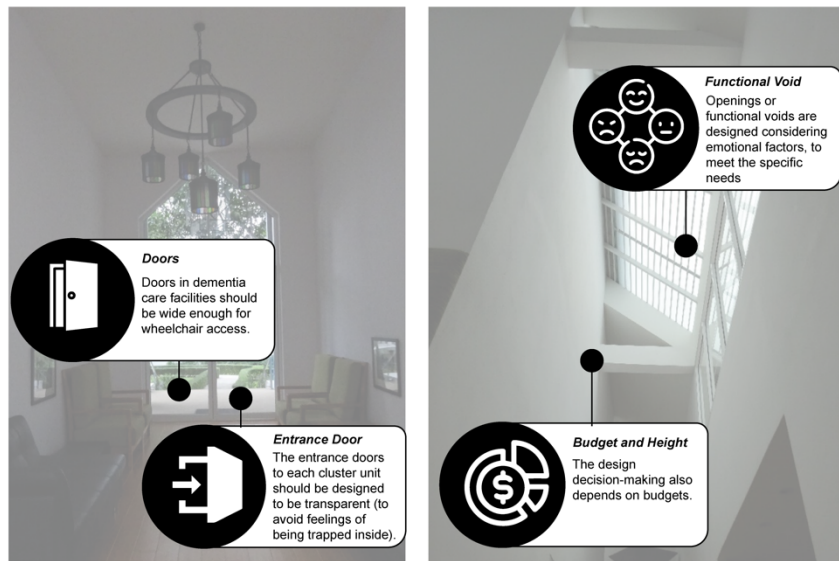
Figure 195 Example of Openings

Roofing Systems

Roofing systems are an essential element of architectural design and are designed from experience of the available material options, roof assembly materials and system options (Guyer, 2009). Hence, the following roof design elements are recommended for dementia care facilities.

- Rooftop gardens or rehabilitation gardens may be created in dementia care facilities, especially those using mid-rise buildings (as shown in Figure 196) are most commonly found in urban areas.

- A roof form should be designed specifically for the context and its climate. For example, in areas with heavy rainfall, the roof system should offer climate protection. Roof forms are specific to cultural context. Their function and feeling should enhance the symbol of the resort (as shown in Figure 197).
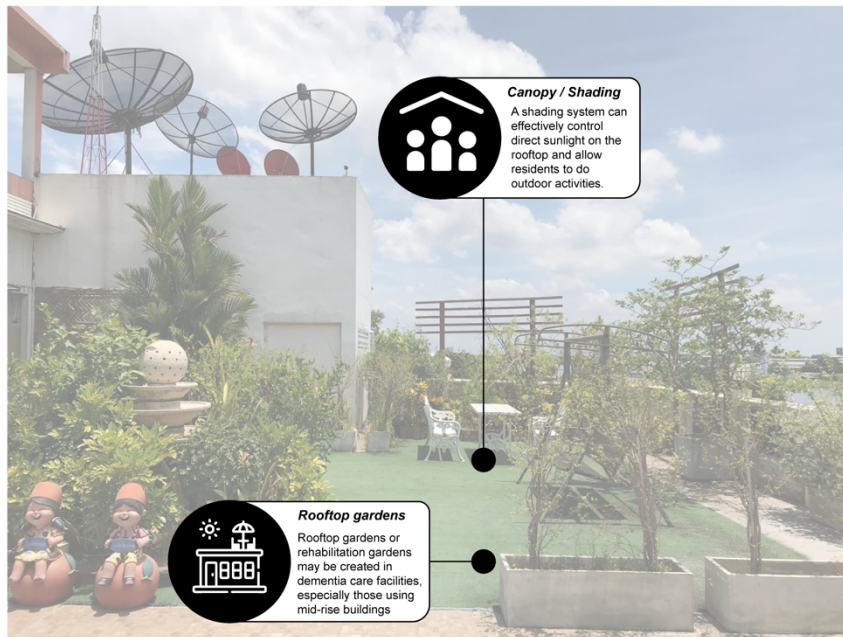
Figure 196 Example of Rooftop Garden

Figure 197 Example of Roof Design

10.3.2.2 Architectural System (Building Performance)

In the context of architectural design for dementia care facilities, construction systems define how materials are combined and assembled to construct a building (Torrington, 2006). Architectural systems should design optimal environments that match their capabilities to perform independently. The five human senses are included in an additional building security system. The following are the design recommendations for a dementia care resort. in terms of architectural system and building performance.

Visual Comfort

People with dementia have acute visual awareness (Tran *et al.*, 2020), thus, the visual comfort inside dementia care facilities should be carefully considered. The research recommends identifying applicable and appropriate design to reduce glare and hallucinations, leading to better visual quality in the dementia care environment while preserving optimal user satisfaction. The followings are the design recommendations for visual comfort.

- Efficient lighting should be considered. People with dementia require well-lit environments to function; thus an optimal visual system, colours and contrast should be implemented through knowledge of the properties of light (as shown in Figure 198).
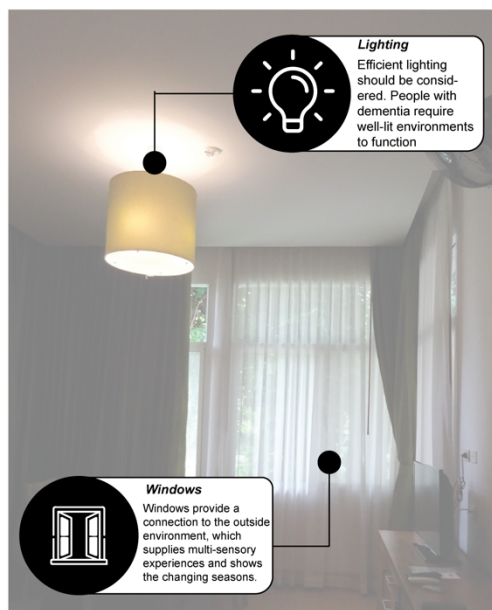
Figure 198 Design Recommendation for Lighting

- Lighting should be adaptable: as the eyes of people with dementia have to adjust to ambient light and luminance gradients should be adjustable.

- The outside living environment should form a connection with the outside world. Daylight is essential for psychological well-being and to stimulate users' appreciation of scenery (Robbins, 1986).

- Windows provide a connection to the outside environment, which supplies multi-sensory experiences and shows the changing seasons. The natural environment allows people with dementia to follow the passage of time.

- The different materials should reflect colour contrasts; the floor should be a contrasting colour to the walls.

Touch and Temperature

People with dementia are very sensitive to temperature (Fletcher, 2015; Eggenberger *et al.,* 2021). They cannot stay long in an outdoor environment, especially in extreme climates. As lightweight materials are readily influenced by outdoor conditions, the indoor building temperature should be controlled. However, this may increase the energy consumption of buildings. The following are the design recommendations for touch and temperature.

- Indoor temperature can induce challenging behaviour in people with dementia who have an altered sensitivity to indoor environmental conditions; this may increase the burden on carers. Thermal comfort is a critical element in building design and should be extensively modelled. This may only be applicable to people with cognitive disorders at certain times. Users should be able to choose whether they prefer air conditioning, ventilation by fans or simply the breeze from outside, as shown in Figure 199.

Figure 199 Design Recommendation of Ventilation

- Shading systems should be provided for outdoor activities. Shading is important in giving protection from direct sunlight and rain, and should be installed in balcony or patio areas to shade people with dementia and their caregivers when using the spaces for activities.

Sense of smell

Smell is one of the most important senses that people with dementia eventually lose. Prevention is preferred to other controls (Behrman, Chouliaras, and Ebmeier, 2014). Odours can be captured and destroyed before they are released into the indoor environment. Dispersion and ventilation also help to avoid problem odours. Hence, the transitional environment should control neutral smells to make users feel safe. The following are the design recommendations for a sense of smell.

- Aromatherapy, the practice of using essential oils for therapeutic benefit, can be applied in private spaces or used in the form of diffusers. When inhaling the scent molecules from the olfactory diffusers, some people with dementia will feel relaxed and more familiar with the environment.

- Air ventilation should be provided in the indoor environment to dilute pollutants and remove contaminants. Air ventilation brings air from outside into a building or room and

distributes it within the building and rooms. Air filters should be applied in both private rooms and public areas.

- The aromas of food can be enhanced in the kitchen area to increase the residents' appetite.

Sense of Sound

Noise impact on people with dementia is significant and is often disregarded by care staff or care managers in their daily tasks (Dewing, 2009). A level of noise acceptable to care staff may be stressful and trigger people with dementia. Busy times, such as changes of shift and mealtimes may be critical.

- Double-glazed windows should be used to reduce the noise from outside in private bedrooms.

- Quiet spaces, such as quiet rooms or balconies, should be accessible in dementia care facilities if people with dementia need to be alone when they are agitated (as shown in Figure 200).
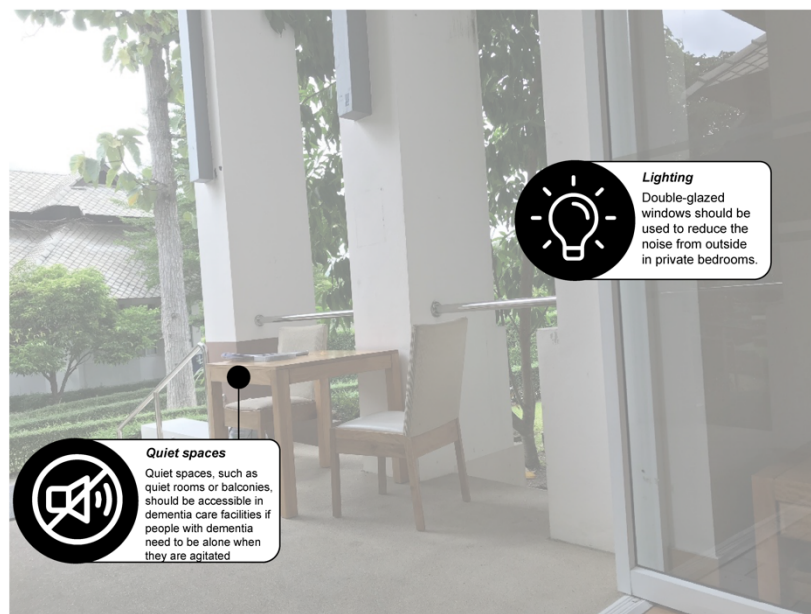
Figure 200 Example of Personal Spaces

Assistive Technologies

Assistive technologies are extensively applied in dementia care facilities (Pappada *et al.,* 2021). A dementia-friendly security system, such as a wandering alarm, is essential, as are position sensors on all doors and windows to warn when people with dementia leave the property. This offers a sense of independence with a security layer. The following are the design recommendations for assistive technologies.

- Nursing alarms should be installed at appropriate distances and heights for an emergency (as shown in Figure 201) in both bedrooms and bathrooms. In addition, CCTVs should be installed at the entrance and in private bedrooms if required (based on individual cases).
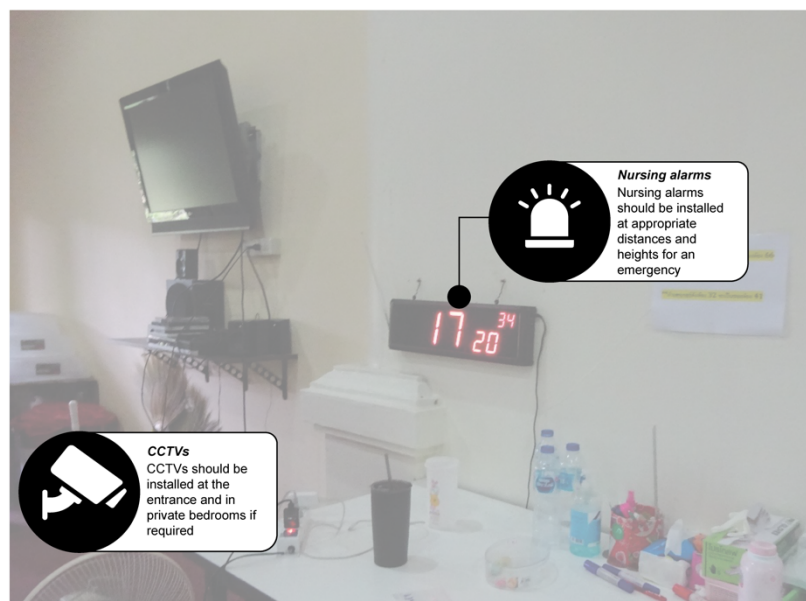
Figure 201 Example of Assistive Technologies

- Wayfinding signage should be written clearly and positioned so that it can be seen clearly by people with dementia and their caregivers. Lighting should illuminate walking routes and can be installed under handrails as well for navigating at night.

- Handrails must be positioned at the proper distance and correct height (as shown in Figure 202).
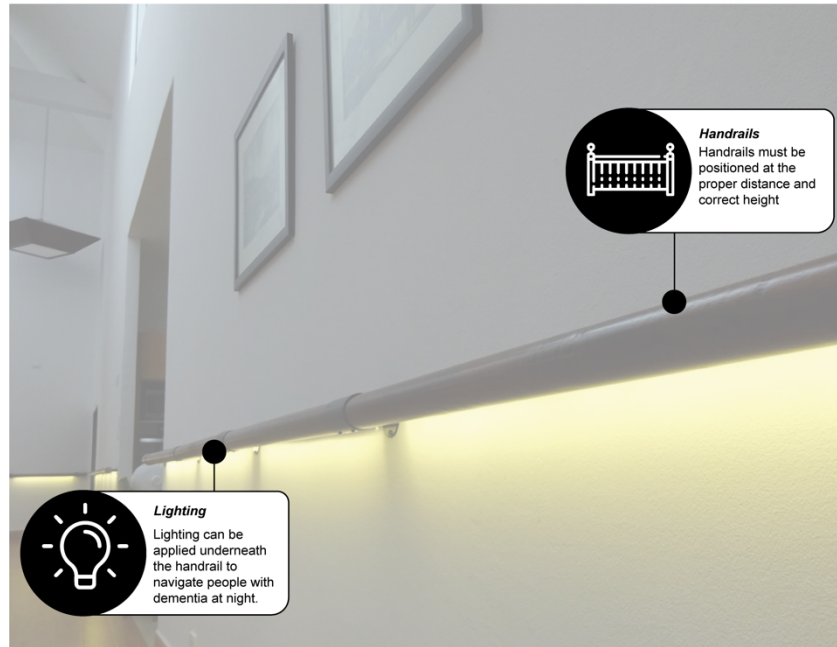
Figure 202 Example Handrails

Materials and Finishes

Materials and finishes are often the responsibility of interior designers who develop the internal environment's material and colour scheme (Bettaieb, Malek and Alaward, 2019). Their knowledge of selected materials and finishes, their purpose and their properties is essential to their role and allows them to select the most appropriate materials and finishes for the designed project. The following are the design recommendation for materials and finishes.

Safety and Independence

Ageing is related to increased risk in activities that are essential for independence, such as driving and living alone (Ward, Finucane and Schuchman, 2020). As cognitive impairment is common in older people, financial resources and social support may be diminished. Moreover, their ability to assess risk, cognitive impairment and capacity to take decisions have changed over time. Transparent decision-making and harm-reduction help balance risk and safety.

Physically, level floors and contrasting colours can support their independence and navigation. The design recommendations for safety and independence are as follows.

- Floor levels should be designed to be the same and as smooth as possible for the whole project. Steps or ramps in spaces such as bathrooms should be carefully considered (Figure 203).

Figure 203 Example of Handrails

- Colour contrasts should be used, and lighting installed in gardens for use after dark.

- Interior decoration can enhance sensory stimulation in people with dementia. Colours such as cream, beige, white and grey are popular in interior design, yet are not helpful to people with dementia. The use of contrasting colours for the seat and the arms of a chair helps residents recognise where to sit.

- Furniture should be of the appropriate scale and ergonomically designed. Storage should be appropriate for people with dementia to use by themselves. This applies in both indoor and outdoor environments of dementia care facilities. Wooden textures are used for furniture and other interior features.

- Furniture should be enhanced by natural textures. Flexible furniture arrangements should be used; hence, furniture should be lightweight but stable.

- Objects such as photographs of specific destinations or cultures can be placed in public living areas (as shown in Figure 204). Dementia care facilities should have display shelves for a collection of decoration items.

Figure 204 Examples of Interior Decoration

10.3.3 Care

As shown in Figure 205, dementia care can be challenging and stressful. However, qualified caregivers can relieve symptoms of anxiety, stress and fear of memory loss, communication skills and concentration. Caring for people with dementia involves supporting them to maintain their skills, abilities and an active social life. The process of caring requires an individual approach, social interaction, and varied activities. The following are the design recommendations.
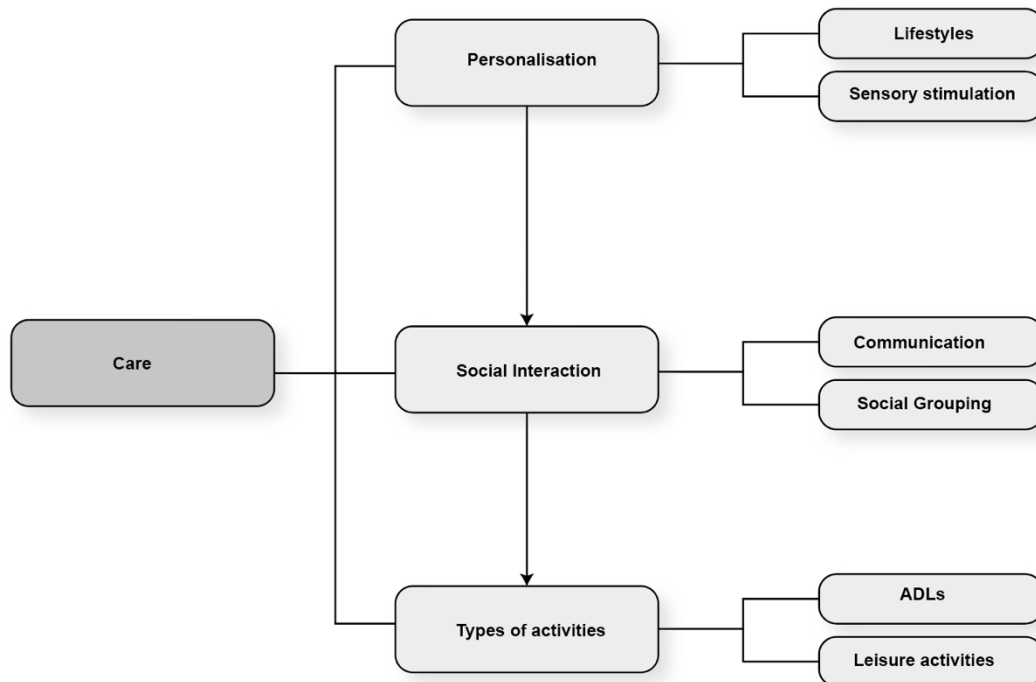
Figure 205 Diagram of Care Phase

10.3.3.1 Personalisation

Person-centred care can support and maintain a sense of self and purpose in people with dementia who live in dementia care facilities (Fazio *et al.,* 2018). Accordingly, a medical approach in which physical needs are prioritised over psychological well-being is adopted in dementia care practices (Goodall *et al.,* 2021). Personalisation considers lifestyles and the sensory stimulation of people with dementia.

Lifestyles

Routine and familiarity are important to people with dementia and should be engrained (Desai and Grossberg, 2001). Undesired behaviours such as aggression, restlessness and agitation can disrupt the daily structure. A daily routine helps caregivers to experience less stress and give better care.

- Several preventive factors, including lifestyle behaviours and cardiovascular conditions, have been identified for use in programmes and activities that individually contribute to a lower risk of various types of dementia and cognitive decline. Many

lifestyle factors (e.g., diet and exercise) may have synergistic effects on dementia risk. The overall impact of multiple modifiable risk factors has been examined in combination.

- Personal programmes and activities may be modifiable for individuals. Healthy lifestyle behaviours for dementia prevention, including diet, exercise and the absence of alcohol consumption can enhance cognitive activities.

- Routines can keep people with dementia focused and concentrated (Telenius *et al.,* 2022). To maintain cognitive function, a sense of security and a reduction in aggressive behaviours, routines can provide structure for people with dementia (Wehrmann *et al.,* 2021). People in the early stages of dementia should be given guidelines or a sense of control over their day and environment.

- The preferences of a person with dementia should be observed based on the stage of their dementia and their background (Wehrmann *et al.,* 2021). In the later stages of dementia, many activities are creatively adapted with alternative approaches, so that dementia patients can still engage in activities, communicate and orientate themselves.

- In moderate to severe stages of dementia, patients should be assisted with basic ADLs, for example, eating, dressing, grooming, bathing and toileting. As instrumental ADLs typically begin to decline in the early stages of dementia, the training activities involve using instruments.

- Personal budgets must be considered in calculating lifestyle limitations. The health of the users must be assessed before advance care planning. The budget can frame the care package and available activities. Advance care planning should be assessed and applied to the users' health.

Sensory Stimulation

Sensory stimulation is often used to help people with dementia live in the moment with their current surroundings (Lykkeslet *et al.*, 2014). Used regularly, sensory stimulation can be very helpful in treating memory issues. It includes visual stimuli and those for sound, smell, touch and taste.

- Personal photographs or memory boxes should be kept in private rooms as a visual stimulus (as shown in Figure 206 and Figure 207). Favourite films could be stored and watched privately in patients' rooms.
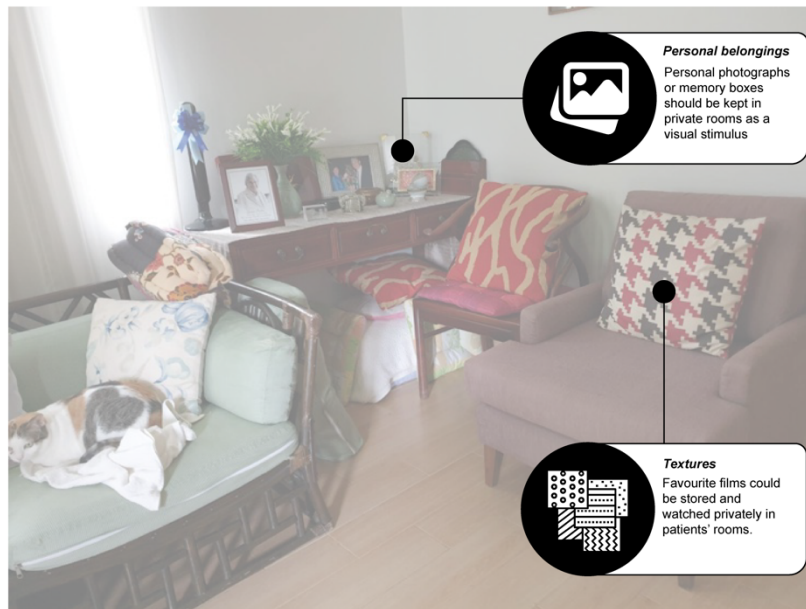
Figure 206 Example of Lifestyles

- For sound, favourite songs could be played in their private rooms or during activity sessions. If the noise level becomes too high, there are various quiet spaces for patients to take refuge, on balconies or in the gardens.

- Personal room diffusers can be selected based on patients' preferences. Favourite perfumes could be applied and aromatherapy, for example, lavender, used to reduce pain during palliative care.

- Guests can select human touch or hand massage based on their preferences. This can be done with essential oils and aromatherapy.

- For taste, favourite foods could be encouraged, such as butter croissants for breakfast. Local and home-cooked food from the patient's culture is also encouraged to enhance quality of life.
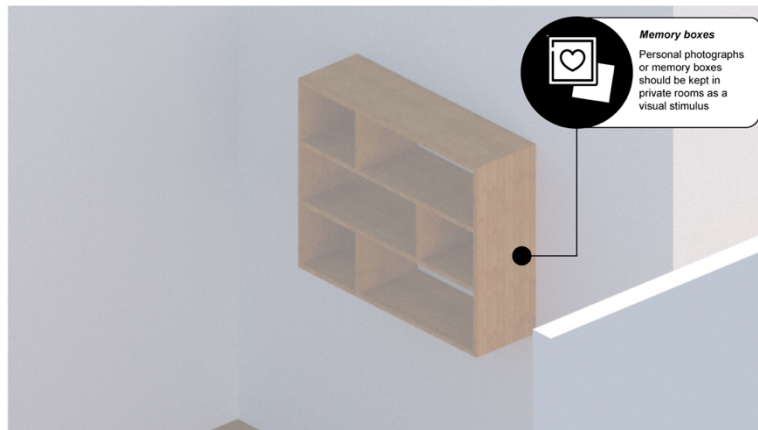
Figure 207 Example of Memory Boxes

10.3.3.2 Social Interaction (Atmosphere)

Behavioural changes, loss of self-confidence and increased anxiety are common in people with dementia and have negative social consequences (Cerejeira, Lagarto and Mukaetova-Ladinska, 2012). Social interaction with people with dementia can be challenging and can affect the atmosphere of the care environment, including communication and social grouping.

Communication

People with dementia may lose their communication and emotional skills, making communication challenging (de Vries, 2013) and caregivers should, therefore, practice verbal and non-verbal communication skills to understand and talk to them.

- Communication with people with dementia should be spoken clearly, slowly and in short sentences; eye contact is essential, and time should be allowed for them to respond as a rushed conversation can cause them to feel pressured. This applies also to non-verbal communication.

- Hierarchy in some parts of the dementia care facilities, such as restaurants, can give the impression of inequality. This can be resolved through the policy and design of the physical environment. Body language is key here in conveying caring and respect.

Group Activities for Social Inclusion

Group activities to promote social inclusion – such as dance, tai chi, yoga, swimming or joining a walking group – aim to help people with dementia to be active (Pringle *et al.,* 2021), and involve spaces such as local dementia-friendly swimming pools or walking sessions. Arts-based leisure activities such as drawing, and painting can also support people with dementia and their relatives and promote inclusivity.

- Group activities involve assessment and facilitators. Medical stakeholders should assess people with dementia to assess their capabilities and document their moods and behaviours.

- Care stakeholders should observe day-to-day activities to assess whether people with dementia can join activities or not.

- Facilitators (such as occupational therapists) are needed to train caregivers and facilitate interactions between them and people with dementia. They must be familiar with the techniques and tactics needed in dementia care facilities.

10.3.3.3 Types of Activities

People with dementia should take part in appropriate activities to help give them purpose and pleasure in life (Telenius *et al.,* 2022). Engaging in a range of activities plays a major role in reducing challenging behaviours. Planned, appropriate activities are offered to people with dementia. The following are the design recommendations for activities.

ADLs

ADLs are essential for people with dementia. As dementia progresses, basic and instrumental ADLs, such as work, medication management and keeping track of personal finances, should be taught and practised through the repetition of procedures (Marshall *et al.,* 2012). To enhance their independence, basic activities to be supported include eating, dressing, walking and personal hygiene. The following are the design recommendations for ADLs.

- To encourage eating in people with dementia, their eating positions (as shown in Figure 208) should be carefully arranged based on personalities and preferences. Seating positions should take account of friendships.

Figure 208 Example of Dining Tables

People with dementia who live in dementia care facilities often do not participate in leisure activities (Cohen-Mansfield *et al.,* 2010) such as group exercise, shopping or outdoor expeditions. Low levels of social interaction and under-stimulation are often problematic for people with dementia, and boredom and loneliness may lead to challenging behaviours. Active group activities are recommended.

- Group exercise, for example, dancing, requires a medium such as music to be provided and needs a group leader and facilitators. Mirrors and flexible spaces can support the activities (as shown in Figure 209).

Figure 209 Example of Group Activities

- Leisure activities also include shopping or outdoor expeditions to local communities, which require planning. Suitable vehicles and seating arrangements can mitigate travelling difficulties. For group expeditions, an assessment of the built environment can help the flow of activities, and facilitators can support people with dementia in recognising and using money.

10.4 Development of Design Framework and Context

This PhD research study indicates that design tools for dementia care need to be considered beyond the design of a specialised environment. Design details should be researched and developed. Sizes and spatial dimensions (optimum/standards) should be explored in detail. Design research becomes a broad term for the process that designers use to better understand the underlying desires, needs, and challenges of the target audience. Service design capabilities in innovation processes, provides a framework that guides design students, practitioners and researchers towards a practical knowledge and operational aspects of

service design processes. The combination of art and science disciplines such as architecture and occupational therapy can help to identify user needs for the goal of positive psychology through an analysis of the design framework. This care should be performed by multidisciplinary teams, whose members need to be trained in approaching the person and their relatives from different perspectives to ensure quality end of life care (Riquelme-Galindo and Lillo-Crespo, 2021). As shown in Figure 210, developing a better understanding of the built environment on the well-being of older population can prevent disabling and enabling autonomy through interventions (Chrysikou, 2018).

In the context of Thailand, demographic changes have added challenges to the management of ageing population, their finances, and their roles within the traditional family structure of filial piety. Older people who have always lived in their home community may be considerably attached to their home and property, pets, and neighbours, whereas the younger generation may feel less attached to these (Wiles *et al*., 2012). Respect for older people is constructed in most Asian countries' social fabric. A shift towards involving people who are in the moderate and severe stages of dementia is beneficial for both the people with dementia and the design research process (Wang *et al.,* 2019). Design tools development for service design capabilities should include not only people with dementia, but the whole lifespan for capabilities. As a result, the conceptualisations of community to the salutogenic model means that the locality, sense of community, cohesion, and social capital can be considered as GRRs (Ottemöller, 2021). Hence, the collective action can be interpreted as the salutogenic mechanism to the health end of the continuum (Vaandrager and Kennedy, 2016). Some researchers have developed theoretical models to implement the salutogenic paradigm in different sectors, such as schools and communities. From neighbourhoods and schools to the worldwide community, design thinking principles can help create communities that give all its members a place and a voice by planning in an inclusive and collaborative way. This can be achieved through new architectural and design paradigms that, contrary to prevailing architectural theory and practice, operate in harmony with human perceptions and physiology, especially for vulnerable and people with dementia.
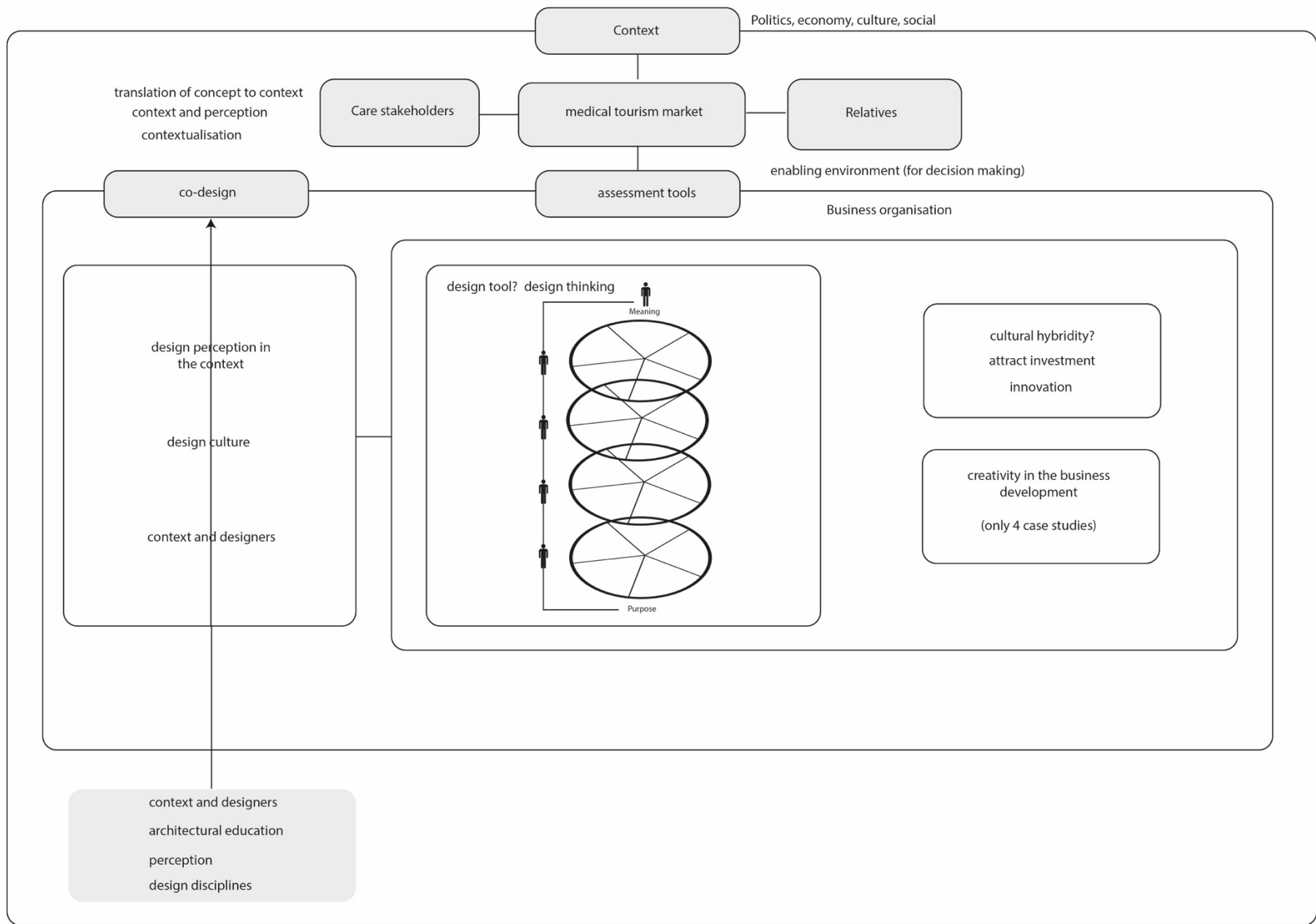
Figure 210 Future Research Development

10.5 Conclusion

This chapter presented a discussion of the five key domains that support the design of an enabling environment for dementia care. Referring to these five domains, which include creative functionality, organisational security, embodied selfhood, interpersonal self-esteem, and self-actualisation, the design framework links motivation by human needs to a human-centred design process for capabilities, which leads to an environmental design for action. In addition, it recommends that the care stakeholders achieve these needs. This indicates the duality of scales which involves personal and communal (collective). Consequently, the chapter introduced the relationship between design purpose and design creativity. Design recommendations were explained at the end of each domain. Finally future research directions are proposed.

11 CONCLUSION

11.1 Introduction

This chapter summarises the research study and discusses its findings, contribution to knowledge, and future research. The overarching aim of the research study is to produce and disseminate a design framework and design recommendations of an enabling environment for dementia care. The main research question is how the design of an enabling environment can support the quality of dementia care. Three main research methods – in-depth interviews, ethnography, and co-design workshops – were applied to the case studies. The research findings indicate that five main domains emerged from the study. By comparing these with the existing design tools and guidelines, the five main domains guided the development of a design tool for an enabling environment for dementia care.

11.2 Research Background, Aims, and Objectives

The study's main research question is **how the design of an enabling environment can support the quality of dementia care**. Presently, there are no existing design tools for an enabling environment for dementia care. Most design for dementia care is evidence-based design using the existing design tools and guidelines that focus on people with dementia. A design framework is a strategy and visual structure that helps organise the information and ideas to solve a problem. These categories are developed from initial research that should be a part of every new project. As person-centred care requires flexible environment (Giusti *et al.,* 2020), dynamic changes of dementia suggest that they require a performative design (Molony *et al*., 2018). As a result, a flexible work environment should encourage the policy implementation and practices od flexible arrangements in residential aged care and their uptake by staff to enhance person–environment fit, thus supporting people to remain in their jobs.

The enabling and restrictive qualities of a living environment have been described as 'affordances' (Topo and Kotilainen, 2008). Hence, residents and care staff can share a similar perspective on the affordances of the environment where similar affordances are observed (Topo, 2012). Even though the concept was first developed in ecological perceptual psychology and referred to the positive or negative possibilities for action provided by an environment, Kyttä (2003) uses the concept of affordances in transactional person-environment research when studying children's environments. The role of caring people with

dementia is to encourage them to perceive, utilise, and shape the positive affordances and minimise the existence and perception of negative affordances. Eventually, the enabling environment defines adopted playscape terminology to express the environmental features that encourage play and social interaction for all age groups. Opportunities for social interaction within the playscape also nurture social and emotional development. Hence, co-creative approaches can enable people with dementia and care stakeholders to participate in design processes (Kenning, 2018). The impact designed products and services provide opportunities for social engagement (Mukaze and Velasquez, 2012) and give designers insights of an embodied experience, and its social and cultural impact (Tan and Chow, 2018).

Design is translated as a therapeutic resource (Illarregi *et al.,* 2022) to promote physical functionality and well-being of people with dementia (Day, Carreon and Stump, 2000). Dementia-friendly design empowers people with dementia and care stakeholders (Corven *et al.,* 2021), and enhances design perception, especially spatial orientation problems (van Buuren and Mohammadi, 2022). Policy and funding addresses what people do, and the social determinants influence what they do in particular places (Townsend, 2009). Links between occupation and place are examined to promote inclusive social participation in all occupations, not limited to work, and communities need to organise healthcare services. Consequently, the sense of home is not just a physical home within the existing definition (Schmeer and Yoon, 2016). The place enlightens self-esteem and confidence (Owensm, 1993), which can be improved by training activities of daily living and outdoor activities (Humberstone, Brown and Richards, 2003). Time is required for place attachment to recognise the meaning of the environment (Scannell, 2014). Beyond this, a sense of flow was experienced by place attachment, which participation in occupation comes from activities that stretches one's creativity and competes one's attachment (McEwen, 2014). Place attachment is not passive progress and is not a one-sided activity.

Moreover, a system-wide, programmatic interventions for diagnosis and management of patients with memory difficulties (Weston, 2011) within the ageing population is required (Sciences, 2001). Design for neuroscience concerns the structure and function of the human brain, whether in healthy development or when afflicted by injury or disease (Peters, 2006). According to Aaron Antonovsky's concept of salutogenesis (1979), a multi-sensory environment balances calming reassurance with constructive stimulation (Peters, 2017), which can help instil the positive psychology that people will overcome illness (Park, 2016). Personality development, emotion regulation and mental health throughout the lifespan are related to attachment bonds (Riediger and Bellingtier, 2020). At various stages of dementia and unmet attachment needs were observed as the presence of parent fixation (Nelis, Clare

and Whitaker, 2013) and can show in attachment behaviours (Nelis *et al.,* 2013). Consequently, attachment security results in caregivers' psychological health (Malhotra, Agarwal and Peterson, 1996). Hence, the implication of attachment needs to support people with dementia and care stakeholders should be considered (Nelis, 2014), by balancing their emotional and basic human needs.

11.3 Research Methodology

Case studies were used to explore the design of the physical environment of dementia care facilities. Four case studies were selected based on three section criteria, which are dementia care facilities, site accessibility, and transnational user groups. Three main research methods – in-depth interviews, ethnography, and co-design workshops – were applied to these case studies. Qualitative and perception of design of stakeholders and designers are based on the description of the relationship between perceptual design and rational design. The thesis was an exploration of the data collection and data analysis procedures based on the research objectives. The first objective intended to develop how the capability approach can enhance transparency and inclusion in health promotion settings by conducting in-depth interviews with care managers. Objective two explored design pluralism and architects' perceptions by conducting interviews with designers. In this context, objective three examined users' capabilities concerning the design tool. Accordingly, the gap of resources between end users' capabilities was triangulated with ethnographic data. Finally, through co-design workshops, the established design tool was contextualised and internally validated to aggregate how the stakeholders can be included in the design process.

11.4 Research Findings

The overarching aim of the research study was to produce and disseminate a design framework of an enabling environment for dementia care. The research study comprises of five domains of the design of an enabling environment for dementia care. The care organisation provides resources that employees expect from the organisation (Niles, 2012), where needs and supplies are matched (Edwards, 1996). The needs of people with dementia explains how their needs related to care professionals' needs (Houghton *et al.,* 2016), and how the capability management from care managers or designers can support the needed environment. The resources support the stressors of care professionals and people with dementia to promote health.

The domains were developed for design thinking. This argues that the developed design framework is an enabling environment for affordances between people with dementia and caregivers. The first domain is an emphasis on the users by a design purpose and meanings. The second domain defined the users' capabilities. The third domain is ideated on how to occupy their personhood. The fourth domain is recognition and how to prototype it in a given context. The final domain is how to test it in the context. This links motivation by human needs to the human-centred design process for capabilities.

The first domain, creative functionality, was previously understood as sensory design or affordances. Creative functionality is the way that care stakeholders use the physical environment and comprised cognitive abilities for comprehensibility to solve the problem faced (Vogt, Jenny and Bauer, 2013). The design overlays cognitive function, which includes various mental processes such as perception, attention, memory, and decision-making (Gomohammadi *et al.,* 2020). The design also serves a critical role in everyday functions and social behaviours to support other domains (Biglan *et al.,* 2012). The continuity of lifestyles and self-identity can be acknowledged by design of the physical and social environment for people with dementia (Han *et al.,* 2015). Furthermore, these environments refer to the diverse physical locations, contexts, and cultures in which everyone can learn (Koper, 2014). The environments have potential of brain plasticity (Sale, Berardi and Maffei, 2014), which able to intrinsic or extrinsic stimuli by reorganising its structure, functions, or connections (Hill, 2011). As the environment is growing, flexibility becomes an important factor for person-centred care, which care should be adapted for user needs, preserved abilities, personality, and any physical limitations of dementia.

Secondly, the security domain initially implies in terms of people with dementia's cognitive ability. Personal security reflects on an individual's needs was extended to aspects such as order and control, financial security, and health and well-being (Bialowolski *et al.,* 2021). The domain suggested the importance of how the physical environment which causes feeling of safety. As a result, concept of security requires a clear assessment of people with dementia to recommend if the physical environment is standardised for the end users. Likewise, cooperation between the organisational environment and personal assessment is required. Surveillance in both case studies (Case study 1 and Case study 2) reflects both environmental and personal factors. Surveillance technology is a key to support informal/formal caregivers as well as people with dementia. As an equal partners in planning, developing, and monitoring care to meet care needs (Couler and Oldham, 2016), the main philosophy of person-centred care can be used in health and social services (Latimer, Roscamp and Papanikitas, 2017). However, the challenging behaviours of dementia are known for care burden and stress

factors in both formal and informal caregivers (Feast *et al.,* 2016). The best quality of care and treatments between care professionals and caregivers can be improved by defining the stage and levels of care. Consequently, comfort is achieved in people with dementia who are seeking palliative care to improve quality of life, care, and death (Miranda *et al.,* 2019).

Thirdly, their sense of person is personalised by sensory input. The concept of selfhood was initially constituted as an individuality's quality (Yvinec, 2014). Designers were often perceived as embodied self, which means how people with dementia occupy and embody spaces (Lindgaard and Wesselius, 2017). In this perspective, pre-reflective self-awareness and an individual's body memory can be clarified as selfhood, which consists of the one's embodiment to familiar habits, practices, and preferences (Fuchs, 2020). Choices consider organisational structures and individual agents' actions and highlight the underlying dynamics of 'home/place'. Peripersonal space is a spatial boundary that surrounds bodies (Serino *et al.,* 2018), which objects can be grasped and manipulated (di Pellegrino and Ladavas, 2014). This can relate to Donna Haraway's work (1991), who argued that personal and social bodies cannot be seen as natural but only as part of a self-creating process of human labour. Social inclusion aims to improve individuals and groups to develop their capabilities based on their identity, especially for those disadvantaged (OECD, 2020). However, a psychological mechanism accounting for this response bias could be that objective social inclusion violates the people with dementia underlying implicit needs of inclusion (De Panfilis *et al.*, 2015).

The fourth domain, interpersonal self-esteem, is how people perceive people with dementia based on management of the care facilities. The domain was primarily defined as one of the human needs that encompass confidence, strength, personal and social acceptance, and respect from others (Maslow, 1970). Initially, self-esteem means how psychology of design can increase the development of people with dementia by making improvements in their physical ability and motivating them. As the concepts of self vary from culture to culture (Sasat *et al*., 2002), self-esteem was acknowledged as a personal factor that they must admit when taking care of Western clients and simultaneously taking care of others without 'self'. The self-esteem development becomes the availability for support provision and locates on secure base to develop self-esteem in social interaction (Harris and Orth, 2020). As a result, the domain of self-esteem will be achieved if an individual's self-esteem is formed around work and organisational experiences (Gardner, 2004) and socially constructed concepts (Taylor, 2018). Hence, the themes of dignity, knowledge, and respect match the concept of organisational-based self-esteem (Oguegbe, 2021).

The last domain, self-actualisation, is the complete realisation of one's potential and the full development of one's abilities and appreciation for life. The domain is the final stage of development in Maslow's hierarchy of needs. In the context of older people, self-realisation resists the negative effects of internal and external triggers and moves forward to the direction of growth (Gholamnejad *et al.,* 2019). As a result, spiritual enlightenment can be presented and interpreted by individual creativity for knowledge and a positive transformation of the society (Gholamnejad *et al.*, 2019). People with dementia should be treated as a person, where adjustments are made to each capability. Hence, the capabilities (i.e., identity and competency) are required for people with dementia and the care stakeholders to acknowledge their roles. Notably, the competence of care staff who work in dementia care settings is related to the quality of care (Chan *et al*., 2020). Therefore, with specific training and education, support staff should focus on solutions to progressively meet the needs of people with dementia.

Finally, the co-design workshops demonstrate how the care stakeholders contributed to the final framework and the limitations of the developed tool. The synthesis between the two co-design workshops shows the emergence of an agency of people with dementia. Hence, dementia perception should not be limited to the person's agency for a need of external support for decision-making (Smebye, Kirkevold and Engedal, 2012; Daly, Bunn and Goodman; 2018). Family members have, therefore, the main role to be legally empowered and to participate in decision-making on behalf of people with dementia.

11.5 Contribution to Knowledge

The research study has contributed to knowledge on two levels.

First, the research study has led to a better understanding of dementia care and person-centred care. According to Tom Kitwood's person-centred care approach (Mitchell and Agnelli, 2015), the human person is also an embodied agent (Hughes, 2001). Dementia often limits the person's agency to an extent that there is a need for external support in making daily decisions (Boyle, 2013). Family members who are legally empowered to participate in decision-making on behalf, usually provide this support. Health and social care personnel develop an understanding of the role of the caregivers in the decision-making-process, and therefore know which mechanisms need to be promoted or discouraged, through training (Bosco, 2018). According to the design for person-centred care (Mas *et al.,* 2021), effectiveness and efficiency of nursing homes are suboptimal due to high rates of dementia symptoms (van de Ven *et al.,* 2012) and work-related stress among the staff (van de Ven,

Draskovic and Adang, 2012). Additionally, designers are based on their design decisions on their own experiences, specific ability, legitimacy, and validity of the first-person perspective (Smeenk, 2016). Having a person-centric framework is to understand and to fully explore the environment where behaviour is necessary (Balqis-Ali *et al.,* 2022). As different care organisations have different care approaches, they might have different visions in dementia care. Hence, co-design processes can enable people with dementia and care stakeholders to engage in the design processes, which have a specific impact on products and services (Rodgers, 2016). Therefore, similar to Sanz, Acha and Garcia (2021), co-design workshops become the key to deliver people-centred care (Sanz, Acha and Garcia, 2021), because the development of health innovation involves all stakeholders (Franco-Trigo *et al.,* 2020).

Secondly, through the development of a design framework. The existing design tools for dementia care often concentrate on the physical needs of the environment, which focus on human behavioural symptoms, such as wandering or agitation. However, from the research study, external factors of organisational capabilities as a framework, including strategic management, design and skill training support, emerge when a company delivers on the combined competencies and abilities of the individuals. According to the design framework, the designer's role is acknowledged as an individual with capabilities whose capabilities to design are effective resources to design effectively. Here, the extent of self-actualisation has been presented within a frontline and upper-level managers in several organisations (Nonaka, 1994; Gopinath, 2020). As a result, the development of the framework reviews the uniqueness between case studies, which the organisational vision constructs organisational capabilities. Therefore, the design framework needs to include a combination of dynamic capabilities and capability management that creates more flexible and dynamic organisations. Hence, care organisations can easily adapt to new market trends and easily go through market turbulence. More importantly, each domain of the design framework can be utilised by different users, including care managers, caregivers, designers, and policymakers.

11.6 Future Research Development

The future research intends to:

- To further explore the relationships between dementia care and design.
- To establish the design framework's transferability to similar contexts.
- To clarify the relationship between architectural education and occupational therapy disciplines.

Due to the COVID-19 pandemic, some amendments to the research design were necessary; for example, the co-design workshops were set up separately in different case studies. Subgroups of three people were able to participate in the internal discussions, in which they worked on the same themes or variations. The collaborative problem-solving sessions could not incorporate individuals within the healthcare, design, and occupational therapy fields that use design thinking to address current dementia care issues. A combination of architecture and occupational therapy disciplines could not be achieved during the workshops due to the social distancing policy.

Different contexts of case studies (in Bangkok and Chiang Mai) were not investigated and compared in relation to rural–urban division and how the framework can be applied. Finally, the framework should be performed by multi-disciplinary teams, whose members need to be trained in approaching the person and the relatives from different perspectives to certify the quality of care.

From the research study, new gaps in the research findings have emerged. As the understanding of dementia care in Thailand was lacked, there is a gap between design framework and design practice. The relationship between care managers and designers was lacking in the research. The development of the design framework shows that the most significant issues in design pedagogy and practice is educating architectural students and practicing designers to ensure that analysis soundly leads to synthesis. The main objective is to connect the creative gap between design research and insights into concepts. This became a stigma for most practitioners and care managers concerning the whole lifespan approach. As the research findings stated that these design needs should be designed for childhood, there is a need for further research on how these design care needs can be extended into the lifespan approach. The prevention of disease and the promotion of behaviours of healthy ageing balances ecological environments, which become a way that maximises functioning and well-being across the lifespan (Albert, 2010). More importantly, in the context of Thailand, there is an increasing gap between the urban–rural division, primarily about budget shortages. The design framework can be used by policymakers, designers, and care stakeholders. Therefore, there is a need to contextualise the design framework in low to middle income contexts where the current care culture and demographics are changing. Furthermore, the co-design research should be developed further to indicate the stakeholders' requirements for the inclusive communities and how they translate the design framework into the physical built environment.

11.7 Summary

This chapter reflects on the research study and discusses its findings. The overarching aim of the research study is to develop and disseminate a design framework and design recommendations for an enabling environment for dementia care. The core research question is how the design of an enabling environment can support the quality of dementia care. Case study research was used. Three main research methods – in-depth interviews, ethnography, and co-design workshops – were applied to the case studies. The data collection and data analysis procedures were explained in the thesis structure based on the research objectives. The research findings indicate that five main domains emerged from the study. By comparing these with the existing design tools and guidelines, the five main domains guided the development of the existing design tools for an enabling environment for dementia care.

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12 APPENDIX A – ETHICAL APPROVAL

12.1 Approval letter

Yanisa Niennattrakul
Registration number: 170119056
School of Architecture
Programme: Standard PhD in the School of Architecture

Dear Yanisa

PROJECT TITLE: Design and Assessment Tools of an Enabling Environment for Dementia Care
APPLICATION: Reference Number 026675

On behalf of the University ethics reviewers who reviewed your project, I am pleased to inform you that on 21/05/2019 the above-named project was **approved** on ethics grounds, on the basis that you will adhere to the following documentation that you submitted for ethics review:

- University research ethics application form 026675 (dated 30/04/2019).
- Participant information sheet 1060699 version 1 (29/04/2019).
- Participant information sheet 1060703 version 1 (29/04/2019).
- Participant information sheet 1060702 version 1 (29/04/2019).
- Participant consent form 1060701 version 1 (29/04/2019).
- Participant consent form 1060705 version 1 (29/04/2019).
- Participant consent form 1060704 version 1 (29/04/2019).

The following optional amendments were suggested:

See notes regarding data storage, security and protection, and about recruitment of participants.

If during the course of the project you need to deviate significantly from the above-approved documentation please inform me since written approval will be required.

Yours sincerely

Irit Katz
Ethics Administrator
School of Architecture

12.2 Participant Information Sheet

Participant Information Sheet

Research project title: 'Design and Assessment Tools for an Enabling Environment for Dementia Care'

You are invited to participate in a research study, which looks at an enabling environment for dementia care. Before you decide whether to participate, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and feel free to ask me if you would like more information or if there is anything that you do not understand. I would like to stress that you do not have to accept this invitation and should only agree to take part if you want to.

Thank you for reading this.

1.   What is the purpose of the study?
The research study aims to develop an architectural design and assessment tools of an enabling environment for dementia care. In this research phase, the objective intends to investigate how can building users use spaces of dementia care homes and shape the designed environment to reciprocate their personhood and enhance the quality of care. The results of the research study will be documented and analysed based on the literature review. In addition, the building users' observation will be used to compare with the perceptions towards the design of the physical environment of dementia care homes to further develop the design and assessment tools of an enabling environment for dementia care.

2.   Why have I been chosen to take part?
As a part of the second phase of the research project, the researcher would like to observe how building users perceive, utilise and shape the designed environment of dementia care homes in their everyday settings. The research intends to focus on care staff as the primary research participants because they act as moderators to encourage and enable residents with their activities of daily living. As a result, the research will broaden the understandings of the relationship between different user groups, their behaviours, and the design of the physical environment, which can lead to the design potentials of an enabling environment for dementia care.

3.   Do I have to take part?
You do not have to take part. This is entirely voluntary. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form and you can still withdraw at any time without it affecting any benefits that you are entitled to in any way. You do not have to give a reason. This is for all phases of the study.

4.   What will happen if I take part?
You will be observed. The observation should take approximately one day (from 9am - 5pm for each participant). The observation will be conducted in the method of behavioural mapping and will be recorded in checklists as well as annotated in architectural drawings. Moreover, ethnographic drawings (e.g. sketches) will illustrate the relationship between the participants and their surroundings in sketchbooks. In addition, the researcher will take only photographs of architectural features and strictly without any people. All information used will be anonymous. There are no costs or risks associated with this activity. It is no matter 'right' or 'wrong'. We appreciate that you could participate in your daily activities with us.

5.   Are there any risks in taking part?
Participating in the research is not anticipated to cause you any disadvantage or discomfort. No potential physical or psychological harm or distress is expected.

6.   What if I am unhappy or if there is a problem?
If you are unhappy, or if there is a problem, please feel free to let me know by contacting myself or my supervisor.

Supervisor
Name: Professor Karim Hadjri
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7.   Will my participation be kept confidential?

All the information that I collect about you during the course of the research will be kept strictly confidential. You will not be identified or identifiable in any of the material associated to this project. Data will be anonymised, and any data collected about you in interview will be stored in a form protected by passwords, or in a locked space. Moreover, as the final results will be published in academic journals and disseminated at research seminars and conferences, your participation will be strictly unidentified in any form.

8.   Will I be recorded, and how will the recorded media be used?

Your uses and behaviours will be recorded and analysed by myself. All the records will be stored in a form protected by passwords or in a locked space.

9.   What type of information will be sought from me and why is the collection of this information relevant for achieving the research project's objectives?

The information collected from you will be checklist records and drawing from behavioural mapping and ethnographic (observational) drawings based on your uses and behaviours in the dementia care home. The observations will aim to target physical design features of the dementia care home and other domains derived from the review of existing environmental assessment tools and the exploratory study. For the development of a design and assessment tool, it is vital to understand the current uses of relevant user groups to negotiate the potential of an enabling environment for dementia care. Importantly, the observations are essential for the research project. At last, the research findings will identify the relevant and valid domains to improve the quality of life for the building users.

10.   What will happen to the results of the research project?

The results of the research project will be analysed and became a part of the overall development of the design and assessment tools of an enabling environment for dementia care. In addition, the researcher intends to write a paper about the results of this part of the research project, which will be published in an academic journal and disseminated at a research seminar and a conference to contribute the knowledge in this significant research area. Moreover, we will send you a copy of the final report for the information, and we will invite you to attend the research seminar if you are happy to be involved. Importantly, we will ensure that the data collected from you are untraceable back to you in the publications and other dissemination processes.

11.   Who is organising and funding the research?

This research is organised by the School of Architecture, University of Sheffield and is self-funded by the individual researcher, Miss Yanisa Niennattrakul.

12.   Who has ethically reviewed the project?

The internal ethics committee of the School of Architecture, University of Sheffield has approved the module's assessment.

13.   What will happen if I want to stop taking part?

You can withdraw at anytime, without explanation.

14.   Who can I contact if I have further questions?

If you have questions about this study and the interview, please contact Miss Yanisa Niennattrakul, School of Architecture, The University of Sheffield, Arts Tower, Western Bank. Sheffield S10 2TN, UK Email: yniennattrakul1@sheffield.ac.uk

If you have any complaints about this research or researchers, please contact Professor Karim Hadjri, School of Architecture, The University of Sheffield, Arts Tower, Western Bank, Sheffield S10 2TN, UK.
Tel: +44 114 222 0307. Email: k.hadjri@sheffield.ac.uk

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Thank you for reading this.

1. What is the purpose of the study?
The research study aims to develop an architectural design and assessment tools of an enabling environment for dementia care. In this research phase, the objective intends to test how the design tool of an enabling environment for dementia care can be contextualised and validated as an assessment tool in transferable contexts and cultures by involving potential user groups in the design process. The results of the research study will be documented and analysed based on visual data analysis. In addition, the design and assessment tools of an enabling environment for dementia care will be further discussed from this research study.

2. Why have I been chosen to take part?
As a part of the last phase of the research project, the researcher would like to arrange a focus group interview to co-design which involve all related stakeholders (including care home managers, care staff, and architects) in the design process of an enabling environment for dementia care. Also, the focus group interview will maximise the chance of learning the participants' opinions and visions upon the developed design tool of an enabling environment for dementia care, which aims to enhance the overall quality of care.

3. Do I have to take part?
You do not have to take part. This is entirely voluntary. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form and you can still withdraw at any time without it affecting any benefits that you are entitled to in any way. You do not have to give a reason. This is for all phases of the study.

4. What will happen if I take part?
You will be involved in a focus group interview. The focus group interview should take approximately 1.5-2 hours. With approximately 3-4 participants (including stakeholders such as care managers, nurses, physical therapists, and care staff) from all potential care homes, a focus group interview will be arranged as a co-design workshop. A reverse-engineering method will be applied to test and contextualise the developed design tool and convert it into an assessment tool. Moreover, video documentation of the focus group interview session will be recorded for visual data analysis. All information used will be anonymous. There are no costs or risks associated with this activity. It is no matter 'right' or 'wrong'. We appreciate that you could participate in your daily activities with us.

5. Are there any risks in taking part?
Participating in the research is not anticipated to cause you any disadvantage or discomfort. No potential physical or psychological harm or distress is expected.

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If you are unhappy, or if there is a problem, please feel free to let me know by contacting myself or my supervisor.

7.   Will my participation be kept confidential?
All the information that I collect about you during the course of the research will be kept strictly confidential. You will not be identified or identifiable in any of the material associated to this project. Data will be anonymised, and any data collected about you in interview will be stored in a form protected by passwords, or in a locked space. In addition, the final project will only be used internally by The School of Architecture, The University of Sheffield, to evaluate the work of the student, and the project does not involve public sharing of the results in any form.

8.   Will I be recorded, and how will the recorded media be used?
Your answers will be recorded and analysed by myself, and all the records will be stored in a form protected by passwords or in a locked space.

9.   What type of information will be sought from me and why is the collection of this information relevant for achieving the research project's objectives?
The information collected from you will be your opinions and perceptions during the co-design workshop about the developed design tool of an enabling environment for dementia care. Moreover, your opinions and perceptions will be relevant for a reverse-engineering method which will be applied to test, contextualise, and convert the design tool into an assessment tool. For the development of a design and assessment tool, it is vital to integrate opinions and perceptions from related stakeholders into the developed design tools. As a result, the research findings will identify the relevant and essential domains to improve the overall quality of care for the building users.

10. What will happen to the results of the research project?
The results of the research will be disseminated at a research seminar and a conference, and a paper will be published in an academic journal. We will send you a copy of the final report and we will invite you to attend the research seminar if you are happy to be involved. However, you will not be identified in any form. We will ensure that the data collected about you is untraceable back to you.

11. Who is organising and funding the research?
This research is self-funded by the individual researcher, Miss Yanisa Niennattrakul

12. Who has ethically reviewed the project?
The internal ethics committee of the School of Architecture has approved the module's assessment.

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12.3 Consent form

CONSENT FORM

Full title of Project:

'Design and Assessment Tools for an Enabling Environment for Dementia Care'

Name, position and contact address of Researcher:

Miss Yanisa Niennattrakul
FT PhD student
School of Architecture
The University of Sheffield
Email: yniennattrakul1@sheffield.ac.uk

	Please initial box
I confirm that I have read and understand the information sheet, dated (………………….) for the above study and have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	☐
I understand that my participation is voluntary and that I am free to withdraw at any time, without giving reason.	☐
I understand that my responses will be kept strictly confidential. I give permission for members of the research team to have access to my anonymised responses. I understand that my name and identity will not be linked with the research materials, and I will not be identified or identifiable in the report or reports that result from the research.	☐
I understand that it will not be possible to withdraw my data from the study after final analysis has been undertaken.	☐
I agree to the interview being audio recorded.	☐
I agree to the use of anonymised quotes in publications.	☐
I agree to take part in the above study.	☐

_____   _____   _____
Name of Participant   Date   Signature
(or legal representative)

Yanisa Niennattrakul
_____   _____   _____
Name of Researcher   Date   Signature

Professor Karim Hadjri
_____   _____   _____
Lead Researcher   Date   Signature

Copies:

Once this has been signed by all parties the participant should receive a copy of the signed and dated participant consent form, the letter/pre-written script/information sheet and any other written information provided to the participants. A copy of the signed and dated consent form should be placed in the project's main record (e.g. a site file), which must be kept in a secure location.

13 APPENDIX A – INTERVIEW TRANSCRIPTIONS

13.1 Interview Transcriptions of Managers (Group 1)

P: I can stay for half an hour or an hour...approximately. So, I will tell you in general about the stories of Vivo Bene. For Vivo Bene, 'we' established the company…Vivo Bene Thailand ltd. in 2012. Then, we took about 2 years for construction. We opened the resort in the late 2014. The stakeholders of Vivo Bene Thailand Ltd. are all 100% foreigners who are 100% Swiss. The reasons why we can do this, is because we are supported for the investment by BOI (Broad of Investment) from Thailand. The main reasons that all the stakeholders would like to be under BOI…are because 1) the first reason is we would like all stakeholders to be 100% Swiss because normally in Thai law/regulation, aliens (the term used by the participant himself) cannot own more than 49%. But here, it is the whole 100%. The second point is the company itself wants to own the land in the name of the company (in total). Because they are worried about if the nominees are Thai, there will be some following problems. The third reason is we want to become under BOI to be able to hire professionals from Switzerland to work here easily. This is because under BOI, we are able to hire people from foreign countries e.g. Swiss, by not having limited ratios. Normally in Thai company, the general companies require to have proportions for example how many Thais versus how many foreigners. In our case, we don't have proportions. We can hire as many as we like. But, we cannot hire too much because the cost will be very high. As the result, all expenses will be higher. So, we have the broad/managers who are all Swiss.

We opened in 2014, and now it is 2019. So, it is almost 5 years. The main reason why the Swiss 'investors' chose to invest in Thailand especially in Chiangmai has four main reasons. The first reason is people, I mean in terms of human resources. According to the owner, (Mr. Roger Holzer), is the investor who foresees that the world is ageing indeed. Especially in European countries (R: Yes…) they are in ageing society, the market can still be going. Okay…the main site, he (the word can identify the hierarchical status) observes the locations in Asia. The Asians look after their ageing parents/older people by themselves. We are humbled. We have the culture of (- the term is tricky because in Thai, literally it can be translated as look after) taking care of older people indeed. But, they only have to adapt into 'European style' (sounds very easy). We are 'Born to be' for doing this kind of job because we are calm (some dictionaries also translate it as be patient), have good hospitality, and have smiley faces. These points are the main/primary concerns, which have in our human resources.

The second point is Chiangmai itself…He (the boss- the word indicates a hierachical status) chose Chiangmai because Chiangmai is the province which is large in scale but it is not too busy…not as busy as Bangkok. In fact, we have to firstly cut it as a choice because it is a very large province and it is extremely busy, which is surely not suitable for older people (retirement?). For other provinces such as Phuket etc. they are also interesting. But, when we chose Chiangmai. Chiangmai is the main province, which is ready in 'every' aspects; lifestyle is also be ready. If you want something, for example products from foreign countries, department stores and shops or things/products are fully available and presented. If they are not available, we can order from Bangkok, which is okay…Another thing is the important aspect of looking after older people is medical aspects. This is because…surely…old age…most older people, even though they are fit, they will still have some sickness. So, they still need some medical services which Chiangmai has a place to produce these human resources which are the Faculty of Medicine of Chiangmai University or the related Faculty produces doctors, nurses, physical therapists and occupational therapists, pharmacists, and dentists…have all aspects and the living cost in Chiangmai itself is not that high comparing to Phuket or Pattaya. This is because the older people when they come to live here, they have limited budget and pension. Each of them has different amount of pension. They cannot

spend. So, cost is the third point which...cost conscious is important...have to be suitable...to spend on what and how of medical expenses, living and eating cost. So, Chiangmai serves the needs (literally translate into answer the problems). Food is not yet expensive and peaceful. Next is the fourth point, Chiangmai is quite peaceful with culture and tourist attractions. The tourist attractions, not so far, we can discover mountains, temples, and communities. It is quite 'enabling' the decision of the living as a long-stay and peaceful destination. This is the four reasons….okay. So, after the owner and the team of the managers, they decided that they would stay in Chiangmai. They established the company in 2012. So, in the time while establishing the company, the project starts as the project for taking care of/looking after the older people at the starting point (in his mind might want to compare with other projects). Other places that are the places for looking the older people, many places happen as they already own the resort, then they might adapt a little bit for ramps. Or dividing in zones that are only for looking after older people.

But, for Vivo Bene, it is not. It is started since the beginning. Before establishing the company and before the construction, our aims and objectives are for caring the older people. The design aspects are from the enabling for looking after/caring the older people. Also, they are from the research. The main point is the wheelchair accessible (in the whole property) in Vivo Bene. In the room…for the part of building, the building has only one floor only…with stairs and ramps. If you can see from the bedroom…with wheelchair…the bathroom is quite big. Guests with wheelchairs can move and turn around by themselves. For handrails, we will add only in suitable amount. This is because the mentality of the Europeans and Thais are different. For Europeans, their belief is they will help themselves first before asking for help (from anyone). So, our duties (- can also mean function / did he mean responsibility?) are to provide various facilities for them for example there is a case which the 'customer/client' (Swiss) require to use a hospital bed or that we call a care bed. We organise for them but in the end, when he/she arrived he/she wants to take them out. Actually, they are sick…so what we did is the function of the bed can be adapted to raise up the feet or raise of their upper part. Another case, we knew that he/she used wheelchair, so we installed the handrails all over the place in a room. They don't want...they don't want a hospital here. They don't want to stay (also means rest or take a vacation) in a hospital. So, the main concept which are special is because it is the combination between hotel and hospital together. For the atmosphere, we want to be like staying in hotels or resorts, but with care as an additional service. So, it becomes the hotel and hospital as a combination. The human resources are the combination between two groups which are the group with experiences of hotel/hospitality e.g. the general divisions in hotel such as reception, housekeeping, restaurants, kitchen, and maintenance. But the additional part which are special than other hotels or resorts are that we have a care department, which are the main sector of us.

So, back to the design aspects…that I have told is all wheelchairs accessible and also based on the research on care for patients with dementia. This is because based on the research the patients with dementia should have social/society/association (interaction). To be defected by dementia, medicine is still an important factor because it cares for various symptoms such as no anxiety, no agitation, no hallucination, which medicine is an important factor. As affected by dementia, to cure back to the normal, at this moment, there have no medicines to cure it yet. So, the main function of medicine is to support/foster/sustain the symptoms, and not let it down too fast and has side effects on the patient. The medicine will have that function. But in the research in the field of caring older people in Switzerland, found out that social/society and 'activities' are making and improving their quality of life. We expect when the clients come to stay with us to have a good quality of life.

So, to organise/arrange rooms (like the one that you are staying, one pavilion has in total 12 rooms. Each of the corners has three rooms, connecting. Firstly, we can still have privacy. You still have your own room. But there will be in two in the three rooms, which has a connecting door designing for the family to live with them. Because the Europeans, some

couples don't stay/sleep in the same room. Or, we are flexible, which means one room will function as a bedroom, another room we can set up into a living room. I have one guest – one person but rent for three rooms in one corner. Why…This is because one is for bedroom, another is office/living room, another is the storage room. Possibly. This is the flexibility…you have privacy but you can also integrate together with friends. Secondly, inside the pavilion, there is a common area from the front area when we are entering, we will see the common area. We call it common area or living area. It is the zone (area/spaces) that the client/customer can come to do activities together. For example, in the morning, they are having breakfast together, playing games, exercising, relaxing in the afternoon. This is because in that area we will not have any furniture that are fixed. There are tables, which can be moved. In the morning, they can set up a little buffet line to eat in the pavilions. Or, they can have various activities such as drawings, or listening to music, or moving all chairs out for dancing. So, everything is flexible (adjustable/resilient). However, these adjectives are used in human. If for objects, the word means stretch and expand (only in sizes) and can do/run activities. Also, if you notice, inside there is the circulation/corridor is quite wide and can walk around, as a square (form/shape). Why is that…This is because from the research, people who affected from dementia or Alzheimer's if they have symptoms or panic, they cannot walk back. Normally, the way they express is by walking. If they walk and face the dead-end, they will collapse and don't know what to do next. So, we design the whole building to be circular, both inside and outside, if you have noticed. All of the road, will come into circle. Why is that? If the client/customers, have symptoms, panic or anything, they can walk, walk and walk until they feel good and relaxed. The symptoms will be faded away. But if they faced dead-end, they cannot decide what they have to do, it will cause more difficult to care. Another point is caring, we believe that the patients who are affected by Alzheimer's and dementia, if cannot. For example, if we know they are going to walk, "do not walk!", they will be more resisting against us. So, what we do…we allow them to walk, but we…our caregivers have duties to walk and follow or care for safety. If the way in front is dangerous, we then gradually/slowly (time-wise) find ways to deviate their attentions (depend on each caregiver) for them to do other things. But, there will not be must not go/must not walk/sleep!". So, in the building, it happens that we designed that the walkway is wide enough for the wheelchair, have circular, and handrails. The handrails also have lighting under for them, in case they come out of the room in the night time. They don't know where to go. They will have handrails.

Also, the design of the building itself is high ceiling, Even though it is only one floor, but it is bare/clear, airy due to the high ceiling and allows the maximum natural light by opening the sunroof. As the job of caring the older people, if they stay in the room, which are small and narrow and dark – they will be more depressed. To let them get sunlight), they will feel more active. If they have to stay in the room, they will feel (dismal) – it is dark …it is sad. So, we emphasise to be outside the room as much as possible. But, if they don't want to go out the room, at least they can still get some natural sunlight. Also, inside the room as you can see, the room is simple and we didn't do any decoration. At first, at the starting of the project, we decide not to put on televisions (…some interruptions). At first, it is a plain/normal room, we decide not to have TV in each room and the common area is the only place to have a TV. We have a room called TV room, because we don't want the customers to stay inside the room. We want to drag (which means attract/appeal) to do activities outside as much as possible to stay in social/society and friends, and caregivers as much as possible. But, okay…They want to have some privacy, want to watch TV that they like. So, we decide to install TVs. But, at first plan, we decide not to have any TVs in the room. Because if there's TV, people will only stay in their rooms and not come out of the room...so okay we still have TV inside. But mostly, our customers, we try to pull them to be outside as much as possible.

For example, the eating routines, normally they will eat inside the pavilions. But also, there are some customers who want to eat in the restaurant…and they can. As you notice, there are some customers who are using wheelchairs who come to the restaurant to change

atmosphere. So, it depends on to choose any of choices (?). Here, we are flexible and we are not forbid the guests. It is fine if they want to have lunch at 1 pm.

R: So, each person has to inform first (…)?

P: (…), most of them will inform first. So…because our customers are not too many, we have only 80 rooms in total. And, the whole 80 rooms are not fully occupied. This is because, as I have told you, one person in three rooms, or one person in two rooms. But the majority ratio is 1:1 room. The guests, if full occupied in 80 rooms, the guests will not exceed 60. So, the 60 guests, they are not that much to look after/ care for what they want, or should be. We want the atmosphere here to be like be at home/staying at home. So, our employees will treat the customers like family members. So, they will know how this customer/client like, what they like or dislike. What is their food allergy (especially nut allergy). What they like or dislike eating. What activities they like or dislike. Okay…we cannot 'that' 'personalise' everyone like 1:1. But what we do is that we do 'grouping' – the group of people who like activities. We will group them in the same pavilion.
. Some of the building, they are Alzheimer's. Some will have symptoms of Parkinson's, post-stroke…after getting stroke, they will get less blood into their brains, the symptoms will be continued. Some of the pavilions are not sick. Some of them are just retired and still active. Then, separated. So, we divided/separated pavilions into symptoms and liking. This is because people who are /or have same liking will be in the same group. As, we can see, if someone come to stay next to our room, they will be strange.

R: Like neighbours?

P: Yes…so, the grouping comes like this.

R: So, the hotel is the one who manage this?

P: Yes we did. We will consider (the condition?) and will have an experiment. Like if they are not happy, they can move a little bit until they are all settled. So the room is not totally fixed that you cannot move to other rooms. For example, one of the case is affected by Alzheimer's, at first, they might be in the first stage, but then the stages are progressive and more advanced.

R: As they are more advances, how does Vivo Bene change for them?
P: So, mainly for caring we work together with three stakeholders…The first stakeholder is family. The second stakeholder is doctor. The third stakeholder is Vivo itself. So, we are working together within three stakeholders. So, if the symptoms of dementia is more advanced. Surely, we require asking the professionals who are doctors. We have to talk to doctors for the suitable procedures both from Switzerland and Thailand. This is because we are in Thailand. So, we have to co-work. Because sometimes doctors in Switzerland, they have prescriptions, then we have to see if we have these medicines in Thailand, or we have something else which can be used instead. So, the professionals have to be agreed about it. 'We' have duties to talk to family, we have to communicate to the families because they are far away. They do not stay with them here. So, we need to communicate. Surely, we require information from the professionals (doctors) to talk with families. Then, the families will have recommendation or any suggestion will have to be discussed with our recommendations to find solutions together.

P: So, in the bedroom, the things that we might change are….at the moment is there might be some relocation or zoning. Moving into another zones. For example, there are some new guests, which when they firstly came, feel that there are too many people. Some people affected by Alzheimer's and dementia, they don't like too many people (crowded). If crowded, they will feel busy. We might need to move them to a more private zone. Then, they will have

a caregiver to look and tail/shadow (. Or, previously…like this. We are not yet installed other equipment. But, some safety equipment is installed. But, not the aspects of design which have to construct something 'new'.

R: So, the equipment…is it some kind of technologies?

P: We might install some additional handrails. Also, we installed what we call nursing call system. We used the system from the Swiss-owned Signacall which are button alarm which to give them…So, normally, caring/looking after the customers, the employees are tailed. We have enough people. In Switzerland, the problem is that they don't have enough people. If to get enough people for 1:1, it is very expensive. For these wages, no matter what, it is still not enough. So, we use large amount of our human resources to look after thorough. So, this system is for supporting. So, mainly we use human first to help looking. But if 1) not enough people or 2) the clients really want privacy by not allowing to mess up. Then, we can merely change to alarms.

R: So, does the design also support the caregivers too? (dead air and silence...). Like, some cases in European countries, the caregivers are very stressed out. So, I don't know if in the context of Thailand, if there are these kind of issues also.

P: So, to point out, that we are helping each other is that. You have to except that the way of working of Thai people, we are helping each other out. So if there are problems. We use the concept of... if having problems, Thai people will help each other. With our culture, we like to…is it called a good or bad point. If we cannot solve problems, we will call/ask others for help. If there are something, we will call out "...come to help me", like helping each other out. For example, the European guest, has a big body size, if one caregiver cannot able to hold, they will just call out "ok…come to hep me". We also have some equipment to help out the caregivers for example, we have turner, the nurse will show it to you. Turner will help the patients from the bed to be in wheelchair. If, you let them stand, and then lift them up and turn them by not holding ().

R: Because sometimes they are dangerous for...

P: For cargivers…because we have small body-size. Like, sometimes, the Swiss are more than 100 kg., our employees are 40-50 kg. So, we need this equipment to help out. Then, have this equipment. But, main, in my opinion, the employees, we have disciplines that we help each other, and also because we have enough human resources. As I know, in Switzerland, 1 caregiver/care staff requires to take care of 10 people.

R: So, the ratio is 1:10 in Switzerland?

P: Yes, it's 1:10, 1:8. Or, sometimes it might be more. But in Thailand, it can be 1:1. So, the stress, there is still there. The task of caring older people can certainly cause stress. With work burden and workload, it might be less. One nurse might care for two people. Or three people (for less severed people). But with more severe, we can look after in 1:1 manner. So, if someone is not okay e.g. can't hold the situation (), it can possibly become 2:1. In my opinion, I think that Thai caregivers are still have stress but might be less than Europeans because the amount of our human resources which is enough, secondly, because the work culture that are flexible and help each other. Supposedly, the guest has some issues, then we will talk to each other and ask how we can help each other by asking advice from Khun Doris, which is the head of nursing team to come up with some procedures. Khun Doris is very flexible. She is Swiss who is working great with the Asians. So, she has duties of having opinions, but she will not force to do. You still have your own solutions. If your solution is not okay. You may use my solution. So, we have both Swiss and Thai. Also, we have Khun Nausheen who is a Bangladesh. So, I think it is more like sharing. Sometimes, for example, Swiss people, we

have to accept that they are smart. They are entering the ageing society for a period of time. They do research about this for more than 10 years. So they know how or methodologies. But, in practice, it came out that it is hard because 1) stress, 1 caregiver has responsibility to care for many guests. Then, when they're stressed. Especially people with Alzheimer's, they will pass on the stress. They can sense easily, even though you didn't speak, acting, closing doors (loud noise), or facial expression. They are very fast. So, Khun Doris have told that the guest which are Alzheimer's, they are flown from Switzerland. The family (husband or wife) will come as well. They will be very busy. Even though the Swiss landscape is very beautiful (top ranked in the world), natural environment is so beautiful, but the people is very rushed. Everything is rushed. So, when they arrived in Chiangmai airport, we brought our employees to pick up with Khun Doris. Have a conversation – welcoming to stay with us. Gently do () and not rushed. If you want to eat anytime you can, you can do anything you want. With the atmosphere here, it is very very quiet. You believe that the guest stays 3-4 days, the guest smiles. We didn't do anything. We just allow them what they want to do. For example, if he/she don't want to do take shower, it is okay (we can gradually find ways). In foreign countries, if it is the time, you have take shower.

R: (Like routine?)

P: Yes…if you don't eat now I need to be with the second one now.

R: So, it is the matter of time when everything is all rushed.

P: Yes, correct. This is because they don't have enough human resources. If someone has thirty minutes. You have to finish everything in 30 minutes. If not finish….But here, if within two hours, you have not taking shower…nevermind). We can convince them to take a shower in the evening instead. There's one guest who doesn't like taking shower. She/he always screams. However, after stay here for 3-4 days, they are convinced to take shower and they smiled and happy. Comparing to when they are back in their countries, they are stressed and not smiled to their family. They always frantic all the time, whereas staying here they smiled. Sometimes, we cannot communicate to each other. As you know, most Swiss speak German. Some cannot speak any English. But we smile and said "Sawasdee ka" can make them feel relaxed. In my opinion, the main core part of Thai caregivers is the people and our culture. But we still have some weaknesses, according to our culture, we. What they want to do we allow them to do. We will all agree (?) which make VivoBene different because we combine the Thai and Swiss cultures. For example, we use the respectfulness and humbleness (?). If they have to eat or take medicine, if they are Thai, we tend to serve () them. But, here no… You have to eat them by yourself. Even though when you eat by yourself, it will be dirty or fall down on the floor, but you can still use hands and your hand muscles to eat. Dirty is not matter because we can clean it up after but at least you do. For example, to look after in Thai ways, if you always serve, then you will have to serve every time. So, they will not raise your hands up…

R: Like, get used to it?

P: Yes. Or taking shower…For Thai people, they don't like taking shower, we will take shower for them. So that they will be cleaned. Here, we have to take shower for them sometimes. But majority, they need to take shower by themselves because they will have a chance to practice their muscles, and balance. But if they are risk or getting risk, we will support. We are staying there. But, few times that we will get into before the guest requests (also means beg for, request, cry for). Let's put it in this way, if the guest requests/beg for (?). We will do it definitely. But, if the guest does not request/beg for, we have duties to support. We will not do everything for them.

R: So, the bathrooms are the same one as I stay right?

P: Yes it is. The handrails depend on if the customers request. We installed it as they are. But if they request, we will install it later. Previously, I fully installed, but the customers complain that I paid to stay in a resort. Not intended to stay in a hospital. It will be too much. Psychologically, they will feel that they are sick. If we try to make it like a hospital, then they are sick. We are trying to eliminate this point. But, we still have a long-stay guest which feel that when they are here, they can feel that this is a hospital already...the atmosphere. Even this...

P: The guest thinks that it is hospital-like?

R: Yes. Someone (Swiss).

P: So, it depends on their perception?

R: Yes, perception. So, we suggest them to live in a more villa type. There are eight villas in total. Previously, we design villas for the guests' families when they come to visit. But when we open, it is fully occupied (one room left). This is because the customers for long-stay who are still active want to stay in villa type where they have more spaces and privacy.

P: So, for patients with Alzhiemer's/dementia, if they dont live in familiar environment, how do you think about it? Do they have any issues about this?

R: At first, I think it would have some. From the perception of Thai people, we often think that if you are away from the family, you will feel alone and isolated. They will feel bad (or not?). However, in reality, it is in opposite. Why is that? It is because people with Alzheimer's and dementia, they are forgetting where they are now. Secondly, things that they want is their culture (European culture), they are not closed with family unlike our countries (). In the age of 18, they will leave their home, and have their own families. Parents will not associated with your life. So, the Europeans believe that the people that is suitable to look after their parents are the professionals, not families. Different from Asians, we believe that people who can care they at the best quality is the relatives . Why is that…Patients with dementia, things that are the most burdened are not themselves, but their families because the patients already forgot everything. But the families in the other hand still have relationship/connection/emotional dependent (?) . Why dad cannot remember me. This bonding can create expectations (to make things better). Then, it becomes stress that can pass on. But by staying with us, who is the care professional, our duties are to care. For example, the older people today asked who are you? Then, my name is….then done. Tomorrow, we can find other ways to interact. We don't have bias or expectations. We don't have emotional issues to concern.

R: It has to be separated.

P: We have to separate between emotions and professional like we are looking after them as duties. For example, today they forget, tomorrow we can change person to look after them. If they don't like this person. There also are some cases…like I hate this lady…hate this caregiver without reason. Yes, there is no reason for that.

R: Yes, Khun Nausheen also told me about this…that there are some cases which there's no reason.

P: There might be from their past experiences which the lady similar in body shape have done something to them in the past…so they don't like. The, we change. Some case…so that, we care them in the position that we are professionals. And, we never, we don't blame on the person. In some cases, the customer tied up their shoes and they kicked, so we have to train our employees that…we have to be careful but we always train our employees that the symptoms that they yell, throw stuffs, it is due to their sickness. They, themselves, doesn't

want to be like this, but their brains are malfunctioned…they are the symptoms of the disease. So, it is not because they hate you…but it is because of the disease.

R: So, it is a personal issue…you mean?

P: It is not the that I personally hate you, but it might be because of the past experience or other factors. So, we must not mind (- means hold, means in this context)...So, the way we present care are presented in other ways comparing to family-oriented way. For example, in family, if dad kicks us, we will ask why you kick me...So, it is the way we think...However, it becomes a positive way in the majority. There are some people that are homesick...it depends.

R: Because in some European countries...I will show some of examples...So this the Netherlands where I have visited...it is called De Hogeweyk...as dementia village...so the trend in European countries is moving into this way – home-like environment. How do you think about this?

P: In that context, is it a form of nursing home (type?)? So, did they buy or they...?

R: It is their own pension. So, it is owned by the government.

P: Okay. So, they can decorate like their home....

R: These are more like the facilities...such as music to recognise the activities inside. Because here, it is more like a resort from the first perception. And, as you have mentioned from the beginning, they cannot recognise where they are. Or, they are the normal symptoms?

P: So, their families have to tell them before they come. So, you have to know that dementia, it is not that they are all forgotten. They will remember the old things. But before they are getting on the plane, they have to be informed. But, if they are dementia (in terms of nursing home which you might have more details than myself, and what I have observed by myself because I have experienced in working in hospitality), in the perception of the person who work in hospitality industry, the customers are happy and they don't remember where they are. It is not depend if they are in Thailand, Europe, Mediterranean or other places. That is not the point, The main point is care/caring. They are happy when they are cared by enough people. They have freedom. For us here, we emphasise them to have freedom that they can do everything. If they like walking, we let them do. If they are in foreign countries, they cannot walk to outdoor spaces after they are diagnosed as Alzheimer's because if they come out it will be dangerous for them/for others. There is one case, which decide not to go out. If they go out into the communities they can get lost or harm others. The Swiss said you have to stay only inside of your home. So, the family decided to send them here because there are people who can fully taking care of. is also okay because if they are locked, they will have no freedom and cannot do anything. My opinion will be like this. To ask if they are forgettable, in my opinion, they will not interest in where they are, but at the moment of time…the current…that the life they are living now that they are caring is okay for now. It is accepted that it cannot be expected much in the future that they will be cured…or in the future…they can be getting worse. So, it is like living at the current, so that they will have a good quality of life.

R: Like in the interviews/surveys, which I have done in the UK with care home/care managers. The concept is home-like or homeliness. So, it might be their perception is the European countries.

P: 'P'…I think that this is the perception of the government instead. So, the government…it is what the government gives it to you. So, they are presented as a home-like environment (?). This is because if you move into the nursing homes which run by the government. So, you will not feel like you are abandoned. But here, it is where you pay money for, so when you pay

additional amount of money. We have to create their perception if they are living in the resort, relaxed, as a sanctuary (like that). As you pay, you will get more services like that and facilities like you are staying in the resort because you pay. In contrast, for pension, you also pay for, but you use your own pension. Then, it becomes like . This is my opinion.

R: Yeah, it is a very interesting opinion indeed…

P: If you chose to come here rather than in Switzerland (48:02), you will have to stay in your home (). Sorry…but you will stay in the flat or something else or building that they are designed. But, here you pay, we need to get more than that. There should me something more than…providing by the government/social?

R: So, for now the government also provide hospitality and nursing home.

P: I understood that it is a trend.

R: So, here even though it is pension, it is like an add-on, which allow them to pay and get more additional services.

P: It is from my opinion. I don't know what it is correct or wrong. Things that we do, so we always think about is the happiness of the customers because vivo bene is from Italian (Language), which is one of the language of Swiss. Why we didn't use German as our brand, because it is hard to pronounce and the meaning might change. So, we used ViVo Bene, which in Italian means 'Life' and Bene means 'Good'. So, we want our customers to have a good quality of life (environment and services?), to have a good social. So this is our objectives that if you stay here you will get it and it is suitable for them.

R: So, this is the last question, are there any outing for going out into the communities?

P: So, I will give you the document. We have packages each month. At the beginning, we have older people who are active (active ageing). The cost will be less starting from 55,000 Baht. So, it is the room with breakfast. If they are active, they might go to the market to buy some ingredients. Because in the pavilion, there is a kitchen which they can share. Or, they can come to the restaurant. Also, you have to remember that older people, they don't have to eat three times. Sometimes, they have breakfast at 10:30 am and have lunch at 4 pm, and some snack at night. We have outings twice a week (in the package), with massage, once a week, with shuttle service (everyday 3 times) to get into the city for buying stuff. But, if you need are, you need to go with caregiver. We organise twice a week.

R: Like in the UK, caregivers have some limitations when going out to the communities. What about in the context of Thailand?

P: For our countries (), because our culture we respect older people. From being , in fact can help and feeling pity. The older people are be pitying in Thai culture and not being aggressive to them. So they go out and majority of our clients, are not harming others. So they are in wheelchairs, going together in-group and also for the outing, we need to choose. We need to choose which one is suitable for our clients. The caregivers, which is the main person is called occupational therapists who design who can and cannot go, and where to go. For example, they have to think about distance. For patients with Alzheimer's, if they have to stay in cars for long time, they will not be because they have to be at the same place and . So, it should not be too far. The distance should not be more than 30 minutes. Secondly, when they arrive, there should not be too many people. To have wide, open space that make them feel relaxed and private. Thirdly, for wheelchair, it has to be wheelchair accessible, without rugged floor. Toilets need to be observed before if it is suitable for older people or wheelchair users.

R: So, the occupational therapists are the one who plan?

P: Yes, they have to plan...and inspection (like research). They have to survey everything that the place is okay. Some places are suitable but there are too many people. So places, are not that suitable with rugged surfaces but are private and have activities which can relax. Then they will go. Or, sometimes they go in the wide spaces/big garden, then the people will be spread out and not crowded and . So, they will choose. They have responsibilities for surveying the whole destinations. Like, sometimes, they go to temples, but has to accepted that it is not very convenient. Or, famous tourist attractions that many thinks that they are tourist attractions such as elephant camps (if you come to Chiangmai, you have to go to Pang Chang), but sometimes the Europeans don't want to go because they think that it is an animal abused case. And, they will not go. Some will be excited and like. So, we will organise as a group. Some like then they go.

R: They have to register?

P: Yes, they have to register…and flexible. But, mostly will be not too far because they cannot be in the car for too long. Mostly, we will use the places in Doi Saket area. For example, if go to the temple, we will go to, walk up the Chedi for exercise. It is also quiet which make them relaxed. Or, going to the nearby café to change atmosphere. There is a café () which is decorated as Harley Davidson, older people in that generation (1920s and 1930s), they will be happy to see the cars. Also, they have a big garden, some one who likes flowers will go. Each group will not exceed 10 people. So, we have 2 cars. Caregivers will sit there with them.

R: How many of them?

P: If we go once, it will not exceed ten people (voice: not sure). It will not be a big group. Because someone is not convenient to go. Someone does not like. Someone who is active, we will let they go. This is what we do…

R: Thank you very much for your time (going to Swiss for the work). – for Alzheimer's dementia, if you are stress, they will use feelings and body language. They can read you very fast. We will not focus on because we might focus on communications. They will know quickly this person is not okay with me (- conflict). But, for languages, at first we are a bit worried because the Swiss speaks German. But, the most important is body language instead. If they are panic, we can hug or soothe or hold one's hand. You don't have to speak any. They will understand what we want to communicate. But, sometimes, someone can speak fluent language but it is not from heart. Then, they cannot feel it. So, my strategy for the caregiver is to have turn around shift. Not Mr. Peter and Miss KorKai are together all the time. My concept is everyone has to circulate the care, not only one. Also, we are worried that if we let someone to look after someone (), they can create bonding, relationship, connection, emotional dependent () and then there will be problems.

R: In research paper, they want to be person-centred care and one to one.

P: We are afraid of the patients are male and caregivers are female. Then, if they are like each other or fall in love with each other. So, we have to be careful. So, we are not fixed. Even though we are person-centred care too, but ours is person-centred care as a team. This person is not able, there will be another instead. If it is one person, there will be bonding – staying together everyday. We don't want this to happen. It is not good for business. Oh, your business is finding a wife for foreign husband. Like, in the past, Thailand has an issue of Thai massage as it is covert (). It took quite long time to change this image and we are professional…like 10 years. So, we are very serious about this. If it happens it is not be worth. This is my view as an operation in terms of big pictures and business. But, in terms of nursing, the team is great. I want you to talk to occupational therapists. Two have them is great in terms

of theory. They are the new generation which I like the way they work because we open for the new generation to show and they work are great. The most important things in caring older people is to be flexible and adaptive (meaning the employees?), (but also non-structural/ non-routine / freedom?). Because the case are changing every time. If we are fixed, it will be hard. You have to be flexible and adaptive (). Medicine is a part of it to maintain, but to have a good quality of life (it is not…).

R: Unlike the European ones…

P: Is it because of the weather….yes it increase the workload of the caregivers. So, I think the core is the human resources. With enough people, the stress will be less.

R: What about the supply of the caregivers?

P: So, they are local. 'P' tried to recruit the local people because 1) they will stay with us long, 2) we did a contract…not really a contract. Chiangmai is a good resource for wellness/medical clubs such as spa club, we have a long-stay club. So, I work with the club as well. Care resort is the main competitor, which there are other long-stay resorts including McKean…(bigger network) so it depends on how they choose us (even though we are more expensive than care resort). The core strength is that it has a hospital inside. It is a palliative care if it is their choice. This is because McKean (Senior centre) understood the nature of the Europeans. But if going to Bangkok Hospital (in Chiangmai), there will be so many procedures. The family wants a sufficient (?) care). There is a case, which the customer fell down here, then we send to Bangkok Hospital and the doctor said he/she requires a surgery. So, we decide that never mind () and cure according to the symptoms (). Most hospitals in Thailand want to prolong (?) lives as long as possible (). For the Europeans, in contrast, they don't want depending on the condition and living will. They have advanced surrective (planning). We work with the caregiver/to support here. So, anyone who interested can come to intern with us. Then, we will get the top students that come to work (as a partnership). They are mostly from Chiangmai and the local. If they need to drive 30 km (60 km a day). Mostly, the employees who are not local will rent somewhere close to here. You don't have to be busy driving into the city. We are outside so we don't have to be rushed/competed with others, less traffic, quiet. For the welfare (?)/workfare (), we have food and staff canteen with three meals. Also, there is a staff dormitory for the night shift. But it is not for the staff to stay here….For care resort, some of our customers move there because of limited budget.

Participant 2: Care Manager/Owner (Case Study 1)

Gender: Male; 50+; Nationality: Swiss
Location: The resort's restaurant (Before the interview session, he went to the construction site nearby)

R: This is another guideline in the context of UK...the one that is in German version...but this one is from the University of Sterling, and they have Dementia Care Design Service (DSDC) (...)

P: Oh...interesting

R: My first question is...as you are a CEO here, what is your decision for building the facility or the care resort here in Thailand?

P: The reason is I am an investment supervisor and I am looking for the investment opportunity for myself, for my friends and my families. We thought it is a business for good future. I guess...I decide to invest with loans in low interest rates. We decide to invest in the concept

which has...what can I said...take a profit from the ageing society. So, we can serve the end of life of these people. Also, the reason was...in Switzerland...especially in Switzerland, we don't have enough care and capacity. If we have, then, it is very expensive. So, people cannot afford. Well, some can afford. But, the average range and the master range for care resort. Let's say...medium affected dementia care is 8,000 dollars to up to 30,000 dollars per month. It is expensive.

R: Can I ask...why in the context of Thailand...especially in Chiangmai?

P: Um...you might have thought it is a top-down approach. On a scratch as a modeless, we knew it has to happen outside Europe. That is because of the costs, mainly construction costs. If you have to build a care home in Europe, especially in continental Europe area, you have to...it is expensive. You need heating, you need different type of construction. You can...and the renovation are also high of cost. So, at the end, hust the concept of providing best possible care level, at the affordable rate. You cannot find an ideal place in Europe. You have to go to Spain, which is 20% or 30% cheaper than Switzerland. But it is not the reason to go to Spain. So, we knew this (the idea) has been taken place in Asia. So, at the begining, we have an idea of Vietnam, and Philippines and Thailand. But for the Swiss, people in Thailand has the symphatic and the advantages. We know everyone has been here to Thailand for holidays, or know someone for the family who went there or married Thai. And, everyone knows Thai food. So, this is the...symphatic brand for the Swiss people. Thailand has been associated with good food, nice people and holiday.

R: So, you mean they knows Thailand for this.

P: Philippines...is too far away. The big advantages of the Phillipines....is the religion...Christanity. They are a little bit closer to the Europeans. But there are disadvantages of Phillipines which are the criminals, it is dangerous and far away. The food is awful (...). Vietnam...in the memory of the elderly people, there are still war. They still have the smell of Communism and war. So, this is honestly Thailand is the best place. Malaysia, we are also thinking about Malaysia. But, Malaysia is a Muslim country and it is difficult to find Swiss people who want to spend their last time of their life in Muslim country...very difficult...very difficult. So, we chose Thailand. Within Thailand, we realise the Northern part of Thailand has only a single disadvantages as it has no sea. But, all things are much better than anywhere else in Thailand. The climate is more like comfortable. And, 'we' have culture and friendly people, low criminal rate, hundreds of excursions possibly of this...compares to Pattaya, Phuket or Huahin. It is spoiled. It just that flat...flat sea they can see, but they never go to swim...may be once in their life. But, the rest of their life...they will just stare at them...and that's it. That is no excursions like here...hill tribes, many cultural events, temples, and jungles. Chiangmai is an ideal place in my opinion.

R: And, as I have some experiences to visit some care homes in the Netherlands and the UK, there is not much chance for the residents to go out into the outdoor environment or natural environment. Do you think this kind of environment can support people with dementia and the caregivers as well?

P: The good thing is we don't have the winter time here. So, in Europe in winter time, it is difficult to go outside and it is dangerous. No one likes to go outside. Dementia affected people, they need to move. They need to walk...especially the Europeans one they are on their own. They are on their own when they are healthy. It is a big different to Thais. The Thais, they are just hanging around. This is the reality. So, when they are suffered by dementia, they are still hanging around. But someone who is an entrepeuneur, always getting up early...running to the train...catching up the train. He is also like this when we affected by dementia. He doesn't change...most of the case...they doesn't change.

R: I mean they still have to move? As I have observed, Khun David he will walk to the Sala every morning and the staff said that he used to do that in his life.

P: I mean what we do in Europe. We bring them to bed very early with sleeping pills. And, we wake them up in the morning and you have to get breakfast. This is what freedom that we have here. If someone doesn't want to get up, they don't have to get up. Ok, we check what is the reason but if someone who his early life was always getting up very early...and he was suffered from dementia. Said if you want to sleep as long as possible. Most of the cases, not all of them always. Also, our person-centred care approach, allows to live in terms of the rhythm they have the same life before. You can have breakfast at 11 o'clock. You don't have to go to bed. We need some sleeping pills or sleeping medicines. So, your question is about going outside and moving outside, this is important and Thailand is a good place for that. Of course, sometimes, it is too hot. They all love summer. Also, in the care pavilions, they don't use the AC. For the elderly, the heat is okay, but they can live with that easily.

R: I am surprised also with no aircon, but they are fine with the fan. What about technologies, because in Europe, they have the policy of dementia-friendly technology to support the carers and also people with dementia. What do you think about the concept?

P: Depends on what kind of technologies. Do you have an example?

R: So, this is some example...like iPads for the leisure activities, in Japan they have developed robots...

P: They will never succeed in robots. I don't think so.

R: I have a chance to a conference which the Japanese researchers presented the model.

P: They have tried but I don't think so. The Japanese tried Tamagotchi watch (hahaha) and we don't have this in Europe and they have tried to sell this in Europe. I don't think it will be successful.

R: What about safety aspect of technology. Do you think it can be used for that?

P: For relatives, it is important because dementia affects family members and lives the life in dignity. For example, I went to care homes in Switzerland, they are very proud. They have scanners, if you have entered the room, you scan the name tag at the entrance. So, whatever you do, you have a catalogue that I have checked the toilet, I have changed diapers. You scan, and you scan everything. You can scan everywhere. They found it very efficient. But it is absolute impersonal. It is absolutely indignity. It is not caring. It is like a warehouse…this is my warehouse. At the end, it is not getting safe in my opinion and it is not getting cheaper. But it is getting more impersonal. And, the Europeans, they don't like this, I swear…

R: Here, you have a 1:1 caregivers. Because, I am quite interest when you mentioned about the unpersonal. As they are with the residents 24 hours, do you think they are unprivate, not private as well. (P: not private because you don't have your own caregiver you mean?). I mean the care staff will have to follow the residents most of the time. Do you think it…

P: This is personal….I don't know I think I might not get your question.

R: I think it might be a definition of personal in different culture as well….like sometimes their perception of 1:1 caretaker and the residents might not be private.

P: But that depends on every case, that's why I…we followed the truly person-centred care approach. Unfortunately, Doris is not here. She is the champion of the person-centred care

and other caregivers. But I know about the concept, I think there is no channels or rule, so there are someone who loves to have someone close all day and night…always…whole day…even the night. Someone, they don't want…they become aggressive. So, they have to walk and keep a certain distance and the surveillance where you have to observe them. But just walking behind and feeding attitude, this is not necessarily a good care. If someone needs it…But our aim is to support their remaining functions. Just feeding them…at the end, it is not okay. They are not a baby. Try to show them how to eat themselves. It doesn't mean we are not taking care of them. Because we don't give them the food. As long as they can they should eat by themselves. If you realized, it is getting difficult, we have to train them to do refreshing training…how to eat…just set an example.

R: I just want your opinion like how 1:1…

P: I think 1:1…is how it depends, expected…in 1:1 on our price…it is called permanent care, even in the night. The intensive care is also 1:1. It does not mean someone holding hands and being too closed. We have other care homes here in Chiangmai, they even sleep beside the bed. This is not okay. Oh well, this is the wrong signal.

R: Yeah, there are some research papers that mentioned about 1:1 caregiving in Chiangmai as well. I know how you mean that it is not correct.

P: I think it is a wrong signal and you see if there are two possibilities if you are giving pills and they are not afraid anymore, or you send he/she into his/her room. I think this is "….", or the very last option. But there are someone who wake up every hour and fall down. So, every case, it is absolutely personalised.

R: As most of the cases came from Switzerland or Germany…how do you think like…because people with dementia like to stay in a familiar environment? How do you think about this as the residents stay here in different cultures?

P: First of all, we do not accept every guest or every patient. If you realized, if someone is trying to get rid of him of her to a cheap place, we will realise. We have many enquiries that this person will never choose Thailand as a destination. I mean if they stay in their valley for farmers in the rest of their life, never spoken another language, then it is not a good place here. And…

R: And, this is a design tool, what do you think about the concept of design guidelines and design tools? Is it relevant to design for example this place or other care homes?

P: Yeah, I think it is very important. Because we have to avoid any situations make the guests or the patients feel unsafe or irritated or anxious…or angry. I mean shadow or surfaces or walkways you have to build…According…I have told you the book, the perfect dementia care home by two Swiss authors. They gave us some very good recommendations. And, they told us also that this is the only care place in the world, which is absolutely perfect for dementia people).

R: So, the last question is…as I have asked you about architects right? What do you think about the role of architects in design for dementia care?

P: For me, architects always want to realise his idea and his vision and his dream. For me, architects are just fulfiller. They are just a planner. Dementia specialists have to decide the room layout, or the whole layout of the whole facility. Architects, normally, architects don't have experiences, may be…But in Switzerland, there is no architect who specialised in dementia and care homes.

R: If you are building a supermarket.

(23:41) Then, there are plenty of books.

R: I realise like…for here, it is resort-like architecture, why do you decide to have this kind of resort atmosphere?

P: This kind…as you see…we are now building a new project, for a new restaurant, for a new library, for a lounge, a meeting room, cinemas for dementia people. So, I will go to avoid any situation of feeling bored. We have to keep people busy…we also have the occupational therapists. So, I would love to have more…outlets for example, on chicken, on pork…would like to enlarge our organic garden. Or, just keep the people busy here.

R: So, for the programs and activities?

P: The activities, so important. You see, we are the resort, which has both type of guests, dementia care and we have healthy people. So, I do not know any resort in the world who can keep everyone in one roof. We have it. And the most important…one of the most important reason is the good food. Without good food, we will just have the elderly assisted living guests. This is one of the main reason. Good food is the main pill for happiness. So even…let's say you have a small room, and not a perfect layout. As long as the food is perfect, the people stay. Food is important. So, that's why we have another restaurant….type of food we are serving there. We also move the bakery over there. We will open here this wall. Behind this wall, the former bakery shop, will install the typical Swiss cheese restaurant for fondue…any kind of cheese. Here, we have to close it because of bad smell. Sometimes, the smell is quite strong. But, we would like to provide as much old memories and the feelings as much as possible for them.

R: I think I really agree to that food and the food smell itself can stimulate their memories. From most of research papers and when I interviewed the care staff in the UK. They mentioned about the taste can sometimes (P: Reactivate?) and stimulate them.

P: Yeah, absolutely, food is…this is the discussion that I said…having with my shareholders. They think we are focusing too much on…the side things like best food quality, cinemas. They do not understand that I invest in this and it is also important. Think about if the resort has a cinema, and a library and a new restaurant. It is called "Ascona", which is a small city in the Switzerland. Everyone knows about "Ascona"…lakeside, Italian-speaking part of Switzerland, palm trees. It is fantastic. Everyone went to "Ascona" because they love it. This will be a similar layout, similar atmosphere, and similar type of food.

We also have a new project…50 meters from here. It is called "Plaza suite", because we realised we cannot mix different kinds of guests, dementia guests and unaffected guests in the same pavilion. That's why we are now trying to get all the healthy people out from the pavilions. Pavilions in the future will be purely for dementia people. Villas are for relatives when they visited. We have 32 studios, very nice. There are two balconies on each side. Fantastic layout.

R: Can I ask do you think design is important to dementia care?

P: Functional design, yes. Do you mean like high roof, no. I don't think so. I mean I should not look like…of course, our building is very nice…too expensive to build. So, relatives they think…yeah…they are going to paradise or holiday sort of. They would love to stay there. If, we have a functional building….just like they want to make money…with cheap construction concept. I think just to touch the…when they are realise when they are trying to show nice concept in terms of here. But also nice…but I don't think it is important. Much more important,

is a functional design. But if you can design it beautiful enough, it is like a car. You can make a nice car…the same concept. You will press the door different ways, but the same price and make it beautiful. It is easy to sell….Form follows function. I think this is the main goal. Having first the concept, the goal and requirement and start to be. You know the roof doesn't change much for someone who are suffering for dementia. They doesn't care the roof type. I care for the roof type because it is very expensive and very hard to maintain. It is terrible. So, for this concept there may be much easier. It is a bit less complex. (I just want to show you…).

So, this is the building. It is a three storey building. You have a hanging garden for vegetables. So, we have like a corridor. So, you can cultivate here this area. This is absolutely right here at the facility. Very nice. We have a balcony here. We also have backside of the building. And a pool here. We also have a balcony on this side. Both sides, for morning and evening sun. For studios. The pool now is at the back of the building because I don't want potential causes of the pool, damages, and jumping into the pool. So, we build it behind the main building.

R: It is more private also?

P: Yes it is. Also, it is less dangerous also.

R: This is the architect here. He's not used to build dementia care home. He is Swiss. (…) He is such like a fulfiller and he has his design idea. But at the beginning we said what is the requirement because may be one day…since our concept is never sent our clients to hospitals to homes if you cannot care them anymore. So, we have the concept of end of life. People are now moving into this Palai Suite and they will become dementia cases one day. But they can stay there until the end. So, the concept is made for a nursing room to save light, shadow and everything. It is also for dementia services. So, he is one of the architects. These are the real privacy balconies…one behind and facing towards the pool. And, the other one, we call…where you walk through everyone's main door. But, you have your own table, two chairs and enjoy the morning sun. You can drink coffee…obviously it is not a private balcony. It is a galleria where people walk. That is a very nice project. Okay…

R: My idea is to ask the landowner here. It is a very nest forest here. If we can rent or use this forest as we call it – forest learning park. As you walking you will learn about trees or birds on the trees, or what kind of snakes are living in the area. Just walking and there are place where chickens are or goats are. You will get goat milk and you make cheese…we start to call this village. It is not a resort or a care home. I want to get this village feeling. That's why I need healthy people and sick in the village. Sick people…I also want kids here. My kids are here. My dream…I love kids so…

R: In Melbourne, there are models where people with dementia have schools beside. Because, they want the children to interact.

P: Exactly, this is my project. I cannot share…sometimes; I am inviting foundations or orphanages to come here. Yesterday, we have about 25 kids between 6-18 from a foundation. And, we are invite them from time to time for swimming, eating pizzas, and singing for us. It is very nice. I just want a known foundation which they will stay here, established between elderly people and mainly the girls from hilltribes. So, protecting them from going into prostitutions. And, also give them also possibilities to work here.

R: They can also learn about elderly people and dementia as well…

P: That's why by the way; it is the reason why we do not have Thai people here to take care of. We had two Thai guests, but okay…you get this person talk about the concept. But in reality, you have the all family here…all the time. Everything is bad. The food is not okay, the caregiver is not okay. So, everything is bad. So, we are doing it in a European way. That's

why we don't have Chinese people. So, I have enquiries that I don't have Chinese here. But, our caregivers said they don't want Thai. They always blaming. You are not holding my mom correctly. So, this is why no Thais please. Caregivers are okay, but no Thais as dementia care patients. This is the potential sources of problems. Not because of the patients, they are happy. Because we cannot use MSG…it should be a healthy resort….Food are delicious. That's why we are producing our own food (…). I would like to have an orphanage here...may be up to 30 kids like an elderly lady might love to teach English...

Not only that…it also gives the kids the chance to learn about another culture which make them curious, may be they would like to go aboard. Most of this…when I see the Thai girls from the foundations, they are so shy. They are shy until they leave. They never have the chance to do something extraordinary. And I think if they are here, and just learn to get access to the foreigners…the farangs. Learn more about the culture, may be exchanging the letters with family members in Europe also. Because this will help them. This is my dream…

R: This may be similar to the concept in Australia, they call it multi-generational concept which…Most cases, they are quite successful when there are schools and retirement village mixed together.

P: Yeah, I first arrive here when I invest the project and exchanged the project team because of the… So, I sent all of them home and arrive with my kids, two young kids. They said the gap between kids and sick people is too far. All problems. However, it is perfect since the first day, everyone loves my kids here. They belong to Vivo bene.

R: I also had a discussion with the occupational therapists about the multi-generational and they are into this concept as well.

P: So, you are talking to them?

R: Yes, they are very engaging.

P: See. The project here, the scroma throma. In terms of the economic, or yield and profit. It may be the stupidity. That's why my colleagues, friends, and my shareholders, they will not understand. That's why I make it very fast. It is not a yield, it is a spirit in this village. Having their own cinemas, libraries, and lounges where you can sit and relaxed. Every chair has a music station. You can choose jazz or…We have a restaurant with a nice concept, a cooking school, a Teppayaki grill station where we have lived cooking. We also roast our coffee. (This is my son…so he pauses the interview session and introduced his son)…I think here it is the best place in Asia for dementia people. I call this 'walk behind care'. I have talked to Martin Woodli…he said this is too big and impersonal (?) – cultural perception and subjective. (55:49)

Participant 3: Care Manager/Owner (Case Study 2)

Gender: Male; 60+; Nationality: British
Location: The resort's lobby which is open-air and no air-con). It is raining hard during the interview. So the sound is quite hard to hear and understand.

R: So, I will start with the interview questions. For the interior environment...like which parts of interior environment and interior design do you think...kind of support the users?

P: Interior design...you mean...safety and security (?)....So, it must be the grab bars in the shower, grab handles in the toilet. You can use wheelchairs in the every room. There are alarm buttons. We have alarms by the bed where they can pull, and the alarm by the shower. Shower is the most dangerous out of these. Because the sudden changes of the temperature

of shower can cause fainting. That's why we have the grab handles when you are at the shower, so you cannot faint and you can pull the alarm. We have two types of the alarm here. We have emergency alarm cord, people should be there within three minutes to see if they are assistive and if. And, we have a push for carer alarm. So, there is one system which is an emergency alarm and people will come in time. If you push fifteen times a day, and see that it is her again. And, you don't rush. There are some people who push 40 times a day. So, we get the system for people with dementia to get used to the system. And, you just cannot ask what you want people with dementia to do. And, all the text book are wrong. All the internets are wrong. Not for now...but what they have written before these five years are wrong. You have to know them before you write. You see...it is their memory problems, it is not their stupidity. See there is an awful lot of people that don't get them to do. But anyway, I like a room to be quite lightened and airy (ventilation?). All wheelchairs....they should have no steps. There should not be steps to the doors. Trying to build a room without steps are like the battle. So, because of the rain here, you have to have a rain shelter. The terrace...the water can come in. And the bathroom, you cannot have steps in the bathroom and the living room. It is slope, so you have to make the bathroom the same step. All the building here is designed by me, not an architect.

R: So, you design the resort?

P: No, so I will tell you the history, so that you understand the history of the resort and everything. So, just go back to the history first. So, it is like history reflects here. I bought this backrupted resort in 2012. The state is that it has been bankrupted for two years. But a year, rebuilding, refurblishing and in 2008, I opened a four star hotel which is still running. That six years ago, that is 2013, my mother was in a care facility in the UK run by the company called Care UK. I went to see my mother and I found my mom dying in her room. Literally, I found her dying and I called an ambulance. So, I flew from Thailand, to UK and call the ambulance... and stayed in the hospital for three months. And, I got the see the man from the care facility and asked why my mom is dying here in the care facility. And, he siad, I don't understand, I call her on the loud speaker every morning...to ask her how are you. And, everybody in her generation will answer am fine thank you. And, she has no breath to say in the loud speaker and you do not replace care. Top of that, I don't think it explains why five days, why there is food on the string wrap on the table. They said you don't understand Mr.Brown, it is the thrid year that we run out of the carer. I understand clearly that you don't have enough care staff and you don't have a culture of care and you call yourself a care resort. So, I look out for care facilities. I ask the same question how many carers do you have to your guests. And, everybody will tell you...1:10. You put an alarm and they go to the care centre...somewhere in the midland and they call the GP. And the GP might take 1 or 2 hour. So, I find out a better way to do this. And, I beleive Thai people in particular, particularly northen Thai people will make a good carer because they have a natural respect to the elderly which means it is true. Generally, they have more respect than the westerners. So I opened up the care facility. I opened up with the two key objectives of the resort. One is the carer. My guest ratio is better than 1:1. It is around one carer to one guest. I don't call them personal care. And, secondly my mother always say to me...my mother has dementia by the way...so my mother was here before...my mother said don't put me in the nursing home. Nursing home is where I will die miserably and slowly and I rather die miserably and quick. So, it will not look like a nursing home. I went to a boarding school when I was young. So, I don't want to go toa boarding school when I was elderly. So, I don't want people to tell me what I have to do...what I....So, we tried to focus here as much as individual choices as possible. Both high levels of care and individual choices are highly expected to us. I believe dignity and living happy life is more important than a...It have no point to live ten years unhappy and seven years happy. So we are trying to give people as much choices as possible. Not all of our guests got dementia, but majority. Dealing with dementia, but giving choices as some of limitations. Because you cannot say to people with dementia,what you want them. It is a very difficult question to answer. What is on the menus. And, remember what they like. And, I have a lifelong

vegetarians here, which he forgot he was vegetarian. You need to undertand Alzheimer's. If you said you have porkchop on the menu, they forgot they were vegetarians. So, we give as much choices and freedom as possible. We have two levels of dementia care here. One is dementia carer where people live in their own room, they live it on life. But we are the reminder functions. So, we remind them to wake up in the morning. We might help them dress up depend on the levels of dementia. We remind them breakfast where we only remind them breakfast. Same as activities, same as lunch, same as dinner. Medication as well, we have to tell them about medication. But what we found over the year is that they live longer than I thought. And, we have a memory care unit where there are high levels of dementia – level 6 or level 7 of Alzheimer's. They need 24 hours care. They need...They cannot function on their own, may be they can't function physically, may be they cannot be functioned mentally. They cannot function on their own. So, they have to be in memory care unit. I would drive you around a bit later (11:57). Two months ago, they are full in. Everybody has their own bedroom. They have their own bathroom, TV, sitting area. In the middle of it, all they have carer. So, few minutes from the carer. Alarm...the carer turned the alarm of, so they can go to the bathroom. Basically, they eat in the common area and can socialise in the area. They can go to their bedroom and lock their door...It is the few memory care unit in the world where the door never locked (12:53). We never lock the door. In the day time, every guest can go through. If you cannot walk alone, the carer will follow. She might walk for an hour or two hours. They tend to walk here in the morning with carers. If they want to swim, it is abit complicated. It takes me two people. Swimming is complicated to manage. Even our memory care guest, go to the centre for shopping mall. So, we go to the central festival in Chiangmai. Somebody in the memory care unit will go with the carer, one to one. This is different from other places in the world. In the UK or America, they wouldn't allow as there is an insurance risk where they might fall over. Here, there is no insurance, so they can go shopping, sit a Starbucks to have a cup of coffee, they can sit at the bar and...we don't serve alcohol from here...they can buy toothpastes, they can buy electrical, they can buy lipsticks. Most...all people in the memory care units are spending my money. The carers are carrying my money and they are spending my money. And, I ...money back from the guests. When I start the system, they are going buy something expensive. It has not ever been a problem. It is a matter of buying your own tooth paste rather than being served for you. There are a lot of meaning to live in a normal life. Unfortunately, I have got George...who died, we rewrote most of the text book about Alzheimer's. George which came here with level six Alzheimer's, he went to the memory care unit. And, he is very aggressive. Aggression, dementia and I are...I have a belief in dementia and aggression...they are catching up with...to my mind most dementia aggression are caused by frustration. And, frustration is caused by treating like a child. And, he is quite aggressive and he spent year in the memory care unit. And, after year, he asked to come out because he coped so well. Alzheimer's will not get better. Part of the brain that die will not get relieved. Never will get happen. And, one thing I am sure I can do it is that I can slow it down. But eventually, everyday they get worse. As they get older...it will get them down. People with dementia...they will get average 8-20 years. So, later in the late year, they have to be as happy as possible. So, George go for the independent living. So, he has a carer during the day time, but he lived independently. George does not like using my money. He wants to use his own money. So, I talked to his son to say that I think we need to give him an allowance....stage two Alzhiemer's...(in the text book) you will lose control with that. So I gave George the allowance and I thought he would lose the money and he will waste the money. Two months go by, no problems. Month three, we went to town with a carer and another guest. Carers....I have 3000 baht and the sun glasses have 2,099 bath, and I will get that. He get to borrow money to buy his lunch and he may made many decisions that all people I know who got dementia can't make sense of it like that. The textbook said you cannot do that. But he did. Unfortunately, Alzheimer's killed him. We went up because that is common in Alzheimer's. He's not aggressive anymore. He's not shouting anymore, he was not aggressive, because he is aggressive before. Two and a half year, Alzheimer's took him over. And, that's how we run this place. It is 90% of my enquiry are dementia-related. 70% of my enquiries came from the USA. I have never advertised in the USA ever. And, 70% of my enquiries came from the

USA. Half of my guests are from the USA. They are different ethnicity, but they are US Citizens. But yeah, I have two Thai guests here, but both of them came from USA. They are getting older and they come home....hahaha Thai culture.

At the moment, now we are quite low on guests (seasonal, high/low seasons). That is why we have more care staff than guests. In the last year, where number of guests come along, few people left, changed around. That's how we run this place. We had three qualified nurses, two Thai ones and one Filipinos. One is activity manager who is physical therapist who is daily activities/programs. And, then we have carers. Our carers have done a one year nurse-aid training course. We are trying to do carer management. Currently there is no training course now in Thailand. But it will be. Actually there is alot of care facilities in Thailand but people have to work out. They are not getting a lot of money at first. They think it is the way for them to get rich. You have to do it properly...so this is what we do.

There is a big single problem here, is English language. We cannot employ all the English speaking, especially in Chiangmai. People who are English speaking – Khun Kaew and I don't work 12 hours shift. So, English language itself...The nurses speak good English, but carers speak rarely/barely levels of English. But for me, caring heart is more important than English language. So, I will work out here.

We have planned to close the resort in two years time. But it could be a bit longer. And that's depend on the growth of care, we cannot lose money from them. This is because we runs flexible meal time. If you eat here, the breakfast starts from 6.30 to 10 of buffet. Lunch is from 11:30 to 13:30 from full menu. We choose what you want to eat like in a hotel. We don't choose people food for them. Otherwise...but we choose for people with dementia though. Because we have to eat carefully. Like my mother...she asked what's on the menu and.....that is what she have got. So, all the time, we are learning about dementia. I particularly keen on not treating them as children. When you speak to people with dementia, you should be 1:1 and you should look into their eyes. We preferably establish a body contact. You cannot talk to 4-5 people with dementia at once. You cannot ask them many questions. You cannot ask them questions. All dementia sufferers hate questions. So, I get guests with Alzheimer's around, we show numbers of rooms and asked which room do you like and I can watch the confusion all inside their brain. They cannot remember the first one. They have to look at the room themselves and looked at the room and then asked you liked this room. You have to simply every questions, you speak with people with dementia. So, this is what we do.

We are lucky that we got a lot of ground, and we have got a lot of garden and quiet here. It is a good place. Compared to the West. It has been sheltered all over in the West because the staffing. If you are living in the West, you cannot afford. So, everybody now is trying to develop technologies.

R: It is one of my questions as well...

P: (...) Alexa...Alexa can have a great usage but nothing beat people. The west will...eventually every room...every care guests will have something like Alexa. The big...to me is that Alexa would be eventually emergency call and translation and it is the system where the emergency call will delay. You don't have to pull the alarm and you just shout. That will work...But you will start reminding activities by Alexa and you will lose out the human contact. I think it will become different. So, every one of my guests will get a visit from the nurse every morning. That visit will take five minutes or an hour. There are checking pressure, blood pressure, check if there is anything wrong with them but biggest part of it is talking, talking to the guest. To make sure if there is any problems...in activities and a chat. And, no technologies will make that redundant (25:34). The west needs to look at something different.

R: I think Japanese as well. In Japan and other countries, they are developing kinds of robots.

P: Nothing will replace the people. Somebody put your arm and hug. The robot doing that is not quite and yeah. People with dementia are complex. Everybody is different. Everyday, they are differnt. It is...somebody is learning to live with. And, the regression in people. We are...I know they are not getting better. People are not get them bad. Any pill they have to take...may be no pill at all. We know...the brain is not going to...I don't think ever if they are going for ten years. Nothing will make the current dementia well. The only hope that we have is the medical care...but I don't think we are going to make it. I look at people and I visualise how I want it to be. Like, I look at my mother...I am trying to look at my mother's eyes, and they redicated the medical...like battle. It is all sort of things that dementia sufferers are well thought. People with Alzheimer's...you cannot keep moving,moving and moving...it is a nightmare. It causes confusing. Everything needs to be simplify and be calmed. So, do you want me to show you around? But you have more questions...

R: So, you have already mentioned about the interior environment e.g. how they support in the restrooms...And, for the social interactions between people with dementia and the staff, how do you think the design of the physical environment can enhance the social environment...?

P: I rather believe people need their own spaces. What alot of people forget, not everyone is social. People with dementia, their definition of illness makes them to be less social. I don't care how social they were 10 years ago. They will not be social here. How can you be social when you cannot remember. You don't watch the news anymore, we cannot understand the news, You don't watch sports anymore, so you don't talk about sports. Nothing is really happen in your days. That's make people with dementia very anti-social...very quiet. They are living in the different world. You have to let them living in their world. Not force them...trying them to physically active and mentally active. But you cannot force them to do alot of work. So, we have got people visiting, one of my guests...with carers and nurses five times a day. Taken from meal, taken back from meal. It is quite a big space. Some of their meal, they will eat in their room. They can choose to eat indoor in the air conditioned or outdoor, or meals delivered to their rooms. Most of them eat in their rooms. We tried to encourage their out to have breakfast here to create a social networking. But, social networking and dementia are not...So, nothing in the design...we just have got adapted (the voice is not sure).

R: I will show you the case study in the Netherlands...(show images)

P: It is not there for the people. It is there to win the prizes. Why do dementia sufferers need to look back to the past. As they cannot remember, why do they have to remember the past...I mean I don't understand. I don't understand the point spending all these money. Still, the Netherlands, still have a huge dementia problem, because nobody can go into this place. It is full and the care in other place, it is sub-standard. The case should keep more things, and serve better. Yeah, i am not the great fan of this. The film crew that came here from Canada, few days ago they came. They went here (the case), before they came. They didn't show any of this...they went all the way to Amsterdam to see and they come a lot of criticisms. It is all 1950s, you have to remind people what it was...

R: And, they also have the concept of lifestyle. So, they kind of divide into different lifestyles.

P: I am sure the room is great. I just not believe in that. But, i'm sure, it is really nice...so, let say they are going to cook. It is basically show to them and they certainly cannot use it. I am not an expert, but I don't see the point why you have to spend that much money on that kitchen. Just to look like 1950s. I am the child of 1950s.

R: Yeah, because like some research papers also mention that the decoration should be like home-like environment to encourage their social environment between people with dementia.

(no response). When I interview the care manager, they are really into this kind of home-like environment

P: I don't get the point and I don't see many people with dementia to get back to 1950s and 60s. My mom cannot remember when she was in England. But she can remember where she was in 5 years old. Dementia is very complicated. There is no reason to remember. For me, I don't know. But when I look at how it costs...I don't know...I didn't say that it is bad but it is award winning. But it didn't win any award from me. The prams are from the 1950s, I don't...when they live there, they will just look at it. Most people will just look at it. You can not leave dementia sufferers to live in that kitchen (but with the carer?). But I am not a fan...good luck Amsterdam.

R: This is a kind of hydrotherapy which is good. Hydrotherapy is fine. For this slide, it is more about healing environment...

P: If you read about people with dementia now. You will see it is completely different. Now it is all about lifestyle...before it is about medication. Now I can say that lifestyle is more important.

R: Can I ask what do you mean from lifestyles for this context?

P: Lifestyle? Being treated like adult, routine, routines, simplicity, calmness. So, I think this is a bit too complicated. It is all about lifestyles. I get one relatives want to bring their father or mother once a month to Thailand. And, they get level five Alzheimer's. They will fly back and forth to America and it will cause worst for dementia....So, I think flying to Canada is a big mistake, long flight time nearly 30 hours and jet lag and the wedding is a nightmare. People said hi to you and you get your brain working. Who is his and why I am here...it is like in hell for dementia sufferer. People have to look at dementia through the eyes of dementia sufferers, not their own eyes. So, my sister comes to visit my mother and my mother start looking out the window for three hours. She can through the window. She can see through the world around....I don't know. But, it is the peace. But my sister also takes her for shopping, for coffee, and take for sightseeing. And, my mother hate it...I might fall down and somebody changes my routine. It does not work. You need something simple, activities...yes, shopping...yes, but not too complicated. That is why the lifestyle. But after all, my single big point is...do not treat them like a child....They confused people with dementia with stupidity. They are not stupid, they only have memory problems at various degrees. You don't know what they remember today and cannot remember tomorrow. What they remember from the 1950s and what they remember from...But I have to ask why do I need to force them into the 1950s, not 60s,70s,80s,90s. Actually, these people in the last 20 years, that most things happen to most of them. 1950s in my mind is the time for food rational with no TVs. We are just starting. So, the 1950s in US is the fun time, lots of money, a lot of good time in US. I like personal mentos, I like photographs but photographs also have complexity. Like, my mother can look at the photograph of my father and not recognise him. But she cannot look at the photograph of a maid or the armour in Singapore in early 1960s for three years. She cannot remember her husband who lived together for 49 years. I used to show my children photographs of my mother when she is younger. But not showing to my mother. It just good that I showed to my children and she just looked and she is not involved in the conversation. And, then start recognising something in the photos, one of the photo is when she was very young. She siad 194...Horse lane. But, she cannot remember what city she lives in for almost 20 years. One of the reason is that, when you were a child, you learn...when you showed the photo, you forced them to remember things. I have tried my own ways. I am the expert on dementia so I used to be radical and the world is caught up now so most people are doing, what we are doing now. So, it is about you are into architecture and I am into care. I am in the people side. Care does make people life better. Architecture has small benefit. You try to wipe out people and put on all technologies.

R: But for my project...(trying to explain)

P: It has been built quite long time now. How many copies has been there. I don't think there are many copies because may be some of this it doesnot work.

R: I brought this, the dementia design audit tool....have you seen this kind of checklist before? What do you think about this design checklist?

P: Nope...are these providing for the blinds or people with dementia? Most of these are providing for poor visions. They don't have anything to do with dementia.

R: Stage of visual impairment...

P: It is completely over the top. It is better if in relation to the budget. It is abit like, we have a guest came from the care home...and I had a book this much about assessment and she is being kept in the bed for six months...all day, everyday in the bed. Why don't you need this paper work in if you don't look after. That is what my country for. You fix on the paper work and you fix on the minor things. This is got an awful lot on lighting. Generally, it is nothing here that you cannot do. Actually, it doesnot mention about steps anywhere in the entirely thing which is the most important. I believe they don't design for dementia...they design for elderly. I don't go along with design with elderly but...for dementia. All for the dementia is an elderly with memory problems. And when they have disabilities, nothing to do with dementia.

(51:33)....It needs to be simple, clear and spatial. But why you need to cover up mirrors. Why the mirror becomes a problem?

R: As I have read from the paper, mirrors can cause some confusions.

P: Normalise their life as much as possible. By taking out something, like most women spend their life at most in the mirror. Men are not. But women. Lady boys in particular. So, lady boys with dementia will have a nightmare without mirror. I don't understand why you have to take them out. Somebody tell to take them out. I don't think it is a problem. Half of these will be done with no research, just like brainstroming ideas...

We have rooms not design for dementia but for elderly. But I have a different view point. I beleive in the normality life, especially not treating them like children. So, that's where we are.

R: So, it is very interesting to know....

P: I dont want to cut the care...but others are not responsive. But, for me, I want to create a normal life as possible. The toilet colour is different from the normal toilet. I don't think it is a problem. That's why there are more blue grab handles. We do have blue grab handles here.You have to pay more...

P: I bought grab handles in England and I brought them in my luggages. My kids they have 20 kg of grab handles. You can buy the normal one. But you cannot buy the disabled ones. Now you can. If you buy it before it will be very expensive. You won't convinced me that technologies will work, robots will work. Or you have the standard that the Amsterdam work....I think it might work but I think it is too much....they got criticisms because they spend too much.

R: Last question, what do you think about outdoor environment? How can it support people with dementia and the staff in their activities?

P: They makes them calm. It is natural. I don't know why. Nature is relaxed. If you were in Amsterdam, it is a smoky, noisy city. You don't neccessary think...taking people back to where they were. This becomes relaxing. There are spaces for walk and relaxed. Exercises is the key. Exercises are important. Most dementia sufferers are lacked of exercise because it is too risky. There are no problems for my guests taking exercise. They get out, they get lost, and they get back to their own rooms. One of my guests get lost every time. One of the couples, they, walk, walk, and walk with her husband. Her husband didnot get dementia but herself. Walk and look at the flower. We have no clues what's she is doing. But she is happy. She looks at the flower and touch the flower. She is in her own world, not neccessarily in the world that you design for. Dementia always live in their own world. In this place it is not ideal. There are hills...it is not ideal. But you have to deal with what you do. It is ideal because there are mountains, clean air and trees, it is quiet and plenty of spaces. But it is not ideal in another way. For swimming pool...Steps are nightmare. Everybody as elderly, steps are nightmare. The smaller the steps, the more problems. Steps like this (small height) that people will not see. Falling is single biggest problem again for the elderly. Forget dementia...nothing to do with dementia. So, now it is the matter of falling.

R: What about when you go out for example Central Festival. Are there any issues about the steps?

P: But, Central Festival, is quite disable-friendly, unlike the rest of Thailand. If you go out for the sightseeing. It is a major problems, just go out to see something in Thailand is not disable-friendly, you don't have the wheel chair out there. Central festival, they are know what they are doing. You can go and you can get the lift anywhere, big wide doors. There are not much people there. Shops, may be because central festival is big. But they have to go with carers otherwise they will get lost. There are a few who get lost. There are many floors, and it is easy to get lost. But, it is not the end of the world getting lost.

R: In the UK, I think there are the policy call dementia-friendly communities. Have you heard about the concept before?

P: But, it is not all true what you have said. Basically, in number of houses. Some of the houses are 15 minutes apart. He has a swimming pool and the activity centre in different places. He...actually, the guests are interacted once a day. None of the carers speak German and they are all German-speaking. He said it is the positive advantage. I would say it is positive disadvantage. He has to argue with me. It has been in media coverage in Germany. To be fair to Martin, his Alzheimer's sufferer are as bad as I see...mostly...they are...you can't see anything in their eyes. I don't think it is a solution where we set up his own communities, shopping...I don't think the truth is what happen. You give good care to the people is the most important. Some of my staff, he employs them. She is a theif. There are still tolerance. And, he also starts because of his mother. He starts the community. I don't know about it. But, I know dementia care in the UK is terrible. And the current policy which you have to pay is terrible and Mr. Johnson will change all that....So, in the UK, to get dementia care...you have to have no asset...you have to sell you cars for care. We thought AIDs is the problem, no dementia is the problem. The problem of dementia is that it can not be solved by drugs. Drugs and medication are the solutions for everything, particular in Thailand. Everyone wants medication. There are two medications for Alzheimer's. One is the medication for early Alzheimer's and two for late Alzheimer's. When people take both they have more symptoms. People came here and stop medication – dementia won't go but hallucination and which only work for 7% of the population. Some go through these before the period of taking medication. They do the survey, 76% of people went survey said that the disease that they don't want to get is dementia which you will take 20 years to have dementia. Why you choose to have cancer. They have no worried, do what they do, until their life ends.

Participant 4: Head of Nurse/Deputy Care Managers (Case Study 2)

Gender: Female; 34; Nationality: Thai
Location: The nurse's office (adapted from a multifunction room)

R: How do you think the interior design of the resort help to support the people with dementia and care staff in their daily activities?

P: The environment including the building and the structure first. (R: Also, the interior design...). The structure of the building here () in the new zone. For this area, Khun Peter (the owner/manager), purposely built the villas without steps. So I think he is well informed about the general structure without steps. And, inside there are handrails, which is suitable for the older people. Also, in front of every house (villa), the buggy can go into every house. Also, walkers can be approached to every house. The doors are wide enough so that they conveniently access into their rooms. So, I think the owner works quite well.

R: What about the limitations?

P: I think it is the fact that the houses are all the same. At the beginning, when I worked here, I got lost. I also got lost. Also, the zone at the back is identical. They all have same colours. Also, the structure of this zone is all the same. There are terraced house and there are identical terraced houses which all looked the same. Someone cannot remember where they are (orientation) and where they are now. It is still fine because there are room numbers. But sometimes, there are some guests that can remember their own room numbers. For example, Khun Ron, some days he cannot remember his room. But some days he used his habitude (-familiarity? Means , routines?) that he has to turn left and right here. I don't know why he comes to ask his room number, but he can walk his way back to his room. So, he is habituate to the way he walks back (- used to it).

R: So, it might like when we are driving?

P: Yes, never remember the direction.

R: On that day , I also talked to Khun Cherry about this about signage..

P: Colours might be good but they are not (try to) remember ().

R: Might depend on each case.

P: Yes.

R: So, for the interior design, do you think they have any limitations?

P: Here, the new zone might not have any problems. But the old zone which used to be hotel still have problems, the doors are too narrow. The lakeside zones, for myself, the room is narrowed. But for the older people, living alone, it is fine or too fit. The bathrooms still have steps. The entrance will have stairs downwards, then you will then have stairs to step up again. So, it is hard.

R: How long the new zone has been built?

P: About four years. The resort has been opened for caring for 4 years. Because before this, it has been a hotel.

R: I forgot to ask Khun Peter, how much for 1:1 care?

P: It depends also which room do you choose. For the new zone, it is 49,000 baht included everything, but not include care. For 24 hours care, each shift is 20,000 baht each month. So, it is 60,000 baht/month. Each shift is 8 hours. 49,000 baht is included everything, but not medication.

R: For the outdoor environment…such as gardens, or sala, how do you think it support people with dementia?

P: Gardens and also animals in there right? Because some people will come and feed birds as their daily routines. As their daily routines…in the morning, they will feed the birds. Some people will sit out to look at the sky, look at trees, look at birds, and listen to the birds singing. It also a part of that make them have a good mood in the morning.

R: What about the care staff?

P: For us, the outdoor environment is also important because when we use wheelchair, the ramp helps us to push it easily and conveniently.

R: What about the staff's break time/lunch break?

P: Our lunch break is from 12:00 to 13:00. For the staff, they will have lunch at 11:30 but they have to decide who will go first because there are staff at the office. The staff office have responsibility to serve food and look after/care the guests who don't have private care. So, they will call up () sometimes. So, they will switch when having lunch.

R: So, Khun Ron is the guest who has no private care right? So, he can walk to anywhere inside the resort.

P: He will walk all day. He walked to the restaurant and he will not know what to do (/ and has nothing to do.). Then he walks back to his room and walks back. Then, he will come to the office, and to the restaurant. When he arrives at the office, he will ask what I have to do today? Then, I will answer what he has to do today. What about now? I have nothing to do. What do I have to do next?

R: He might want to talk with the staff?

P: He will sit and sometimes we will turn on televisions for him.

R: There are some activities and Khun Ron also attended.

P: Sometimes, he does not like. Some activities he does not do. So, he will just walk around. So, he can choose that he will come or not to come for the activities (2 choices).

R: So, for the outdoor environment, are there any limitations for dementia care?

P: It is mainly he distance when we walk. It is quite far. So, we need to use a buggy. Yes…it is quite far. Because the area is very big. But someone who are still active, they like because they can jogging in the morning. So, they can exercise and walk around.

R: So, it is more about distance as the guests are quite spread out.

P: We cannot choose for them where they want to stay. They will choose the room by themselves…like this room…choose the rooms they like. So, we cannot do the zoning. So, it

depends on them and their families. Yes, their families are the one who chose the room…which room and the location.

R: Is it different?

P: This zone is the same with the same price (the new zone). So, the different is the hotel (big) room and the lakeside room. The lakeside one, the new guest just moved in yesterday and Bobby who stayed here before. There is one newcomer…Khun Janet.
R: So, in that case, the family also comes to send her off.

P: Before coming here, most people will come to inspect before coming….about a year or many months. Then, they will inform us that they are going to stay here in these months. They like this room and are going to get this room. (R: So, they will come here to inspect first). And, yes, they will have to come, visit and inspect that how is the location and how is the place, how kind of activities, how many types of rooms.

R: So, this is the case in the Netherlands (P:)…so each of the room is decorated/designed with the concept of home-like environment and homeliness.

P: Every room will have family photos for their memory.

R: These are also the photos of its restaurant…

P: So, they are old now right. So, these are for their memory and their past (experiences?).

R: These are rooms that they use for reminiscence sometimes. So, how do you think about the concept of homeliness can support social interaction between the guests and the care staff?

P: Yeah, I think it partly can. But, for this it is in the Netherlands, so the Dutch will stay there right. But, for here, it is mixed, so we don't know how is the base/cultural background () of each country and how can we arrange…So, we have to mix? It cannot be right. So, it would be hard.

R: So, in the Netherlands case…there is a zone where it is for people who have lived or are from Indonesia. But, in my opinion, it is like you segregate/separate them from others.

P: Yes…I agree.

R: So, in the dining area (restaurant), do you think the design of the physical environment can support them?

P: For them to remember or letting them to do something by themselves right? I think it can…part of it. So, here we have only photographs in the rooms. There is no "decoration" to make them…in the form of the past of each particular country. We don't have it here. In fact, it is actually good. But here, it might be hard. They are from different countries, different zones…with different backgrounds. Hard. If we are going to do, for each different country, we then need to separate…and then they will not have interactions - .

R: Also, from your experiences, do you think the physical environment can encourage the social interactions between them or enhance the socialise?

P: Physical environment…Yes, I totally agree. We could ask them, what is this. Because we are the citizens of their countries, then in their rooms, there will be something interesting that we have seen before, so we can ask them what is it. So, it can create the conversation.

Yes…have something to talk about. Like Khun Edward…he is not here anymore. He will have a book about Malta, which is the country which we never visit. It is very beautiful. So, we ask what is this…what is that…how is it. Then, he will tell the story. So, when I go to his room everyday, he will tell the story everyday and he will teach German everyday. So, it is the way to generate the conversation.

R: Because someone I didn't know their background.

P: So, any kind of objects can create the conversation. For Khun Ted, when he first came to the resort, so I will go to talk with him about the things he like, such as I will ask him about wine and other things. So, he recommended the alcohol lists…this wine is good. It will be like that….which is good to know the topic of their interest…You can go and talk to him. He is quite nice. He has a little notebook, which he writes what he is doing. Waking up and then doing what. But he does not like doing activities; he will just sit and watch. (He likes looking at the tree). On that day, we had a party at the resort. He also went there, but stayed in a very short time. This might be because he has an introvert personality.

R: So, the next question is about healing environment…So, the question is how these factors, can support the guests in their daily activities and also the care staff

P: If it is outdoor environment, it can surely support the guest. That I have told you before, if the weather is good, have birds, and trees. Then, they will enjoy right. If for us…just part of it. We can talk to them about the natural environment and birds and anything. So, it will generate more conversations. So, they will ask what is that kind of birds. Because, they don't know the birds in our countries () our countries. So, we have to find more knowledge about it because we don't know too.

R: What about healing environment for care staff…are they make you more relaxed?

P: Yes, I feel more relaxed…with the natural environment.

R: So, next it is about technologies. So, this is the policy in the UK…So, for here, are they any usage of these kinds of technologies in here?

P: So, we use technologies for communications sometimes with people who is still know things (). It is very few. We used it to communicate with the relatives more. Because here, we are mostly using humans. Exercise…we are also using humans. We have the alarm system to know if that place have any emergency situation. In each room, there are three places. Just only that that we are using.

R: So, what is your opinion towards this concept.

P: Not really. Because using people is better. People will understand people more. Also, it is about human contact. Contact is very…very important. Also, the mental state () of the older people…it is like asking objects or models. It is not a human. The answer is not coming out from the mind. It is like programming.

R: I went to one of a conference…they tend to give a headband to people with dementia for measuring their emotions.

P: To give someone a headband…but if someone is pulling them off. It is not suitable for the normal people. The way it approaches is not the same as human approach. So, it is hard. It might mean that the older people have to adapt that they will not care by the humans.

R: What about in our generation…

P: I think we will get used to it, or habituate (). I think in our generation, we are not staying with humans. When we sit together, we are with our phones. If we want to know anything, we can ask (the phone). We will accept (the phone) than what we ask the humans. So, our generation might be possible….Because we don't have much contact with each other.

R: But if we ask ourselves, which one we are more prefer?

P: Might be human…but it also depends about choices (at that time).
R: So the next question is about this…design and assessment tool…have you heard or seen something like this before?

P: I think I have seen once during my study, but I totally forgot. The assessment tool for the long-term/aged care facility…for the colours, steps…yes I have seen. The lighting in this room has to be this colour, that colour. I have seen it once in during my study, but not during working.

R: What is your opinion towards this kind of tool?

P: This is okay. This is good.

R: So, this is about dementia friendly communities. What do you think about the concept?

P: Yes, it is fine. But, dementia at that stage will have to be assessed by the doctors first if you can go out from your house. Or, the caregivers will have to assess first. Sometimes, they don't know if they are in the stage of knowing nothing () (30:40). May be they are already knowing nothing (). You have to be assessed before you can go out. For example, Khun Ron, he likes to go out shopping and he forgot how to get back, he got lost. So, we have to find him all over in the mall. Ron didn't know himself that he is in a severe level. He will go to see his friends. He will get his pocket money and then sometimes he will not know and then continue walking.

R: This is because he does not have 1:1 carer right?

P: Yes. Each time when he is going out, we have to call his friends that he will exactly go to meet them. If his friends don't go, I will not let him go. Or, if he wants to go, there will be a care staff. But, for this we need to charge money, which he has, an issue about this. So, we will not let him go out often.

R: So, as you have mentioned that there should be a doctor to assess first before going out…

P: But the doctor is not the one who is with the guest all the time. So, it is the care staff who assess if they can go out or not (what kind of assessment).

R: In Thailand, is there any kind of this assessment?

P: I am not sure, but for here, it is what we can observe from them if they can go out. In Thailand, I have never seen this kind of assessment…

R: In Europe, the nurse and the caregivers also the one who assess who can go out.

P: But there are some people who all the time and never come out to engage the activities. She is Christine. If we go into her room, she will shout shut the door…shut the door….she will shout all the time. This person will not come out to engage any activities. But, we have tried to walk with her sometimes. So she will be in her private villa and have a care staff () take care of 24 hours. So, the one who will take care of her. I will send them for training first….You have

to try first and you have to be as much as as possible. If you cannot stay, you have to tell us. And, Yes…you have to be jai-yen/calm down. And, you have to be trained first.

R: So, in the room of Khun Christine and Khun Nancy are the severe ones right?

P: Khun Nancy is also having violence. Christine is only shouting. But, they are all severe cases.

R: But you cannot let her go out right?

P: No…she does not want to go out. (So, she wants to go out?). No no, she does not want to go out. So, everyday she will use her own wheelchair to wheel inside the room (). So, she will not do anything.

R: Can I ask what's happening inside her room?

P: So, she will wheel her own wheelchair and look at photos. Eating normally and talk to staff sometimes.

R: But she likes to be in her private area more right?

P: Yes.

R: So, do you have a chance to go out into the communities? Any limitations?

P: No…For limitations (for the older people), they don't really have something to support them. There are lifts. There are escalators, but e will not let them use it surely. Most older people they don't think they are old, instead they think they can do it. More than that, farangs are more than the Thais. They think they can do everything by themselves. So, they will use escalators which are dangerous. There are lifts to go up, but they don't use it (convenient?). They like to walk. For walkers, for that case, he has Parkinson's…he doesn't want to use walker and said he can go…he can go. So, we have to have a care staff () to take care of when going down the escalators. So, they like to walk by themselves. To go out, it is not only assessing the symptoms, but we have to assess with other factors such as pampers. Someone will just…in the shops. So, it is not only that if they can remember the pick-up point but they can look after themselves.

R: so, you have to plan everything tight.

P: Yes, we have to plan…even if the pampers that they are wearing…they don't know that it is full. Someone may say that I know…it is okay for me not to wear. I know when I need to go to the toilet. But, in reality, it is not. They will….in the shops etc.

So, most of the guests think that they are still normal ()

R: Can I ask for Khun Ron's case, should there be a carer to support him?

P: Yes, there should be. If he goes outside. But if stay here, he can stay alone (independently?). However, there are some limitations in caring…We can not push him to take a shower. He does not like. Or, shaving…it will take many days until we can convince him to shave. Also, he does not like someone to go into his room because he thought that someone will stole his stuff. Each case is different. We have different ways of dealing. Each case needs different type (of care?). As each case is different, we have to know what they don't like…Each case is different so we have to know that this person is like this…many things.

R: So, in this case, is their background important?

P: Yes, it is very important…very important indeed. We have to know where they are from (). If we don't know…It will be hard for us to work with them. If we do not know their background and then we suddenly go into their rooms. They will think we are thieves and they will. Even that day I wore a cardigan, then it is hot so I pulled out my cardigan and then hold like this and left the room. He said you are stealing my shirt. So, I have to leave the shirt there and find sometimes to take the shirt out.

So, each case, they have different nature and different backgrounds, different personality. When I firstly came here, I need to read every files of every guests. What kind of diseases do they have, what is their background. But, everyone does not tell everything. So, we have to learn from the experienced staff (who work here before), their relatives when they come to visit. So, they will tell and clarify so we need to collect data.

R: How many guests in the resort in total?

P: 20 cases in total. Previously, there are 40 cases. Not all are dementia. There are some cases that can just come for retirement and no care.

So, they are getting worst. It is the fact that we need to understand. So, we have to adapt. We adapt everyday. Yes, we have to adapt everyday. Some day in the morning, they are in the good mood. But then they are dull (ซึม) again. So, we think about adjust the medicine and call to consult the doctor…if it is not getting better. We have to adapt the care everyday. So, we do not adjust the medicine everyday because it will take time for it to activate. So we have to observe the symptoms and inform the relatives. This is important. Because if something happens, they will ask why we did not inform them. So, we need to the patients and their relatives. Some people come to live here and feel lonely and have cats. Then, we have to feed the cats. Someone also come with dogs so we have to let the dogs to cut hairs, take showers, and vaccinate them. Then, it is all included. We cannot ignore that because someone they can live because of the cats and dogs indeed. There is a case which is leaving. She cannot live without cats and she will cry without it. She is depressed. If the cats are getting lost, we have to find it for her. So, when she went back to her countries, the relatives told us that she is getting worst because she did not bring her cats back with her. This is very sensitive.

Dogs and cats can be a therapy…Like, they don't have anyone. So, cats and dogs…

R: So, most of the guests will stay in their private area.

P: It is quite big…

R: Most of the guests came from foreign countries…the question is about familiarity or home…how did you deal with the issue?

P: Here, it is quite okay. There's not much of this issue with the environment. Because it is better than 'their home'. For example, Khun Ted, he told me that, this place is much better than my home. He is British and he worked in Hong kong. The relatives asked him to have a trial stay because they are afraid that he will not stay here for long. However, he stayed and don't want to leave. So, the relatives are happy (). For the weather, as they stay here, they are habituate () with hot temperature and sunlight.

R: Any homesick?

P: There are some cases…but someone who can not remember already. So, it depends on the case. Cases which they know…and not yet severe stage…they will have iPad to contact

the relatives. For example, Marion who is 97 years old. She will talk to her son/daughter all the time. So, for this case, she decided with her son/daughters who she knows that she will come here.

R: So, for Khun Nancy. How did you deal with the issue?

P: For Khun Nancy, we will inform her directly that you are in Thailand. But, then she will eventually forget. I will tell her she is in Thailand now and your sons are in…country. And your husband is in Phillipines. And he will come to see you every month. So, I tell her the truth. So, I tell her, but in a minute she will forget.

It is not that I will tell her that she is in Canada because the environment is not. Also, the care staff speaks Thai so it is not. So, I have to tell her that she is in Thailand, we are Thai taking care of you. And, I love you.

R: Last question, how do you think the physical environment that support their independent living or not?

P: If this zone is not bad because they can walk out by themselves. Some without walkers can still walk. Someone needs to use walker or a cane to cross steps, but here there is no step so they can walk without anything. Independent living…someone who is wheelchair…they can wheel out from their room, by not having someone to lift up or to cross over the stairs. Like, Khun Ron, he can walk by himself or can wheel by himself. In the evening, because he just had a surgery, so he is afraid that he will fall down. But now, he can walk by himself to come and collect his food by using walker. To use walker to walk by himself. If our place is not like this, all with steps, we cannot come here by himself. To go up the steps, he will not want to go up. But he can continue walking without crossing or lifting, not going up and down…in the same terrain.

R: Can I ask…if their stages are more advanced…how the physical environment can support?

P: Getting better? Like rehabilitation?...if they are severe. I don't think the environment will help…Oh, but in the room, if we arrange the environment inside the room to have no risk, it will help. To bring out all the stuffs…without too many things inside, without hard/sharp corners. This will help.

But, in terms of healing, it will not/cannot rehab or heal…but for the safety, it helps.

R: Can I ask why do you think it cannot help healing or rehab?

P: For the environment, as they are at severe stage of dementia, they are not interested in the environment. Then, they are living in their own world. They have their own image. They did not interest that it object is for this and that. But, possibly, in the case of Nella…which in her case, she has her world but she still participates with the surroundings (), which are not humans. She cannot communicate with humans. So, she collects leaves everyday. So, she collects leaves and somedays she will draw them. She will put the leaves on the table and draw them. But, she cannot do it now. So, she only collects in her bag. She walks and collects. So, she talks with birds. But, she cannot talk with us (). We talk in English, she can talk in English but she answers in Dutch. She answers in different topic. So, she cannot participant with humans. So, she is in her world. Talk to herself and collect leaves. So, she walks all the time, whole day until her husband cannot do it anymore (). Before that he did not ask for help, but now he asked for 3 hours taking care. Because, he has no private time.

Participant 5: Manager (Case Study 3)

Female; 35+; Nationality: Thai
Location: Reception Room (on 2nd floor). The room is newly renovated.

R: So, firstly, can I ask how long have you been working in here?

P: I worked here three years and then took a leave to study for one year. Then I came back to work here.

R: What is you responsibility here, can I ask?

P: Caring and management of the whole facility.

R: So, is it the whole day or in shift…I mean 24 hours?

P: No…only in the morning. I work here from 8 am to 8pm. Only in the morning…

R: According to your experience, how the design of the physical environment can support the patients and also the care staff?

P: In the aspect of care…I think the whole building is fine. It can successfully support the care work. But there are some parts where it is not convenient to look after which are the rooms (the rooms are divided up).

R: As you have mentioned about the rooms, you mean you would like them to be shared?

P: Yes…if we can mix them, it will be great. As a result, we are planning and building shared rooms on the 2nd floor. It might let us taking care more easily. As a room (private room)…They both have benefits in different ways. If they are (private) rooms, we can separate them according to their diseases. Or, we can restrict the spread/diffusion of the pathogen. But for the shared rooms, we have to select the ones who are going to stay there because there are more chances of the defection of diseases.

R: Could I ask how many patients with dementia/Alzheimer's here?

P: So, currently they are not many people left. But, if you ask are there many who come to 'recover' here. I can say that yes. There are rotations of people come in and out.

R: How long do they usually stay here?

P: One or two years…it depends.

R: So, it mostly depends on the patients (and the market?).

P: So, currently there are two…three cases who are patients with dementia.

R: Are they coming out of the rooms?

P: Previously yes…they came out of the room. But because of their physical health, only dementia…they can still walk around a little bit, but later their physical condition, their arms, their legs, and age, all these systems are deteriorating. So, they have to live their life on beds and inside their rooms.

R: As I have asked you in the morning that…

P: Previously she used to come out…but she finally could not since the last 2-3 months. So, her knees are hurt and get Lymphedema. Then, we accompanied her to the doctors. As a result, she was limited in the area to limit her use of legs. So, she has to stay on her bed.

R: So, there is a physical therapist to help out?

P: Yes, at the starting there is. We have staff () to help with the postural and do activities…daily activities by using the legs as less as possible.

R: Also, for bathrooms. How the design of the bathrooms is supporting the patients and the care staff?

P: There are ramps and handrails in each room. But we will add up some more depends on the characteristics of the patients. In every room, we already built them the same in every room. But if there are patients come in and some are not convenient, or will require some additions. Then, they will ask. We will consider and manage for them.

R: Do they need to pay more?

P: Yes, may be some parts. (R: So, it depends on the relatives right?). We will discuss with the relatives. If the relatives are convenient, they can bring the equipment to here and we will let technicians to install. So, they don't have to spend much. But if they ask us to find equipment, so it might have some extra payment for this.

R: For the interior environment, do you think there are any limitations?

P: Currently, in my opinion, I would like to improve and modify rooms or spaces for physical exercises. This is because we don't have spaces for the patients to use for physical exercises or for group activities. It (the building) may be a bit too small. Because the building…our building is not purposely built or aim for this function (?).

R: I heard of the Khun Tum (the owner) that the building used to be an apartment before.

P: Yes. So, now it is not very convenient to use spaces. So, if we need to invest to build it, it will be a lot of investment.

R: But if you have rooms for physical activities or multi-function rooms…

P: It will be a room for exercising and activities use their leisure time, dining area, to talk to each other, have equipment/tools to play, or have TV for watching. For some groups of patients who can perceive and take care of themselves will be good.

R: As I can see in the morning, most grandpa and grandma will come and sit in the centre…

P: Yes. You can see that the spaces are limited. We use the circulation spaces as spaces for exercising.

R: So, are they talking to each other?

P: Yes they are. Every year, we will have a festival/celebration based on the cultural tradition. So, they will come together. It may be at the ground floor or this room. There will be activities such as making merit, dining together. During that time, there will be a conversation.

R: So, it depends on the festivals or events. Can people with dementia join these events?

P: Yes. However, it depends on each case and their conditions. So, everyday, there is a medicine to control based on the doctors' prescriptions. So, like the case of the Aunty, if she has medicine, she looks like she calms down. She will not shout and yell. For the dementia cases, they have both good and bad aspects of mood.

R: So, their moods can change quite fast right?

P: Yes. So, we use medicines to control. If she takes medicines, she will look like she calms down, not shouting. But when it is the day to give medicine, as the doctor will specify the date for once in five days. During this time, she looks good, but when the medicines are running out, there will be some problems. She, then, hardly lives with others.

R: I heard that her husband is living here as well.

P: Yes. We allow the relatives to stay here (inside the room).

R: Next is the question about outdoor environment. In the ground floor, there is one space next to the canal right. Also, there is a rooftop garden. So, do you use the spaces often?

P: Yes, I use it. Currently, I still let the patients who can still take care of themselves to have exercises upstairs in the morning 8-9 o'clock. If the weather is good. But if it is too hot, I will not go. Currently, we almost use it everyday. Usually they will go up for fresh air. Importantly, it depends on their conditions or stages if they can take care of themselves.

R: So, by going up to the rooftop garden, what is the ratio between patients and carers?

P: It is 1:1.

R: So, how do you think the outdoor environment can support the patients and care staff?

P: It makes the environment more refreshing. It is not spacious. It is not the same as being in the city which we will feel cramped and limited. But, when we are here, there are trees and canals, which make us not feel cramped, refreshing. And, it is like we are in rural areas (rural provinces).

R: Do the residents also go up to the roof garden?

P: Yes they like to go there. There are some groups of relatives who like to go up to the rooftop garden at night. So, they are mostly relatives…

R: Do you think there are any limitations of the design of physical environment?

P: No…there are no limitations. So we have improved it. At first, it is not all concrete. It is all soil and pebbles. So, it is inconvenient when we push the wheelchair or walk. So when we use concrete, it becomes more convenient.

R: So, these are cases from the Netherlands. How do you think about the concept of home-like environment?

P: They have a good thinking/idea. But they might have more spaces than us. But if we do in sections and zoning, in my opinion it is good. But for practicality and function, who will collect and clean up the spaces. Mostly, we will need to hire staff or more care staff. So, it is more like it needs an extra workload to our tasks. But if we are doing this, I prefer to do these activities in one room. If they separate, in my opinion it is good.

R: For here, are there activities?

P: There is merit making in Buddhist holy days, Loy krathong Day, Songkran Day, and New Year. There will be activities all the time.

R: So, do you have any other nationalities as residents in the facility?

P: Yes, we have. But they are not staying for long-term. Previously, there is a Japanese who stay here for 2 years and then the person died. But he had a Thai wife. So, he stayed here. Mostly, they are Taiwanese and (as well as Japanese) who come to stay for recovering and for doing physical therapy. Also, there are some British who come to live here. There are many nationalities. But most of them just came for recovering and taking care of. Because they have bedsore, so they came to cure the bedsore and then they went back. But they will not stay here for long-term care like most grandpas and grandmas. Also, we are dealing and working on the renovation, especially VIP rooms, to promote to Japanese investors to come as a partnership with us. We are still waiting….they will send their older people to here basically. Basically, they just want more spaces. Just in case…

R: So, do you think the home-like environment can support the social interaction between?

P: Yes I think so. So most people when we set up activities, they will be in the same room. So, staff and residents will be in the same room and do activities together. So, communication and talking will then happen.

R: So, the next one is about healing environment.

P: Yes it will help. So, here we mostly used the natural environment more than other factors that you can see from the gardens. We haven't yet used the smell, colour, and food taste to incorporate. In terms of these factors…(pause), we mostly use the natural environment in the garden.

R: How often?

P: Everyday…at least.

R: Next is about technologies…. How do you think about the concept?

P: Not yet. Here we haven't got any kinds of technologies. But for dementia cases, there are very few that they will believe in this kind of communication tools or other tools that will instruct them to do e.g. exercising or eating. I think it is almost impossible.

R: So for them, how to encourage them to do exercise and eating?

P: We have to show them first. For example…"Grandpa, you have to do exercise…raise your hand up.". You have to raise your hand up too. And, we help each other counting. Also, we need to be their example. But if we use robots, I cannot imagine how can they use and how can they follow. If they are normal people but there physical body might not be enabling, they can still communicate or may help them somehow. But for dementia cases, they are not able to use it.

R: So, now they are not yet a final product. They are still developing for the decreased workforce.

P: But if you use robots as communication tools when there are symptoms or something wrong or if they want something…robots might partly help. If robots are programmed to talk or do

something repeatedly everyday, it will not the same when we talk to each other. It will be different. At first, either 3 days or a week, they might be okay. But as time goes by, they will feel bored to use objects repeatedly and sentimentality.

R: Here, you have nurse alarms right?

P: Yes there are. But currently, it is a button attached to the body. So, when they go to the bathrooms, they will be attached. These are for the one who can still take care of themselves. But if some person who is bedridden but the upper part is still working, they can still use buttons on beds. Or we sometimes attached the buttons with tapes on their bedsides.

R: So, it also depends on their physical bodies.

P: This question is about dementia-friendly communities. Do you have any programs to go out with the patients?

P: We used to have according to the relatives' preferences. But for now, not yet. This is because if we have 5 patients with dementia, we will need 4-5 care staff to look after (). If it is 5:1, it is not enough. We cannot do it (ไม่ไหว). If someone gets lost…will be game over!

R: How many staff in total?

P: Currently, there are 19 people left. So, 5 people will be in the morning shift and 4 for the evening shift. The total 19 people include house cases (which mean hire the carer for homecare).

R: How many residents now?

P: Currently, there are 13 people left as residents.

R: So, 5:13 in ratio. The policy from the UK would like to promote the policy of dementia-friendly communities. How do you think about the concept?

P: If in the context of Thailand, it is very nearly impossible. But if you build in within the gated community, with gardens and use transportation/cars (imitation). To make it as a garden, in the vast area of spaces. Moreover, it should be in the area where we can take control. This is how I think it will be suitable in our context. So, it should be built/imitate the environment outside. The environment should be like we are out from where the environment where we live in. It is like as you mentioned…by letting they take a care or a bus like in foreign countries. But it should be in the zone where we can control and take care of.

R: Can it happen in the real community?

P: It will be hard. It will be very hard to control. So, the procedure of taking care will be hard and uncomfortable () . You can built...but when we go, it will be a big job. It is like we travel with a family with 1-2 patients. We are travelling to eat something. We have to take care a lot including transportation, the place where we are going, people who need to be there for supporting.
R: This is an example of a design tool for dementia in the UK. What is your opinion about it?

P: Yeah it is good. So, it can be the model for us to look at. It might not be...that we have to do the one that they plan, but we can use it to support/add on the one that we 'want'...in some parts....(and the users?).

R: What about when you are renovating some parts of the facility...what is the design process?

P: Yes there might be. So, (The owner) coems to ask about , the practicality and the convenience of the care staff. Like, how to arrange or where to put these things. It is more about the convenience and comfort. Also, it is about the secure of the daily activities such as taking shower and also the privacy of each person.

R: Have you seen this kind of tool before?

P: No…

P: The nurse is the one who will control us. There used to be a nurse but then she left and no one yet wants to work with us.

R: How do you think the design can enhance independent living?

P: No…no…it might be part of it. But it is not 100%. It is more concerned with taking care of and rehabilitates from care staff, and relatives (part of it). So, for dementia, memories are just part of it. It is more about people.

R: How often do the relatives come?

P: In some cases, almost everyday. They will switch everyday. Some rooms, if they are not free, they will come on weekends. So, it is more about social/society (). The place () might be a part of it, but not much. It is more about the patients themselves. They are staying in their rooms more. Even though we bring them to the garden, they will be okay in limited time. But, if they are families or relatives to stay with them, talking and eating, even though it happens in their rooms, but they will be more happy. More than going outside.

R: One last question, as we have mentioned about home-like environment, to make it as home as possible or the atmosphere to be familiar and home-like as much as possible can have benefits on them?

P: Yes definitely. (R: Is it going to support the care staff?) But, part of it and only some of patients and some cases. But in the dementia cases, it will help a lot.

Participant 6: Care Managers (Case Study 4)

Gender: Female; 60+; Nationality: Thai
Location: Telephone Interview (Because she was very busy during my fiedlwork as there is one newcomer patient from Germany)

R: The first question is about the design of physical environment...how can the interior environment can support the patients with dementia and care staff?

P: (…) You mentioned 'how' which means the benefits/advantages (). If it is about its benefit, we also agree that the intention of the 'decoration'…which mean the 'interior design' right. The environment inside for example colours, lighting…(pause)…the 'design'.

R: For example in the bathrooms…how the bathrooms here are supporting the patients?

P: Currently?...the current one is okay. The arrangement is fine. The room is also…the bathrooms are wide enough for the care staff to wheel the patients (in the wheelchairs) to take

shower. There are seats for them to sit and take shower. The bathroom is big. Also, the handrails…Also, there is non-slippery floor inside the bathroom.

R: What about the bedroom…how does the design support the patients and care staff?

P: Support?...Support right? They are together. The rooms are like the 'normal' patient rooms (). It is not designed specially for patient with Alzheimer's. For Alzheimer's patients, they stay in private rooms. In the private rooms, they are like a normal patient room. They are like the normal patient rooms () in…hospitals. They are not designed and built for specialised lighting and colours…they are not really something much.

R: So, those patients with Alzheimer's and dementia, they are living together with other patients in the same area right?

P: Umm…yes. We did not separated. They will live together in the same area. We did not…Um…We have two kinds of patients…It depends on the relatives (50%) more than the patients themselves. It is the patients' relatives who come and look at the place/facilities and choose if the place () is suitable and clean and wide enough for the relatives to visit…and collectively live. Also, the private case, we did not leave them alone (they open the doors). It is not like in foreign countries where they will leave the patients in the room alone (with the care staff inside?). So, the relatives will choose the types of rooms. If it is okay for the relatives, and the patients themselves are not completed enough (consent?). They also know that the patients with Alzheimer's cannot live or stay in the rooms alone. So, to let them choose, so the patients cannot process in the case. It can be anything…the patients might think like that…only hope () that their relatives will come.

R: Another question, I would like to ask you about the limitations of the interior environment?

P: The current environment? If you want to design the new one…?...umm…currently…I think it is the lightness (). Normally, the patients will not like the lighting . So, we will draw the curtains down (to shut the windows). But the wall is white or cream in colour, which are bright colours. So, if we require dark environment, we require to draw curtains down. The patients don't like much sunlight…But when the doctors come to visit, they have to turn on the light. So, that they see and check up the patients.

R: So, it is kind of a conflict right that the doctors require lighting, but the patients want a dark environment.

P: Because you have to understand that our hospital has doctors to check up. If other places, they are homestay. They don't have to have doctors. So, the older people live in a place where the environment is home-like. It is different in the atmosphere. In that places, they don't have doctors.

R: Also, another question is about the outdoor environment like the garden on the 3rd floor. How do you think the outdoor environment have benefits for the patients and care staff?

P: The outdoor environment…you mean the green space? The green space has both advantages and disadvantages. The advantages are the normal patients who use wheelchairs and don't have the thoughts…thinking. For Alzheimer's patients, they have the symptoms of forgetting, but also they have the symptoms of / psychiatric disorders intervened. So, the psychiatry causes aggressions, or wants to go back home. So, if someone with 'normal' Alzheimer's with the symptom of forgetting. And, another person is with Alzheimer's but with psychiatric disorders (mental disorder?) have aggressions and want to go home (8:24) and don't want to live. When the person saw the 'open/spacious' green space. They will think that they want to go home. So, they are both good and bad points. They are risk factors.

R: So, they are risk factors that encourage them to go back home.

P: Because here, we have glass windows and sliding windows. So, we need safety locks. So, we need safety. This is because there is another patient in this group (Alzheimer's and dementia), the person wants to go home and when the person sees the green space. We cannot let him see the green space. So, we need to give the person medication to reduce his psychiatric disorder. To reduce the person's stress. So, for Alzheimer's, you have to categorise into moderate or severe, or normal stages. It is the hidden agenda for curing. The medications will be different.

R: What are the limitations of the green space?

P: There are surely some limitations. In the certain time, there should be some locks. And, the lock should be secured firmly. They should be closed and locked. Also, it is the terrace, which is only aiming for aesthetics, just to sit and look at. But, when you go out, the guardrail is not tall enough. It is not safe. The handrails are not safe. It is too short. But, they are built for aesthetics more than using. They are for the visiting (relatives) to visit and look at. We will not allow the patients to sit or stand there alone. They are more the relatives who use the terrace. The patients use wheelchair will have to sit far apart. For the terrace, they have various objectives e.g. aesthetics, for relatives, and for the patients to use wheelchair and gain fresh air. But the patients who have risks, this will be their risk factors. We cannot ley them go out.

R: There are some case studies in the Netherlands, where they decorated…

P: The older people…for that particular point, it is great. But, for the management, there are any doctors here? Or, how the care staff look after? So, for the term "" or home, it means they have to live alone (?) or have no relative (?) right? (R: No no). So, you have to limit people in the group…categorise or separate people from the group. This group of stages is the one who can look after themselves and can do activities. Otherwise, they will not know why do I have to sit and watch these people's faces. Because, they can not interact by themselves. There should be a people who can facilitate the activities and know how to recreate the activities.

R: So, it is also depending on the care staff right?

P: Umm…so the staff…the physical therapists, they can run the group activities. So, if they have to live like that, I think their objectives are good, but the one who have to live in there. I think it is more scary , in my opinion. Because each person has different nature. They can be lazy to do activities. Or, they can sleep all day. They have to be in controlled. The question is very broad.

But if we have to close our eyes and be there, we need to categorise the patients into different types (). If they can help themselves, but they need someone to take care of. Taking care/looking after in the big picture.

R: So, do you think it should be separated into categories and stages for them to enhance the interaction?

P: Yes. It will be more suitable. Like, people with Alzheimer's and depression should not be with…If you grouped them, then you can joined/mixed them. But there should be a person…they called a leader…a coordinator or the one who manages the group activities….the one that takes control and takes care of the patients who can still help themselves to participate in the recreational activities. There should be a person…in the time that say "it is time for dining". It is a group activity according to the programs. There should be a setting for this group of staff. If they live like this, it will not be suitable.

R: For the group of severe dementia…

P: So, they have to be in the hospital . This is dangerous. They have to be alone.

(…)We need a medication for them to adapt and to control their mental state to be down. Their mental state have to be in the normal level and then can be integrated with the group. So, it is all about the mental state of the patients. So, they have to be cured first. So, we gave them medication.

R: So, the next question is about healing environment…To what extent do you think these kinds of environment can support the users?

P: So, if these people can take care of themselves and they can get into groups. Then, they can get into groups. These factors such as hydrotherapy can be used and helped. But, as I told you before. They have to be in groups or clusters such as groups that can and cannot do these kinds of therapy. But the groups which are needed curing, will be in the group just for curing . But that you ask if it can help…yes it can. Like, lighting, colours, and sound, and smell…and water.

R: In this case, how can the Serene use this kind of factors in dementia care?

P: Not yet. In the future, I think we should have. But, it is just plan in the future. They should be provided because that group if there are the place which is a new building…it should. But here, it is only a hospital for curing .

R: Also for technologies, do you use any kind of technologies in Serene for supporting dementia care?

P: Technologies…oh…yes…we have nurse calls. So, every patient beds, all have nurse calls. The nurse call will be alarmed at the nurse station and the bed of the patients. Because we will need to press the buttons at the nurse station that room 305 calls. So, we go and ask "what do you want us to help/assist?"

R: In the UK and in Japan, they are starting to use some kinds of robots for caring or using GPS wristband for tracking if they get lost. How do you think about the concept?

P: This will not be about Serene…So, I am thinking about the large hospital…Bangkok hospital. It will be good. There are many buildings. So, having GPS in the patients. This group of patients such as the Arabs like to walk at the ground floor and outside the territory/the hospital area for dining. Also, they ask for permission. Then, the security will have to follow. But if there is a GPS embedded or attached, so we will know exactly which area they are. They are going out to……Nana area and then they come back. For this, I referred to Bangkok Hospital because I have experiences there. If we attached GPS, it will benefit the security. This is just an example. It will benefit the security that taking care of. This group of patients are…the Arab who likes to go out of the hospital area. Always.

So they are the group of Arabs who came for curing many diseases for example the genetic diseases…(a type of down syndrome). So, they also need to control the aggression. If they want to go they go, if they want to aggressive, they aggressive. They will not obey . In Bangkok Hospital, this happens everyday.

R: Another question is about design and assessment tools. This is an example of a design tool in the UK. Have you seen this kind of tool before?

P: If we are ahead of by having this kind of tools, it will be good. The innovation that we only hear it, I think it is good. But I don't know what is it.

R: So it is like…design recommendations or checklists. How do you think about this kind of tool?

P: To establish a hospital and the builder, if the vision is not conform to, then it will be like this. But if the owner and the builder, have the assessment of the environment before the building stage, everything will come out right. Good…it might be good.

R: Have you seen this kind of tools in Thailand?

P: Have not seen yet. Because I have been working at Bangkok Hospital. They will build a rehabilitation building. They will take it all the floors and then categorise patients. The whole floor will be a rehabilitation department. Then they will take only the patients who require rehabilitation. So, they will move all to tat zone. So, that they will go up and down conveniently. So, they don't need to do another building which they will need to wheel/transport from far away. So, the good thing is, they are categorised the patients into that building already. The owner and the builder are in the same section (?). This is becoming a prominent point. The patient with heart disease is located in the heart building. Then, they have heart CCU, heart surgery…in the same building entirely. So, this is what I want to explain that Bangkok Hospital has done that already.

R: So, the next question is about dementia-friendly communities. Have you heard it before and how do you think about it?

P: Yes I have. (R: How do you think about the concept?). I think it is good. There are two parts, if the patients can take care of themselves. If they can take care of themselves and would like to go for recreation, want to go outdoor and would like to change the atmosphere. Here, there are a discussion by the board that there is this type in Khaoyai. There is a group of investor who build a condominium for older people. They did a one stop service in Khao yai where there are retired older people who live in. There are recreational / happy time in that area. So, if one day they have diseases or cannot walk, they need to move to the part 2. It should be 2 parts. When they are cured, and they are fit enough. If they are getting better, they will be relaxed in that part. So, they divided into parts. So, we divided into half which mean we are happy half way, then when we are sick, we come for curing. So, we are established quite a long time now in Khaoyai.

R: For people with dementia, is it also depends on their stages when getting out to the communities?

P: It depends on the stage. For them, they need to be in the hospital for severing stages. They cannot get out. It is dangerous.

R: In the context of Thailand…?

P: If they cannot walk properly, they can use wheelchair. However, they need a carer to take care of them because this group of people, they cannot take care of themselves. So, they need to be in the wheelchair with the carer and be aware of falling….Yes they could. But they have to be with their family, they cannot be alone. In communities…it is the family only indeed.

R: So, for the last question, to what extent do you think the physical environment can support independent living for people with dementia?

P: Yes it is. I will give a real story of Grandpa Anan. He has Alzheimer's disease. His environment needs to have chairs and tables for dining and look private. Because he cannot hear others, we will use a whiteboard to write and communicate with him. We will use a black pen to write down. Because he is deaf, so we use a white board to communicate. But, still, the patient still require medication to adjust their mental status and mood for their mood to response to the environment and not to be depressive. If he is depressed, everything will not be fresh/refreshing. Also, the mental state depends on the medicine. The environment can facilitate table, chair and white board, activities (and occupational therapy in groups. The patients need someone to talk to. If he is in a good mood, he will sing. This is an example of the grandpa and his daily routine.

R: So, did you set a routine for him?

P: So, we set up his routines everyday. If not, his brains will get worst. We need a routine for the brain to response. So, that it will not getting worst faster.

R: So, you have set a timetable for his routine…

P: Yes.

Participant 7: Head of Nurse (Case Study 4)

Gender: Female; 55+; Nationality: Thai
Location: The nurse's station (3rd floor)

R: The first question, I would like to ask about the interior environment of the facility which help to support the patients and also the staff?

P: In fact, the overall environment of the hospital is located in the area where the air can flow and have good air ventilation. There are no talls buildings nearby that block the airblow or wind direction. So, the ventilation or is quite convenient. It is very good in airflow with wind, natural ventilation and everything, which is great.

R: It may be because it is located in this floor (3rd floor), which has a green space and…

P: Yes, yes. So, you can go exercises or get some natural sunlight in the morning and in the evening.

R: How often do you go out into the green space?

P: It depends on the state/condition () of the patients. If they can go out, we would help them to go out all the time.

(Interruption with phone and nurse calls)

P: Yes it depends on the condition of the patients to see how they are ready. If they are ready, then the care staff will them to the green spaces. So, just getting on the wheelchair is possible.

R: So, are there any parts of the bedrooms or in the shared wards, any physical environment, which help support the patients?

P: In what aspects?

R: I mean…for them to be independent as much as possible.

P: They are typical hospital rooms…with all convenient appliances. Also, for the bed, the patients can adjust the level of the beds by themselves if they can press the button. This is because sometimes, there are no automatic systems.

R: So this one is an automated?

P: For the patients who can still help themselves, they can do it by themselves. So, that they can adjust the bed and their happiness, and comfort by themselves ().

R: What about the design of the bathrooms?

P: Yes, we have grab bars in the bathrooms for the patients for sure. It is important for their safety and their fall risk. Also, it is very wide. It is very wide. It is a half size of the room (bedroom). So, the care staff that help and take care can go in and out very conveniently. So, you can see that the size of the bathroom is very wide. (R: Also, quite beautiful…) P: Wide…wide which can the convenience of the staff. Because there will be someone who go to help out. (R: How many people to help out). It also depends on the condition of the patients. If they can still help themselves…part of it (). They will need only one person like partial assisted. But if some cases, may need two people. So, it depends on the condition of the patients. So, we cannot specify now if they need one or two people. So, it needs to be assessing at first for us to know.

R: Okay. That you have mentioned that for the green spaces, the patients often go everyday depending on the conditions, I would like to ask are there any limitations for the outdoor environment.
P: Such as? I don't understand.

R: Do you have any suggestions for the design of outdoor environment?

P: I think…just leave it like that. It is good. Now it is clear () and has nothing blocked. So, it is good for the patients because they use the spaces for walking. So, the barriers or obstructions are…I don't want any additional objects more in the space. For example, in the past, there was a swing here. Then, we moved them out due to they are obstructed the area where the patients can exercise. So, we want it to be as clear as possible. So, that they can walk easily/suitably ().

R: What about the sunlight or weather?

P: So, basically we chose time to go out. We chose time to go out. Or, some days, we cannot go out because of raining. It also depends on the weather and the patients' condition.

R: So, for each one, we want to encourage them to go out as much as possible?

P: Correct. If we can let them go (). We want the patients to have an access to natural sunlight.

R: Do you have to communicate with them in certain ways?

P: Most patients are corporate/participated (), if we told them (hahaha). They are participated. Or, if not we will help each other by inviting them in groups e.g. 2-3 people…like have friends. So, that they will not feel lonely right when they come together 2 people. Like Grandpa from level 2 and Grandma from level 3, then go out to sit outside. Sometimes, we let the care staff…if the weather is not that hot in the afternoon. Some days, the weather is not that hot. When the area gets some of the shadows from nearby buildings. So they will go out for throwing balls…something like that. Practice their hands…Practices (something else).

Practicing these kinds of thing will be done outside. Because the air is flow (). It is not the same as staying inside the rooms.

R: This is the cases in the Netherlands…

P: So, it is nearly/similar to the one that they used to live as much as possible. (R: What do you think about the concept of home-like).

It is good for the patients. I think it is good. But, it is also based on/depends on the home-like environment, that is the home-like environment back home is okay for them. Can you imagine…If the physical environment when they were at home before, it is not okay. So, it will not be okay as well. For example, when they were at home (previously) and they were not happy, have some issues and have some events/tragic that make them sad or not happy (). You understand that. But if we model/replicate that similar environment () which can reminds thoughts or the environment which reminds sadness/affliction or the previous situations. It depends on the patients. It does not/should not be measured if it is home-like or not. For somebody, they prefer not to look like home. Because some patients, have a bad memory about their home. So, it depends on each 'person'. That, is it good to replicate the home? Or, we want them to change/adapt from the present state ().

R: So, it means that you should have done some assessment before right?

P: You have to assess their mental state () that during the stay at home. Are they okay? If they are okay when they stay at home then…okay.

R: For here, is there any kind of this concept applied in here?

P: There are not yet applied here. We have not thought about it to do like that. But, in the future, we are not sure because there will be another project…This one will be a hospital. It is not a nursing home. Here, it is a hospital. So, we are focusing on the illness . But the nursing home, we are focusing on being/staying at home (อยู่บ้าน). Like here, most patients have illness and sickness . They are all chronic cases. Bu another project that they are building, it will be a nursing home...like living in a condominium. There might be retails. So, that project is in the opposite of this lot. They are preparing. But if they are sick (), they will send them here, which have wards and nurses. For that side, it will be like staying at home, caring, and facilitating (). There will be something to eat, utilities and areas to walk. Like staying in the condominium like that. Then, if they are sick, they will come here. So, this side is like a hospital.

R: In the same case study, they also have rooms for activities. (P: There are cooking activities too?). Do you think the physical environment can support the social interaction?

(Pause…) …so when it is late (9:00), patients will wake up…it will be busy because there is only one nurse (on 3rd floor). Because I am in a rush for making bandage.

P: If there are activities, there will be a social interaction and talking…more talking I think.

R: Is it a group activity or a 1:1 activity?

P: Activities…mostly it is a 1:1 activity, but sometimes they will be in the same circle. But some people already talk to each other (not just in the activity). Such as the Japanese, they talk in the same languages, they will stay together. Languages are also our limitations. Because we have patients in various nationalities, Japanese, there will be German, Thai, Chinese. So, the languages are the limitations. There are Japanese patients…it is good that we have Japanese doctor (Thai doctor who can speak Japanese). They are Japanese in the shared wards and these two (third floor) are also Japanese. Another male in shared room.

R: Most of them are people with dementia?

P: Most of them are bedridden. Most dementia is bedridden. But, most of the cases are in the very late stage, which they became bedridden. But some of them are still walking for example the Japanese case. But some of them are too late (stage) . So, too late to come and participate in the activities because they are bedridden ()

R: To what extent do you think healing environment can support the users?

P: As discussed previously, It can be any kind of environment, which make the patients better. It is important how to stay and feel happy ().

R: Have you heard about dementia-friendly technologies policy before? How do you think about technologies and dementia care?

P: For now, it should be like this for sure. Anyone, everyone, technologies are integrated into every levels of people's lives. So, (normal) people () is also using technologies. So, the patients with dementia, they also must have choices to involve and integrate with others. They have to be in parallel ()…Yes, we are in the same . Not that the outsider uses technologies, and someone with dementia are not getting help…it is like they are segregated (In the ward, the nurse mentioned that different levels should be divided for their own advantages). They should be together with technologies and that is the present (). So, that they will be participated in the social. Like, for computers, if they don't know how to use. Then they will be segregated automatically. But, if they can use, it means they are also engaged ().

R: Any technologies used in here?

P: For this question, it will be in the section of physical therapy. For me, there is not. I am more focusing on the nursing care. More like emergency and nurse calls and nursing care.

R: Next question is about design tool…What is your opinion towards the tool?

P: It supposes to be like that. There should be an assessment to see if it is in a standard. It should be an assessment to make them in the same standard. To have these design…So, it is a normal thing for every cases that…it is nature…everything should be designed for development and for better…(DSDC's motto). So, it is the same as this

R: The next question is about communities…

(10 minutes)

P: If they can do it is all right. If you can make it, it will be good. This is because they have to live there, they have to stay with others. If the communities, not only this, but communities have to participate and support the people in the communities. In every aspects, and this aspects as well. So, people in the communities have to help each other () in the issue about dementia, or other issues. This will have an impact indeed.

R: The last question…To what extent do you think physical environment can support the independent living?

P: If the environment was arranged suitably for them right? This is not only for people with dementia. It is all for the older people. This is because most people with dementia are older people. But just separate them that they are dementia. Dementia eventually will happen in older people. So if we arrange something for them, place, and facilities for them.

R: So, most of them are bedridden. Can we extend their time (before reaching this stage)?

P: Yes, you can. But in fact, it is not only for dementia, older people also have other diseases. So not only dementia…it means that the factors that make them bedridden is not dementia…not dementia…other diseases will make them like that. Such as stroke can make them bedridden. Or, because of their age that is increasing. But not because of dementia. Dementia is a disease, which is occurred in ageing population. But the symptoms are not that much that affecting the patient to be bedridden. So, dementia is about mood. Also, they can effect. But, it is not the main factor that makes the patients become bedridden. So, it depends on other diseases which they already have underlying diseases/ chronic diseases (). So, age and the disease progression are the factors. Food, environment and everything…air…everything. The whole environment…the surrounding people…they are all affected the patients how the diseases can progress. This little pieces together…caregivers, relatives. Environment, facilities, communities, can affect them. Environment is their surroundings, both people and places.

II. Interview transcriptions of care professionals (Group 2)

Participant 1: Nurse (Case Study 1)

Gender: Female; Age: 35+; Nationality: Bangladesh

R: The first question is how can the design of interior environment support people with dementia and caregivers in their daily living?

P: So, over here, the land and the design structure of the buildings, they have these kinds of structure. It is like…it is western, very western to me. I don't know if Swiss buildings are constructed like this. I am not sure. I think the design of the building helps to put a lot of sunlight, a lot of natural air. I know dementia people are not comfortable with fans, like wind's coming from AC and they think it is cold. So, they simply wear coats and things. You will notice that many of them are wearing extra layers. The little feeling of winds will feel I am cold. And, because they are from Switzerland also. So, little winds will make them think there are something wrong. Dementia people always need to cover up, to protect themselves. This is whichever place they come from. They always have a need to cover and protect. Because their mind, they feel it is not safe. So, the pavilion does not have air condition…all around. It has natural air and natural light a lot. So, this kind of design really makes them feel comfortable. And, they can have air conditioning and a fan in their own rooms. But we have a little fan moving too like…for the ventilation…for the air to circulate. The glass windows, at first we thought that it would be dangerous for them. It is working out very well. It is not harming them. Those who have a tendency to walk out on their own, we try to guide them at the doors. They are okay. So, they can push on the glass doors. They can push by themselves. The way the handle is structured and wide enough. The pavilions are made in the circle so when they walk inside, they can keep walking. We get them to walk sometimes to get rid of stress. All of it, in the whole, I think they did it very well to address it.

For the carers, we got a chance to observe many at the same time. So, there is a common room for that. And if we go and see at the corner, we can see who is coming. Then, we can look both ways. Especially, in the night shift, it is easier to monitor if someone walks out and looks who's there. And, at the centre as the place, there is a spare room. There is a TV room at the centre…next to the nurse station. The nurse station is also there. For them, it is like a safe room for them to access, they can go around and back. And there are two ways to go

into the same room. And, there is bathroom, which is behind, like for them it is quite easy to work. Because…one would think that taking care of older people is very easy because they are slow. People with dementia are always surprised you. They will do something the other that you could not believe they would do. Then, they might need help from the memory loss. So, they might need medicine and they might need some support. It is very important that the nurse station is in the centre as well as the caregivers.

Also, there are sitting area in the middle allow them to sit as well. To sit with the elderly person helps them. Just sitting on the sofa helps them. I think how it is laid out is helpful for the staff as well…very much indeed.

R: From your experience, are there any design limitations?

P: I think it is difficult to design who can sit with who. For example, we set up eating tables…eating spaces and sometimes, there needs to be some separation…of people. And we have limited spaces for that. I feel that our staff…sometimes wants to eat their meal away and observe. But that mealtime, they just want to have 5-10 minutes on their own. That is okay. But that will be nicer if they can eat together with the guests.

And, sometimes, there are not enough chairs, or not enough seats. The seating arrangement does not allow for that…for the staff to sit together and eat together. There are not enough space for that.

R: Do the guests want the care staff to sit with them?

P: Yes. Sometimes, they are okay to sit on their own. Sometimes, they prefer it. Sometimes, they are okay to have someone sitting nearby.

R: In many care homes in European countries, they are using the concept of homeliness for their design. How do you think about this?

P: I don't think about themes. But in their own rooms, it begins to look a little bit like…their personality…in their own rooms. We cannot fit all their belongings. Their families do come.

(30:42). He was hurting himself. And, he didn't know what has happening. Even there is caregiver with him…he will be like huh…He didn't understand and he raised his hand. His hand was so soft and it would cut and the caregiver…what's happening. It is an instinct of protecting himself. And later…her will be…ouch…That immediate instinct is not working. So, because this is a place to end of life. Ending well and ending comfortably and end happily as much as possible without pain. We started to remove everything from his room, so we would be comfortable. He is forgetting slowly how to swallow. And, this is very normal. But the family has said that my dad won't have CPR, my dad will not go to the hospital. We must understand his choice. It's time for him to go, then let him go.

So, he loves soya milk, we keep loading him with that as long as he can swallow. We give him loads of soya milk. We keep him soya milk. He loves croissants. He has them in the morning. We keep three in the morning for him. Through the day, if he wakes up at midnight, we know we have to give him one. He then slowly remembers to bite and eat. We still shave him, we still shower him. We still help him…he forgets where the toilet is. So, he can pee and poo anywhere. We help him to do all his daily activities. If he is okay to walk and if he wants to walk and wander around. We do that with him and bring him out. If he is too confused and frustrated. We take him back in.

We have matched the living condition and the room decoration everyday according to the stages of the disease they are in. If it is going bad, then we reduce things in the room. So, the

safety…is the first concern. That's how we are doing it so far. We remove the doors bathrooms and bedrooms. Because the bar, he hurts himself every time now. So we had taken it of. So…it is an adaptive from his stages. We also knows that he is a kind of person that does not like people to follow him….overtime. He does not like caregivers to follow him. So, at first, we did not give him a caregiver but he would follow the person he knows. He would follow everywhere. And, when his condition became a bit more…he said help me. Then, we…you can allow somebody now with you. So, we would give someone with you.

R: According to our conversation before about place and home…do you think that design…

P: I think the concept is very fascinating. I also feel that many people, they are still attached to their home. On the other hand, there are some people that they don't spend time in their home. And, actually home has bad memories. So, there is a point also in the advanced case that…he had the urge to take out his clothes and he was not comfortable and not familiar. But he would sit on the floor. And, the ground was familiar. So, it is like connecting himself to the earth. He felt grounded and he felt that was stable. That was normal for him. So, he threw everything from his room. So, we removed everything from his room. Then, we are starting put things back when we saw some stability in him. And, he's been alright since then. He is wearing clothes now. He is taking medicines now. Before, his family not allow for medication. We also struggle with that family send their spouses, send their elderly people here and don't approve for us to give medicines. But if they are at risk to hurt themselves and others we must. And so they allow…take a long time, but they allow. It is hard for them to accept what is happening with their husband or their relatives. Especially if they are not here to see. But we informed them what is going on and we welcome them please come over and have a look. But it is difficult for them to accept to come and yeah. I think in general…I think bringing homeliness or parts of the home to the nursing home…into the rooms is a good idea. I would go with that. I would also like to know a bit more of the person's family background…may be their own home is not a happy place, but home of childhood is the happy place. So, if that is the case. Then you have to dig in…how their family homes were when they are kids and bring that into the homes. So, if it is possible…I would like that very much.

R: I have a question that you have mentioned about the ground. Is it ground as earth or as floor?

P: No…just the floor. The tile floor. We put off the bed and put mattress in… he will more prefer…more than the bed itself. He just needed something to centre on and for about two weeks. He was like that.

R: So, he slept on the floor for two weeks.

P: Yes. On the mattress.

R: As you have mentioned about table arrangement that support social interaction between carers and people with dementia. Are there any more examples of the design that encourage the social interaction between them?

P: Yes…This place is really nice that they can come and do activities together. The restaurant, the way it is…outside is open and inside it is closed that also make them very happy. When they go there, they really enjoy it. There is a hen house in the garden beyond the restaurant. So, when you come through the gate, it is on the left. It is an organic garden. It has a hen house. They go in a row of wheelchairs and people and sit around it. And they give food to the hen. They give food to the fish here too. These spaces are really nice that allow them to do things together and activity together. Before, if have also taken them in a group into a pool, because it is wheelchair accessible and you can out these chairs…these garden chairs inside the pool and they can sit on it. They sit around together with the carers as well. Definitely.

These spaces has helped them to interact and do activity. In their rooms as well, there is a simple table and the two can sit together and read newspaper and watch tv, paint their nails, and do like a foot massage for them. Several activities can go on. Many carers can bring their care guests into a hair wash place to wash their hair in a fancy place. But, it brings them activities. They walk a lot together…all around. And, these spaces let them have well-being.

R: Yeah, this leads to the similar point that…outdoor environment here?

P: I think the amount of green…green…the greenery of this place has let things here very natural. That is very helpful to them. But, I do wonder, because there are so many elderly people, why there are limited seating and benches along the way. For example, we have elderly…actually, normally, they are from Switzerland, and they walk a lot. Walking and wandering is a part of the idea for this whole village to let them walk. But some of them need help and there need places to sit. So, it will be good for them if there are more spots for them to sit. Like, there are many round spots with fountains. And, there should be chairs. And, that I think that it would be helped.

R: Yeah, I think so as they need to rest in certain distance.

P: Yes. What I also amazed is the wall here….the fence here. It is kind of low. But it seems it is enough for them to feel safe and secured. In Bangladesh, I think we would need double or triple…that to ensure safety. But I think because it is Thailand…On the other hand, we have one sporty guest who wanted to show his strength and climb. Sometimes, people with dementia have that desire to escape. And, we have that many times that they wake up and feel that they need to leave. I need to go. They climb out of windows. You know the steps at the pavilions have railings. They climb of the railings. Sometimes, people with dementia, can sown huge bust of strength. And, you don't believe that they actually can do that. We have people who lift up the bed…in angle. Lifted it and throw it down. Because they could not control their feelings. They really need help with the medicine. Because they are fighting themselves. They have fighting in their own brain that something went wrong. So, medication helps a lot during that time.

But I think it would have helped if the fence is a bit higher. I don't know. But, I like the fact that it is low also. Because, it does not make them feel trapped. You know this kind of fence you can look out. And, they feel safe as well as open. It does not feel trapping them. The glass doors that you push out, there are no lock system on it. One of the English member that he wakes up at night and said I cannot live here because the door is locked. So, I said, have a try sir. If you want to go, you can go. Of course, I would follow him. But, he would try it. He asks what time is it, I said three in the morning. So, he would realise. Because sometimes, he would not realise, in the nursing home that he was in before that the doors are locked. So, we let the structure very open for them. But, thankfully, we have got enough people, to look out for the risks. May be in the UK, there are not. But we have people around the clock to watch out. And we have cameras as well. So, that is great.

R: So, this is the fence…and at front there is a security guard right?

P: Yes. Every pavilion has cameras also.

R: CCTV?

P: Yes. And, in the care pavilion, we have people 24 hours. So, they do day shifts and night shifts all through. So, they are literally sitting with the big cushions at the door (Laughter), watching if anybody coming out.

R: What about natural environment…

P: Yes it helps a lot. But there is a season where there is a season where there are a lot of bugs and mosquitos and…fireflies. There would be a lot of rain and they would come out. Oh…that was horrible. They would be attracted to the light. And, the next day, they are dead. It takes one day for them but it is quite frightening. I am a city person, so being here…sometimes we see snakes, sometimes we see big frogs. We have snakes here.

So, we have to be alert of course. It has not been a risk. We have an eagle…fly in and sit. It is injured with an eye hurt. It is a small type. But it is quite powerful. So, we have to call the guard to make sure that it is out of here. So, for the snakes as well, we set a snake trap for them. So, to be careful with the natural thing. Thankfully, there's not been a thread. Outside, the dogs are too many. So, we have to make sure if anyone wants to go out, we don't encourage because there is enough spaces to walk here. Anytime they want to go out, is when they want to leave and we won't insist. We have a time like that he pushed the security guard and walked out. The security guard had learned for dementia care, they had to walk with them. So, don't stop them, hold their hands or fight them.

R: So, they become another care staff.

P: Yes. Even the gardener, is another caregiver. They went to watch the gardener, they made friends…the gardener and the guest. We saw they walk together…holding hands and walk one time and bring them back. It is amazing. It was not a case before to get to this point. But it is the fact that everyone knows the fact that it is a care resort. We are delivering care to people who are sick. It is not normal what they do, but can you please bring them to reality and help them.

So, there is a time at 7 in the morning and I came to work. And, someone told me, Khun Clausen is outside. He had an early breakfast and went for a walk and he is now outside. Who is going to help him…So, we were running and take bicycles from the shed and start to ride it. And, we see from far away, the security guard was smiling and walking with him. And, they are talking. And Khun Clausen is very disturbed and not wanting to listen. And the security guard is smiling even though he does not understand what he is talking…fully in German. But he just was smiling. So,…thank you. This is so therapeutic. Money cannot buy that kind of care. It worked. So, I told him…it is Sunday, no cars are around. So, I have to be very strong because I have to match his emotion. I know that he is very determined. There are no cars…just around. And, it is a village area also, so there is no car around…looked around and he followed me back. It took time and this can happen.

But we think that keeping this kind of open outdoor setting is much better than the closed spaces type.

R: To what extent do you think healing environment is essential for dementia care?

P: (Pause) Aromatherapy has really helped, even the caregivers to calm down and the residents also. It has been a learning experience for me to see it first hand. But we should try to find more ways for it.

R: For aromatherapy…can you explain more?

P: Actually, it was the last day of the resident who is passing away. So, to help them sleep comfortably. To have a pleasant smell inside their room. What's fragrance is going on the whole time. We took shifts to take care of her. It makes me calm down when we are with her. Because she is in her dream and she is very agitated at some point. And, sometimes…very

relaxed. It helps both of us. We use that for the end time. We asked the family also, is it okay or not when we started.

R: Yes. Food smell as well. Have you noticed any affect of food smell?

P: It makes the clockwork and they come in and sit by themselves. And, they are looking that we are preparing the meal at the kitchen and we bring food to them. Thankfully, they still have awareness of …their mind clock is still working for meals. They understand that.

R: Have you used or applied any technologies for dementia care here?

P: Do you mean people with dementia will use technologies by themselves?

R: Care staff as well. Both of them.

P: For us, what is working, from what technologies is working is to get the old music. They loved that music but it is hard to find. But technologies are helping to get those. To get pictures from old mountains and things that they are familiar with that helps them. But the family have expected them to have telephones…about 4 of them. They have been given telephones. They have used it.

R: Smart phone?

P: Yes. They have given phones and it is easy to lose phones also. Big numbers and one with emergency buttons behind which are functional for elders. They could not function those too. So, we kept those with them and we use pavilions' smart phone. The families can call and we have set it up for them that they can video call and that they can audio call. For video call, some of them can accept it. Others cannot accept what is going on. Some of them can be really relaxed when they watched. Others think that that is my son and think he is here. Where is he? Bring him. I see him here means he is here too. It brings more confusion. So, each person is different how much they can accept technologies. They came to the ability to manage much equipment but at the moment…Other types of technologies such as watching TV, they can accept. Too loud music, they cannot accept.

For us, we have a very good monitoring system. For the, it is very helpful. With dementia care, each dementia organisation, should have to be very specific to the nature of the service. There should have a monitoring system and a health system.

Because we do a lot of paper work. So, if we can do in an automatic way or tablet or something. That would be helpful. At the moment, Vivo bene is thinking to develop something like that. But line group (application) works so well for us among the staff. Everything happens we can take a picture or a short video to show what happen or what went wrong. Even to manage medicine, to manage stock or diapers. Everything just takes picture, then we have that as backup and came back to those when we need it. Communication to the whole team can be done in line group. They see regularly, even share the schedules regularly. It is very helpful for all kind of communication. I think this is mostly about technologies.

I think it would be good to know if they are leaving the room. In the past, we have put censors at the doors and it made loud noise. It made everyone else alert and not comfortable. But it would be nice if we know a gentle censor if they are coming out of the room and that we can help. Not when staff is going in and alerting. That's not good especially at night. It would be helpful. There is already technologies developed as a patch at diapers to see if it is full or not. But our guests move a lot and the patch can fall off. So, for the ones that are not moving much, that is okay.

So, we are using it for a pilot basis to see…but for our cases, it is not useful, but for the ones in ICU…lies down and any movement much. Then, yes. It rings when diaper is full and can change it.

All our guests move in the night. Here, when know the time,then we change it. That's working well.

We also have to trigger positions…like every two hours. He should be turned, sometimes he does not. He is a big man. So, we use two people to move and to turn and position him at night. This kind of thing is very good, but we are doing in old-fashioned way.

For people with dementia…they are alone and they cannot remember to ring bells. So, we still wondering what to do about them. We can use bracelet or something if he is 200 m, then we know that he is outside vivo bene. That is tricky as well because there are another fence. That fence is 100 m away. So how we build the radius to understand that they have left. And, they don't do well with wearing bracelets or something. They cannot wear something that are not accustomed to. So, usually, they throw it or lose it. Very normal. Khun Sonja, she has hearing aids. She loses them several times and we decide we won't try to find it or repair it. Because it is a lot of money. This is happen to her. But this

I don't know what to use to avoid falling (…)

P: Avoid getting up…okay

R: To monitor the residents…

P: Yes. That would be very good. Here, there is one person who just gets up…who tries to get up from his wheelchair and when he does that it is very dangerous. The advantage we have is that we have so many staff compared to the west that we actually place someone who is watching. But there will be a time when staff will be less. As people will be more, and the guests will be more. You will need more for sure.

R: Tool…have you heard about his tool before?

P: Oh okay…In the past, as I worked in home care, we have used an assessment…for safety assessment to when they get into the home because we will provide a caregiver. So, we would provide an assessment for a home…slippery or protection in the bathroom or bars, handles, proper lighting, dusty sofas, everything we have to check separately and move for spaces for this. Or, this has to be a walking area. We could do that. Some of them, we would follow, but some of them we would not follow because it is their home. But when the time goes by but the safety comes up they listen.

Over here, I have not had an assessment tool. I have not come across the assessment tool for safety. Except when the cases become more advanced, then we assess from our team and say what is dangerous and let's move it. So, it is team discussion. Not using a toolkit.

R: Do you think it will be beneficial?

P: Yes. Absolutely. I think it will be beneficial for everyone. I don't know how much it can accomplish of the specification each case. We have left it to be in general. In the way that we left it all white. We left it in the way that he can come and changed it according to their choices. If the future…in the future or the present nursing home themselves would like to change it to their guests or the residents. Yeah, that's good. It's okay.

I would like give them more choices that they and their families what they would like to do and we can make to let that happen. It should be…they are partner when it is there.

R: Yeah, I think so, it is not only about architects and the owner.

P: Yes I agree.

R: What about, Dementia-friendly community, have you heard about it before?

P: Yes yes. I have not heard in the context of Thailand. But I have heard it from the Netherlands in the concept of dementia village. And, in the community there have been a lot. If I think about that for the Vivo Bene. It is interesting but I don't know how much they can help if they are not trained…They need to have some training. Like, 'hahahaha…don't put the jam in your nose.', that is very offensive to them you know. But people in Thailand, they can do that. They think that it is funny to do that. That is because they are in another culture. They are from another culture. So, involving the community…yeah it is a very good idea. Getting community and getting community active for dementia care is a very good idea. It should be a knowledge exchange about how really to take care of them because they are sick. We need to respect them and their issues. There are hotel guests who come to say to me that some of your guests are complaining that they don't even have a mobile phone. This is there basic life. Why don't you let them do that. And, we have to say that please respect our care. Do not comment on what you are not aware of. The cases of their diagnoses and health are confidential information. The family is aware and we are aware. And, we are aware of taking care of them. So, please…do respect our care. They just want to do something good and they are normal people…they are hotel guests. They said Khun Kerrie, she is a smart lady. But she wants a cell phone. In the past, she used to have one and called her son 150 times in the morning. So, the doctor, the lawyer, the son and her had met together and have said that you can follow these steps and you cannot do these. So, if you go to another country or another care home. These are things that you cannot do. So, we are clear on that and another person from the outside cannot see and understand. They are ready with money to buy a cellphone for her. So, we have to say please understand.

So, in the community, we would love people in the community to engage with our care guests, only if they know what is going on (21:55).

Even when the drivers drive the van, he has to understand if there is a problem. Some of them like no we cannot stop now. We will stop at the toilet there. Try to understand she wants to stop now. Everyone has to ship in.

R: From your experiences, what are the main limitations when they go outside to the communities?

P: Sometimes, they are a bit demanding and we cannot give it to them. For example, they go out in a bright sunny day and they get their food out. And, they saw someone with an umbrella. They said I couldn't go out, I don't have umbrella. In that moment, we have to think of several things. Accidents can happen if they pee or poo on themselves. We have to keep extra clothing for everyone when we go out. The food that they like. They have that or we packed that.

It is possible that in the new environment that they are not comfortable, so we have to talk with them a lot. Or we have to make sure that they are holding us and they trust us. And, we can guide them and we are confident for that then they agree. So, they have to be a lot of sensitivity a lot when we go out. Not every staff can be sensitive when they go out. They must be the one with experience and helping this person and see what is wrong there. And, they can go and help.

R: As most of them are foreigners, how do you think about familiar environment?

P: Sometimes, I think it is safer for them. Because in the place where they live all the time. Sometimes, it is not designed for their disease. So, it will be risky. For example, one case used to cross the road to the restaurant everyday. She did that for 15-20 years. And, she lives alone in the apartment. Eventually, she could not managed anymore and she was not clean enough. She could not take care of herself to the toilet. But she knows she has to go the restaurant. Even now when she gets up she knows she has to go to the restaurant. But it is with care staff and the path doesn't need to cross the main road. And she can go by herself and she is safe. Same for many guests who usually use the bus, they used to get up to the office…Oppa still gets very early and he prepares for a jacket and we prepare a paper for him. So, he knows it is a business time. We gave them value by making them say yes you were working (…)

I have to create that environment that they feel home here. If it is unfamiliar at the beginning, yes that is for sure. But I think designing something that become familiar sometime at the safe place is better compare to where they were. Because that place cannot be controlled. But this place can be controlled according to dementia care. Even though it is unfamiliar at the beginning, it will become familiar (take time), and it will be better.

R: To what extent do you think the design can support their capabilities as they are in various levels?

P: In the first time, they are a lot of disorientation. They don't know where they are. They are walking into other rooms, other pavilions. Eventually, when they understand, they are no longer embarrassed when they mess up because they are seeing other people and they are okay. They are okay…Mr.David is a gentlemen but he always pee on himself. It is very shameful for him but it is okay. We can take him in and get changed. They see that it becomes normal as their part of their daily lives. For that reason, later they settle down. If they see the family, and their mood is not right. They can say. I want to go home. Often, when they go back home, they cannot recognise home anymore. There are a lot of changes and also their mind has also changed. The expectation of home…they cannot feel it anymore as their home. Khun Kerrie went to Phuket…she was tripping every time because she is disorientated. Once she arrives Vivo Bene, she jogged from her family and ran into her room because she is back to the safe place and she feels better. She keeps saying that she needs to go to Geneva…back home. This has really become her home. And, her home there, her family is planning to sell it. Because they know that she cannot manage it. Accepting the fact that they don't have a home. This becomes their home.

Also, I think it enhances them to be independent if they want. They can walk around as the design can do that. I think it is quite safe around also and the pavilion. And, there are bars that they can walk. We create the way that things are not dangerous for them. I think it gives them some confidence too. They feel they are capable and they are aware of their surroundings. Being in the mist of other people who are like them is also helpful. Sometimes they think that I am not sick like them. Other times, they feel good to do activities together. This increases their capability. The design of care as well as the architecture is linked so that they are more capable. We always want them to be independent if they can do…brush their teeth, if you can shower, we can just stand by and do it. The shower and toilet are designed, so we stand by and see. If they have supporting person, I think it helps them to be capable here. Eventually, we know dementia will pause their bodily function to reduce their memory. That is okay too. The design is like that. We are standing by, if they need help, we will join in. Sometimes, memory comes back and they can do more. Sometimes it comes back and sometimes it goes. I think we are well designed to adapt to them.

Participant 2: Nurse (Case Study 1)

Gender: Female; Age: 29+; Nationality: Thai

R: How do you think the design of interior environment support people with dementia and caregivers?

P: I think for the people who have problems with dementia, they are different individually based from their levels. There are some cases which deteriorating by ageing. They can still recognise. They can still go to toilets by themselves and cannot something else by themselves…I mean daily routines.

In the aspects of site and…what I can I call…usability. I think it is fine in certain levels. But there are some points, which must require special precaution. Because the older people, they have problems of more chances of falling. For here, we have handrails. But, I think in some area, some parts may have to install some more. For example in bathrooms, at first they designed and constructed completely as a whole. Then, if you ask if they are practical, I think they are. But, it is like…they have not included everything.

For example, as I have observed, the bathrooms' doors are a kind of sliding doors with handles to slide. When they walk to take shower…as I assume. They have to walk to the most inside part of the bathroom, which have screens built up from concrete. I think…I foresee that during the time we walk to that point, there should be handrails continuously installed to the point where they stand for taking shower. This is because…for cases that do not have problems with balance, they can walk there normally…no problems. But some people…for example, they are fat or very fat, when they walk they feel tired. Just a short distance of walking, they are tired. Then, mutualism…something like that…takes place (Laughter). Something like that…

Another thing is the floor. I think this is may be…from my opinion, it can be added later. This is because…the quality of floor tiles is not the one, which is slippery. But they are rough…like sand wash flooring…I think. But sometimes, if we use water, there is a chance of falling. So, there should be an anti-slip sheet on top of the floor. So, it will be fine.

At the moment, things that I am looking are…for some cases, we have to lay the floor from the entrance of the room, into the bathroom, and continuously to the shower area.

So, numbers of cases that we require to adjust are…they are half-half. This is because when we are working in the field of care. The patients…we require to observe them in the daily basis. This is because the patients with dementia, their condition can be worsened suddenly. So, they can be…from one month or two months, they can change pretty much. Their capability to do many things is going down. So, we assess based on the time.

For the brightness, for here, I feel that the outside is fine. This is my personal opinion. The outside is okay. But inside of the guests' rooms, because I don't have design knowledge about lighting for patients with dementia. But, as I have observed, in the bathrooms and bedrooms, they used light-coloured lighting, yellowish, or warm light. So, I don't know if it is brighter, there will be any advantages. I don't know too.

R: What about natural lighting, does it help supporting the people with dementia?

P: So, inside the rooms, there are curtains. If it is in daytime, we will…like in the morning, we go to wake them up. Wake up. Then, we will draw all curtains in the rooms. For air ventilation, we also did by opening windows. If there is staleness for example this group of patients,

sometimes they urinate or defecate unconsciously on the floor. So, it causes bad smell. So, we will open windows for ventilation.

During daytime, there is not much problems. But, during the nighttime, like we draw all the curtains down, and we turn on lights in the rooms for using. I feel that it is not bright enough. I think because, if we can increase more brightness, it may be good. Because they…some people have problems with focus (eyes or concentration) for example I want to go to bathrooms, but it may not in time (Laughter). So, I think if there is a brighter light, it can make them to visualise clearer. And, it can enable them to go to bathrooms in time. But it is a difficult matter because the patients with this condition, they are very hard to control.

R: Any more limitations?

P: The use of space? As I have used the spaces in here, I think the place is okay because the patients who have problems with their brain, they tend to remember just a very few. They only have short-term memory. Then, they forget again. For a moment, they would forget. So, during daytime, we might have activities to take them outdoor, but when they are in the building, it does not seem that they are living in too cramped spaces or too wide spaces. So, I think the space, which we use at the moment, is okay. For each of the buildings, we have 12 rooms in total.

R: For different stages of dementia and levels of care?

P: We did not adjust. It is all the same. If I want to depict a clear picture for you…to compare this out…with eating. For example, the patients in the morning when they eat. The first step is they have muesli. Then, the next step is eating bread, then the next step will be coffee or something else. For the main course for lunch. Everyday, it is like this. It does not change. Some menus are changing. As I have observed, if we have changed something, they will refuse immediately…for some cases.

R: You mean…if they do differently from their routines?

P: May be…because we don't know if it stimulates something else to have that condition or symptoms.

R: I have been to care homes in European countries, they have used the concept of home-like or homeliness. How do you think about the concept?

P: From my personal opinion, I think it can bring some positivity. I think it is good. As I have observed, the residents…all…majority of them, they seems like homesick. If it is like this, it might make them feel more relaxed. Because they are saying like they want to go home.

R: What do you think about social interaction?

P: Mostly, in here (Sala; pavilion), most of them will come to do activities in here…the outside (common area) of the building. In the afternoon, they will go into their rooms for sleeping. Or, for some people, they may not like to meet people. They will slip away and stay inside their rooms. So, it depends on each individual case.

P: So, for myself, my lunch break…I will let the guests…they seem to know the time. But some people who don't know…I will invite them to eat. Then, they will come. Okay. I don't join every time (Laughter), but sometimes I join. So that, it makes them feel that we are their friends. It is like I have to be familiar with them.

R: What about the outdoor spaces?

P: Yes it helps. For example, some people…as I have observed them, some people when they finish with eating or finish with something…as if this is their home, then, they have to go somewhere. So, the fact that we have area for them, wide enough, and gardens, and multipurpose activity ground that allows them to feel that they are not contained only in a square area or living inside the buildings. Which are fine because they will continue walking.

Also, when they have chances to walk or do activities, they are like...able to release some form of energy (Laughter). Then, it helps them to forget some stories or something that they always focus. For example, I am going to look for my children, or I really want to go back home now. So, when they do activities, then they will certainly forget everything. And, then make then happy.

Walking is a kind of therapeutic approach. The natural environment including trees helps as well. It also helps us. It is like if we stay only in the walled or inside buildings, it is similar to we are staying at home all the time. We will feel that…assume that we are as normal people, we want to go out shopping, we want to go for a walk, or do physical exercise which I think it can give the same feeling.

R: Healing environment?

P: I think I will go for natural environment. For here, because their location, they are not located in the city area and there is birds chirping sound in the morning. Sometimes, the patients…some people, when they heard…as I have observed…they try to imitate that sound…they imitated. Then, they smiled and laughed. So, I think they also feel that they are absorbing the atmosphere which are okay, not too busy. And make them feel relaxed.

And, when they feel relaxed, they will not be nervous…There are so many types of being serious or nervous (wun-wai). Some people, they might…if in a day, there is no activity to do in that day, like no walking, they will be like /rush. They will walk in and out. In and out. But in fact, they seem like they want to live normally like us. But they cannot manage by themselves. So, for this group of patients or this group of guests, they need someone to guide them.

R: Do you think technologies can support dementia care?

P: I think it will help us a lot. But in our country, they might not be that popular, or there is no one who applies or utilise them. From my study, home care for this group of patients, there are not many in our country. I think it will absolute help. But, at last, it should be controlled the care under the care staff. I mean…okay…technologies can contribute. Anyway, we are the main part.

R: Are there any application of this kind of technologies here?

P: For here…okay…about using technologies…sometimes, we give them to look at iPads. For example, some people like to watch movies. They may have their personal iPads. So, we allow them to watch. More than these, I have not seen yet.

R: Have you seen this kind of tool before?

P: Like a five star hotel? (Laughter). I think it will be good for residents. Also, it is good for the care staff as well. This is because they have standards or they have guidelines, which are presenting that if you do this…it will affect this. Okay, it can gives usefulness more than bad result. So, it means that the care staff will take care of them more efficiently… easier…and better as well.

R: Do you have a chance to go out with the residents to the communities outside?

P: To go out and do activities right. At the moment, we have got…they will arrange a schedule. For example, once in two weeks. Or once a week, which depends on…(Pause).

We will not take everyone to go out at once. We will discuss. Also, places, which we mostly go, are…for example, recently there is an Expo exhibition. So, there is a group of patients who do not require that amount of care. Yes, they have dementia. But they still know and can communicate…They can understand but there is some confusion. That does not cause problems.

But if they are the one who are slightly controlled. They require assisted care. Sometimes, when we go out, we have to choose places to go. Places where there are not crowded. Not too many people. For example, we went to a coffee shop outside. Or, we went to Chiangmai zoo, or The Royal Project (garden). They are the ones that we frequently take them to go. From my experience, I think that they are very happy.

It kind of creates the feeling of he/she have chances to travel…and then come back.

If it is an activity arrangement like picnic, like going out in the morning, after having breakfast…For this kind of activity, it takes sometimes. About 3-4 hours including the travelling time. Like today, we have a dining session outside, so we will pack food. This will take about 3-4 hours including travelling time. But if it is going to a café, for a short period of time. It will take only 1-2 hours.

R: Any kind of limitations when you go out?

P: (Pause). It is the one that we went…the one that I have been to; there are some guests who have to use wheelchairs. The one that I have been to. There are ramps for the wheelchairs to go up. But because…it is a general coffee shop, they does not consider about safety or the ones who use wheelchairs or older people. Like, how steep is the slope. So, they may do from their style. So, it has to be easy to use when we use it and has a special precaution. For public toilets, when we went outside…we cannot control much, we can do our best by going inside with them to save them from falling.

R: As you have mentioned that some of the guests are homesick…to what extent do you think the concept of familiarity relate to this issue?

P: You mean the physical environment that they are familiar with before…I think it affects. Because if they are not care at home, it is difficult. But we can do our best if they are staying with us…like we have talked before…factors such as lighting, colours, or sound or other natural environment like trees are contributing to make them relaxed. I think the one that they used to live in and the new one that they live in…are stimulating them to have some thoughts (homesickness). But, importantly, at the moment which they are staying, if they are alone and they think. Then we have procedures to deviate their focus. The physical environment might be a part of it, but I think the care staff themselves are part of it too…for making them to feel that today I am fine.

R: Could I ask you…where you usually go when you want to take a rest here?

P: Mostly, I walk to the garden…breath…and go back into the building again. But, it also depends on situations. For example, because we have to be with the people who cannot control their moods, there are sometimes, when they did some actions, and at the bottom of my heart, there is a time, which I want to give them feedback. But we have to calm (mai pen rai – in Thai), and think like that. But, for here, it is not that stress, it is fine.

R: To what extent do you think the design can support their capabilities as they are in various levels?

P: This is very hard to answer. It is part of it. At least, it does not make them better, but it can support them. For example, for some cases, as they are older people with problems of dementia. They will have problems with balance for example they are going to walk. And, they are conscious of they stagger. They are conscious that they have to hold somethings. There are handrails. Like that…it is a part that can help. It can make them feel more safe and secure.

But I don't think that it can help them to something independently….or better. If you use the term better…they are not better. It is more like…to be stable by allowing them to do their own daily routines. Like, today I can go to take shower by walking and don't have to feel anxious if the bathrooms' floor is slippery. So, I think it helps them to feel that they are not in danger.

R: What about the outdoor area…as you have mentioned about balance. There are no handrails outside.

P: From my observation, mostly this group of people, they have a deceleration. If dangerous or accidents happen, it becomes force majeure indeed. But I don't think we really require that much of handrails. But, at least, when they go outside, like they walk outside, things that we can do is to go with them. So, we will have to support them. But if they are very close to us (where we keep an eye on her), or inside the home, then there is nothing to be anxious about.

Participant 3: Occupational Therapist (Case Study 1)

Gender: Female; Age: 25+; Nationality: Thai

R: How can the design of physical environment support people with dementia for their daily activities as well as the care staff?

P: For myself, I think that when we enter the pavilion, then the ceiling is quite high. Then, natural light can come in. It can make the older people or other people to feel fresh. It is good…especially for the case of depression. Like when you come in, there is light. And, it is natural sunlight. So, you will feel fresh and it is so good. And, as the ceiling is high, it can be felt that there is air. There are some gaps, which make us feel more comfortable.

I have been visit other places…the ceiling is very low. It is not high to reach ceiling. The light/brightness is not enough, so they have to turn on light during the day…all the time. In that case, it will make us feel cramped and frustrate. It makes us feel…smelly. And it does not make them feel fresh.

For here, it makes me and also the guest to feel…when they come in…it is bright already.

The light is the main concern if you talk about zoning or this kind of thing. It is involving lighting, high ceiling…(Pause). So, for the first thing in my opinion is more about high ceiling.

The second thing is handrails, when I first work here…there are railings along the way and during nighttime there is lighting underneath them. And, when we hold them, it is not a light bulb. It is kind of hidden underneath it. Surprisingly, there is no an electric shock. It is not dangerous because there is a circuit underneath. Sometimes, we hold it and it is not hot….only warm. It is not hot and causes electric shock. So, I think it is very good for older people with dementia. Because they always touch and hold, and they always leisurely touch everything.

Sometimes, they pick up everything. So, it is safe and can see during the nighttime too. This is mainly about the main common area.

My main point is about brightness. But, inside bedrooms, here, we emphasise the use of glass…windows. The glass is high and there are a lot of windows. If we open the curtains it will be bright. When it is bright, same…the older people will feel fresher and animated.

As I have been here for a while, I think that the older people are vigorous and energetic. Fresh…And, we they are in the rooms where they are open and can see many things because they have environment. Every room allows seeing the outside views.

R: Are there any limitations of the design here?

P: (Pause). Ramps are fine here. I think the main limitations are doors. The bathrooms' doors are sliding doors which…myself as an occupational therapist, it is correct. Because doors for wheelchairs and other things…it has to be sliding doors because it is easy as well as older people with dementia too. But here, I think sometimes, it is a bit too narrow. When wheelchairs go into…and then when rotate. If it is in the shower area, it can rotate but not the zone where toilets locate. It is a little bit too narrow. Also, the doors are not too wide. If it is wider, it will be fit nicely.

R: Are you working full-time here?

P: Yes I work here full-time, from 8am to 5pm. So, the main focus is on doing group activities, 1:1 activities. Activities…they are including doing activities in daily life/everyday life, leisure activities, or activities during work. But, we use activities as media for curing/healing. It is different from physical therapy because for physical therapy, they emphasise on the physical aspects, but for occupational therapy we mainly look for the overall image…we can work with the guests in 4 areas including physical, mental, older people and kids. This means if the physical aspects…for example, broken arms, we will know which part of muscle, after that we will know that this part of muscle…we will then try to practice this part of muscle. Then we will observe how it can affect their daily routines. For example, eating, if they cannot eat, then we practice the full programme and the muscle does not come back. Then we will question if equipment will help. How can we use equipment to assist them eating. Any plates…So, it is daily routines which they can be independent. So, we also include physical exercise and connecting to other daily activities such as wearing clothes etc. For kids, the occupational therapists also use playing as a medium in healing e.g. throwing balls, picking up colours (…). Also, the mental aspects, we work from what kind of occupation they have done before which is similar to older people area. So, for older people, we work from daily activities and their hobbies, or what occupation they have done before.

Like here, when I come to work, I have both group activities and 1:1 activities. For the 1:1 activities, we have to ask relatives first, what have they done before then we will talk to the guests like what do you like to do. Then, we use these activities to motivate during the activities. Then, I have to analyse the activities by expanding out…like success. Then, when the first time, they are successful, the next time then they want to come. Then, that will lead to group activities.

R: For 1:1 activity, is it every day?

P: Yes. It depends on individual basis such as this person plays table tennis, Frisbee, or sings songs or some person has painting as an activity.

P: And because here, they are guests with dementia…so most activities are simple and they have done before. Sometimes, they like to talk…we will just be there and listen to them. But

we need to use our body language exaggeratedly. Like…even though I talked continuously and aimlessly…this person believes in me.

R: As I have observed in the morning activity, most of care staff was involving in the activity…even though most guests were speaking German (…).

P: As most guests are people with dementia. They cannot remember. I work here for three years. No one can remember me. Their short-term memories are fading away. As we are approaching them, they might not know who we are. So, before care staff starts their work, we have training to tell them that they are older people with dementia. This is the concept of vivo bene…most guests are like this…If we have to follow guests the whole day, this is vivo bene…for them to understand. Because if they are shocked, then they will not stay and work with us. So, we have to tune in with them first. Especially, the body language.(…) Like sometimes they said "I want to go home, where is my children". Sometimes, we might think that they really want to go home. But in fact, if they are at their home, they still said that. So, if they want to go, and if we said…the car will come, they will keep waiting and get upset. So, we have to tell our care staff that if they say they want to go home, our facial expression needs to exaggerate and say…you want to go home right…I don't know how to help you but I will do my best. So, they will think that this person understands me.

R: And then, they will calm down by themselves?

P: Sometimes, we will take them to go for a walk. But mostly, if they have symptoms of confusion, we will let the care staff to prevent. To prevent means not letting them to stay alone for too long. If they stay alone, they will start thinking. So we have to have 1:1 activities and train the caregivers to do them too.

R: Are the activities happening inside the pavilions?

P: Yes. We tell the care staff to do with them too. For example, here it is 1:1 caregiver right, so from the morning until evening they will stay with 1 guest. Then, we will let them to do activities with the guests too. So, the guests will not think (muddle). In the morning, they will take the guests to group activities which I set up, then in the afternoon, after lunch, take a nap, and after that they will have nail painting. So, they will stop thinking about themselves.

R: Concept of homeliness in here?

P: (Pause). This is for older people with dementia right? I think some of the settings are effective. Like, sometimes we told them to take shower, older people with dementia are very afraid of taking shower. They feel anxious about it, try to escape and fight during shower time. So, we use the term 'spa' instead…like are you going to the spa? Then, we are trying to decorate the bathrooms to look like a spa as much as possible with the use of odour, lighting, and sound. To be like a spa.

So, we are planning it right now for people who are difficult for taking shower. We incorporate smell, turn on music in the bathrooms, or arrange things to be spa-like. When they enter, they will feel. But in fact, it is taking shower. I think that if we have a spa setting in the house or something like that. I think it is good.

But for kitchen, if for people with dementia, I think it should be emphasised to be as clear as possible. For home-like environment for kitchens, I think it is fine for mild stage dementia…like it is the same setting as our home…like they have used it before. So, they may feel happy with that.

However, if they don't recognise…this is never…they are a group of people who have low self-esteem, which means if they know things that they surely cannot do. They will not do it. The, they will hide the symptoms. The guests here as well. Especially the mild stage ones, they will not join over activities because they don't want to show that they cannot do it. So, they end up with complaining instead. But in fact, they refuse to do it. Complaining to show that they are like normal people. This is not good…because they are normal people. So, if the kitchens look like the one that they are familiar or used to. Thy may be bold to use it. But, if it is too different, they will refuse to do anything.

R: What do you mean by the kitchen should be clearer?

P: I think it should not be too much. As they have many stages, older people mostly…in aspects of perception. If something is too much, it might cause confusion. Also, it may be hard to pick or hold or cannot choose. But I think if there is one background colour. Then, there is a contrast colour and clear. They will be able to choose or pick objects easily. If there are too many, they will get confused and don't know what to pick.

R: But here, are there any guests who can pick objects in the kitchen?

P: They are in another building. The one who can take care of themselves. They will go to the restaurant. In the morning, there is a buffet, so they will pick and choose by themselves.

So, it depends on their stages, if they need high level of care. They stay in building 6, which have more care staff. Also, building 5 and 4. But, the ones who can still take care of themselves (independent), they will live by themselves and will go to eat at the restaurant. They will have their own activities. But, if they want to join, they can. If they don't want to come, they often go for sunbathing at the swimming pool.

We may think that they are like normal. But they have issues of money management. Like, they really like to go shopping. If we gave them money, they will spend all. They then ask…I want money…I want to go…or they want go back home. So, we ask do you have money. So, it is something about money, or complicated thinking that they cannot understand. But, daily routines such as eating etc., they can do.

R: Are you going out with them to the communities?

P: Yes. For all activities outside, I am the one who organise them. Most of the time, before we go, we will have to do surveys first, to see if there are ramps, toilets, sofas or seating that can relieve the older people. Sometimes, they are beautiful, but they are hard to sit on. Sometimes, they are made from metal and support teenagers. So, we have to do surveys. The space should be clear and enough for them to walk they are nervous. We have to book for cars, and identify their seating for example who can get up to the car easily or they have dementia so they need to get up the car last. So, we have to try.

When we arrive, we have to set up how they sit and who sit together because they might fight with each other…sometimes.

R: They talk to each other right?

P: Yes. But they cannot remember each other. Only some in early stage can remember. Some also like to go with the group because when they go they feel like they are the best. I am not sick. Or, some do not want to go because they feel they are not sick. But, importantly, the one in early stage does not know that the rest are sick. They usually ask why they do that.

R: So, do you think design of physical environment support you and care staff?

P: Yes. There are ramps in every pavilion that we feel comfortable to take the guests up. They are all accessible. At first, for the stairs, the colour look the same. So, we decide to paint the nosing. Only building 6 is painted. Previously, we have care guests only in building 6 so we painted white on the nosing. When they walk by themselves, so they know that they are steps. We feel relieved when they go out to walk by themselves.

(…)

There are handrails in the shower area, but in the toilet area, there are not. So, we have to observe them again, like this guests need assistance in getting up. We will change to chairs (designed) for toilets. But if the guest with dementia doesn't have problems with movement, we will not have it.

Also, the design helps us a lot when taking shower. Because taking shower is a private activity right…so our guests with dementia they cannot take shower by themselves. But when there is care staff to assist, they will be embarrassed. Or, they may be worried about dignity or respect. So, we approach them softly. There are chairs for sitting during taking shower. Everything is safe, so they will not be anxious about taking shower because they are worried that this person will help me taking shower. When they feel safe, sitting down when taking shower, and the care staff is quite sensitive. We will tell them every step, then they will feel relieved. So, I think design can reduce their anxiety.

Design is a part to reduce their anxiety. The care staff also has knowledge or techniques when doing this, which can reduce anxiety. For example, for here, if the care staff uses hands to take shower for them, they will feel a little bit. So, here, we use towels with bubbles and rub them. They feel more comfortable. If we use showers to pour on them, they will be frightened. To make them familiar with the texture of the cloth. If they feel familiar, they will start to do it themselves. So, if they feel safe, they will be calm.

R: In dining area or other places…do you think design and support social interaction?

P: (Pause). Mostly, during dining, there are only tables to sit down. I think the table arrangement in the common area. That person can see that person. There are tables that they sit and talk together. Some care staff will join them. They are not separated

Or sala (pavilion), when we arranged our activities in circle, it is the only place that we do activities together. Also, we have a Petanque ground. Or some days we have afternoon tea session in the building. We also have parties or birthday parties. They are also set at the Sala. Or if it is raining, we will arrange tables in the pavilion and set together. At the centre…I think if there is no common area I the middle, it is hard for us to meet each other. For the common area, whoever comes out off their rooms, they will certainly have to be here. Or, at 3-4 pm, when everything is calm/become silent, they will come out to sit in the front of the building to look at people walking by. They also like to took at raining and observe weather. They talk a bit but staff is the one who build the situation for them to talk or do something. I think design helps because it creates a communal area that makes the guests to meet each other.

R: Therapeutic environment support and promote wellbeing

P: I think the outdoor environment…For here, I like the outdoor area more. But I think they have area…they have area, which allows the guests to walk, and do many things. That's I really like. Also, it is multi-sensory…as an occupational therapist, we emphasised on this. The outdoor space is a kind of multi-sensory. Older people can walk up and down, along with birds chirping and the sound of waterfall. Also, smell...when we found flowers…look at them and

we can pick them up. They can even pick flowers for flower arranging. Because the garden, they keep gardening all the time. They will get smell and sound. In aspects of light, visual, and vision, flowers have so many colours…and sky is also including. They can also touch and everything. They are all multi-sensory. Sometimes, for occupational therapists, we have Snoezelen, which is a multi-sensory room. But, here, we does not require Snoezelen room. Here, it is like when we walk outside, it is multi-sensory already.

Also, I heard that multi-sensory environment could make people with dementia feel relaxed. So, we have emphasised the staff to take the guests outside as much as possible.

And, it is directed by Khun Doris who emphasised them to go out of their rooms because if they keep staying inside, the environment is the same as before. Even though there is bird chirping sound or TV sound. They are not multi-sensory and they are the same. But when they go out, they have more chances to meet…to talk, to do…For here, we encouraged to stay outside as much as possible.

R: Any kind of limitation?

P: Here right? If they are wheelchairs can be accessible to everywhere. But there is somewhere in the garden where there are rocks so we need to use our capability to push wheelchairs. But if they are older people with dementia who do not have 1:1 care staff. There are various care packages. If they don't have so we have to help each other look after. So, there are sometimes that…fences are too low. So, we are afraid that they will climb up. Also, there is a lake at the back, which is quite dangerous. But if there is a care staff with them, it is quite safe. But if they walk alone or older people who came here for holiday, I think it is quite dangerous. Also, as you might notice, there are steps/blocks at the lakeside…But if we have something to protect, it will be good. But if not…it is for aesthetics.

But mostly, we don't bring the guests near the water. We usually walk around.

R: So, do you think weather is limitation?

P: Not really. Because in Thailand we can go out everyday, even raining, foreigners are not afraid of rain. Sometimes, if the rain is not heavy, they still walk. So, we just use umbrellas and follow them.

Especially, people with dementia, our concept of care is they always the right side. If we don't allow them to go out, if we don't follow them. If we lock doors, they will smash doors. They cannot perceive what is not to do, good or bad, they lose it all. So if they want to walk. We have to…okay walk!. They will feel free/release and happier. Here, we emphasise to follow the guests.

It is like…in the morning, if they refused to take shower, then next 2 hours we will try again, if it is not that dirty. We will later try every hour. So, for the nursing concept, it is palliative care…for people with dementia. So, we don't emphasise on improving, so we…the occupational therapists, don't have equipment for improving, but it is about how can they live in their own world as happy as possible.

So, even if they like to move staff, we allow them to do. Or, they like to walk and we follow. It is to make them happiest and the relatives are happy too.

For the concept of palliative care, not only people with dementia, but also it has to be the whole system including the relatives.

R: What do they actually mean by going home?

P: It is like their brains think about something. Like the brains think about the past. They don't know where they are because they lost their orientation about people, time, and space.

R: How do you answer or respond to them?

P: Going back home, they mean…at that point…they are feeling anxious about something. If you said, you cannot go back. They will be more upset.

(…) This person believes me, helps me, and have more confident.

R: Familiar environment…do you think there are any affect?

P: I think because the architecture here is modern. It is in the neutral state between Europe and Thai. And, most of our guests here, I think that they are at Switzerland. They don't know that they are in Thailand. So, I think that if it is modern and neutral. It will help. But if it is in Thai style, they will wonder. If you ask are they confused if they are in Thailand, they are not.

Home-like might be a good idea, especially the ones in mild stage, which can still recognise. The ones in mild stage also recognise that they are in Thailand, but they cannot figure out how to buy tickets or about money.

R: Do you think technologies can help assisted?

P: Yes definitely. For example, in terms of carrying…it can support the care staff and enhance work/tasks to be easier. It makes the two stakeholders work together happily (46:23). Or, technologies for alarms or censors we have also used them.

R: Do you apply them here?

P: Yes, but we rarely use them because during holidays we still have staff in their position. But there are some guests who like to wake up at night and walk stealthily. Sometimes, we use because we have enough staff. Or, the staff during night shift went into one room, but other guests woke up at all 4 corners. All staff are in the rooms. So, one of the staff needs to bring a censor to the entrance doors. Then we can run in time. We have to priorities the one and take care of another one first.

R: For aspects of design tool and assessment tool, do you incorporate it in your care tasks as well?

P: It is like when we study, when we go out into the communities and assessed their homes which parts are risky. For here, we mostly searched for universal design. From our capabilities, they are colour, handrails, and other equipment. Things that are not too expensive. We are trying to design and make them. As we are occupational therapists, whatever we want to create, we will create for them.

(…) but for the buildings, such as steps, at first we think about using reflective colours such as yellow. But there is a limitation because they have only white. Or steps, we used tape instead to see colours.

R: To what extent do you think the design can support their capabilities as they are in various levels?

P: I think…the design should try to support their capabilities at first. But, then we will see which parts need additional supports. In an aspect of an occupational therapist, ADLs can improve

their confidence and their self-esteem by making them feel like they are partly can take care of themselves. If the environment is too risky, they are fear to do and feel low self-esteem. They will eventually have a higher quality of life.

But, ones with more advanced stage, so…we should take care of them mostly. Or, we might use another procedure in another level for assistance…by not being complicated.

At the early stage, they can still use or do complicated activities for their daily living. But, for the late stage, there is a need to use human support.

For guests in building 3, they are still independent. But, there are risk of falling and having wrong medication. But in building 5-6, nurses arranged for them. We are afraid of falling, wandering at night and poisonous animals. Another limitation in here…as it is a forest, there are snakes, and insects

Here, there are many enablers such as there are lights everywhere. Or if there are censors to light up lights. They don't need people to support. People who are independent makes them higher quality of life.

I think if they are more advanced, we also need to encourage the quality of life of care staff because the staff is very stressful. If they don't know techniques, like us…so we need to support them about characteristics of dementia. For caring, it does not have to be straight forward. It has to be abit tricky. They are stress out because they don't understand but if they understand about their circumstances.

But if somehow the guests are aggressive, and scold, so we change them first. The guests cannot remember faces. Then, they need to calm down. So, here we encouraged supporting caregivers. Because they are the ones who stay with them almost 24 hours.

Also, for this group of guests, there is a matter of aggressive mood which we might think that because they have dementia, so they are aggressive. But actually there are causes which care staff can be one of the causes.

So, from my study, it mentions, care staff are mirror of the older people with dementia. If we are in any kind of mood, they will absorb our mood.

Because they stay together for the whole day, if they are in the bad mood, they will be upset. If we are frustrated, they will be frustrated.

So, we always tell our care staff that before you go into the building, we need to breath first, if you are worry about any other things, get rid of it. So, that's why their body language needs to be good and be positive.

R: So, are they effect the care staff?

P: Yes. Sometimes, I just sit at the Sala (pavilion) and look at trees. Or the common area, it is bright and fresh. So, I think, for here, as it is beautiful and it looks good, I think they feel relaxed too. Sometimes, they pick up flowers, somehow becomes activity of care staff…so it is like they are living together. So, when we tuned in with care staff.

Someday when the light is beautiful, I often feel like I am on holiday to stay in a beautiful resort…so, it is another good day.

(…)

We are the environments for people with dementia. It includes buildings and us. For here, I personally like to take the guests outdoor, not only in therapy rooms. I think it is boring and not fresher. For private one, it is more beautiful. It is also affected as well based on my opinion. It does not like you come to hospital. I think it has affected.

Participant 4: Occupational Therapist (Case Study 1)

Gender: Female; Age: 25+; Nationality: Thai

R: How can the design of physical environment support people with dementia for their daily activities as well as the care staff?

P: The interior…everything right…If it is for the patients or the clients, I think it is about the brightness inside the building. It is mainly the brightness inside the buildings. Also, the hall is high (ceiling). Moreover, the light from outside is natural sunlight, which helps a lot. Because older people like brightness, and they feel like...it has the natural manner. Some people, if being in general lighting, they will not become depressed. The symptoms of this would be less.

Also, the high ceiling hall makes us think of comfortableness and serenity. Also, windows are large. The frames are big with mosquito wire screen which allows good air flow (ventilation) from three sides.

Moreover, for care staff, brightness also affects because our care staff works in shifts from morning, afternoon to night. So, they are sleepy and not feel energetic. They will not feel energetic when they do overtime (OT). So here, I think brightness makes them be active. Yes, they will be active. As it is natural sunlight, they feel free more than artificial lighting in buildings.

As I am an occupational therapist, lighting has really affected because we require to emphasise the activeness, and to stimulate the use of natural environment. Like, when it is raining or sunshine, their behaviours change. Or, our activities depend upon weather. It is also affected.

R: Are there any limitation of the usage?

P: If I want to adjust, I think it is the bedrooms. The rooms of clients. This is because the doors…even though wheelchairs can get in, but it is not flow all the way round. Sometimes, we need to move a bit for them to be straight. Because, there are corners. So, the area around doors are effecting both the bedrooms' and bathrooms' doors.

However, the bathrooms' doors are sliding which are okay. But still, in some rooms, the doors cannot be pushed towards the end because they leave spaces for handles, which causes the gap between doors become narrower. Also, it causes risks of scrape (skin).

So, in pavilion 6 which have 24 hours care, we tend to take them out….some rooms only. So, Khun Doris will be the one who assess which rooms should have adjustment. This makes the doors to be wider.

Some rooms, at first the bathroom floor is slippery. At first, they will apply anti-slip sheet. But, because our guests have dementia and are older people, they always don't lift up their legs. So, they kick the anti-slip sheet. So, there are issues in some rooms now. But some rooms, we repair it by applying non-slip floor tiles on top instead.

R: So, most cases will be assessed by Khun Doris first right?

P: Yes. It also depends on the clients as well. If they stay with us for a long period of time. Also, their families have to support to pay because of course there are expenses. So, if they are okay and we can support. We will do it for them. So, there is this matter as well.

P: But some cases who are very dangerous. We recommend having 24 hours care or 1:1 care, because this can decrease the risk of falling in bathrooms for sure. But if the clients do not pay for 1:1, but want convenience in going into bathrooms, we will then adjust for them.

R: Do you think the design of the physical environment can support social interaction?

P: In general spaces, at Vivo, they have various communual spaces…many spots. For example the restaurant, or the organic garden at the front, then there is a big pavilion and also a spa which everyone can use them. Also, there are chairs or small pavilions spreading out in the gardens. For this, it is easy to appoint or have a chat or do activities together. For example, the restaurant, it is a place for eating or organising parties. So, we do activities. Such as birthday, we will come to meet and talk. Sometimes, for afternoon tea, we might organise it at the pavilion (lakeside). We organise at the restaurant and at the pavilion as well. I think the place supports both the guests and the care staff to take them for a walk or to rest. So, it is like…to change atmosphere from their rooms….from the buildings.

Also, this includes trees and flowers, this helps a lot. It looks…natural. The older people…when we talk about vegetables or trees, they seems to be interested in more than when we talk about other things. For example, at the vegetable garden, now we have chickens. At first, we did go to the vegetable garden to collect vegetables. When they arrives, they sang songs. So, now there are chickens, so they went there to observe chickens…to keep an eye on eggs. So, these are another activities. So, when the chickens make some noises like cock-a- doodle-doo, they will laugh.

R: Yeah. There are some care homes in the UK as well that have chickens as their therapeutic animals.

P: Oh. I have not heard about it before. Yeah, so when they go to observe chickens, they imitated the sound, cock-a-doodle-doo and they will laugh (Laugh)

R: In many European countries, care homes are designed under the concept of homeliness unlike here, as it is a resort-style. How do you think about it?

P: Yeah. Sometimes the guests say…I want to go back to see my mom. So, we have to create the place here to be a completely new place for them. But, someone also require this…for example someone who is lonely. So, if they can accept that they come here to live by not lie to them. So, they feel good that there are family photos in the rooms or objects in the rooms.

There is one Aunty. She just came. She brought everything here when she came…such as miniatures, her knitting works…displaying in her room. So, she displays all of them in her room to make her feel good. So, it depends on each individual case and their stages.

R: What about more advanced ones? As you have mentioned that it is too much.

P: This is because as an occupational therapist…I am focusing on sensory implication. So, as there are too many, it can cause them confusion. Sometimes, the room should be clear and emphasises safety. Also, when we stay with the clients, we know their requirements such as music or odour. Just that might be enough.

There is one case, previously, there is lots of stuff in his/her room. He likes to watch movie…a large screen TV and a large sofa…like a home. Closing curtains to watch movie and lots of equipment e.g. photographs, food, and many more. It is like, he does not need to go out, he can stay there. But now, as he is getting worst into another stage. Nothing can stop him. Like, lifting up TVs, and use equipment wrongly…like pouring water into electrical devices. So, we have to take them out. Since we took stuff out, he feels comfortable. But, someone will think, where is my stuff. So, we need to gently take out, piece by piece.

So, for the more advanced stage, we are more concerned about safety and emphasise brightness.

R: Are there many advanced stage at Vivo?

P: Yes. All are at advanced stage. In general, people may think about dementia as their symptoms of forgetting, but actually this also includes mental symptoms including upset, mood changing, and bipolar. They are underlying. That's why we deal different with every case. So, they are advanced different ways.

But for some cases that we call advance, it means that we cannot control as they may walk non stop and refuse to sit down. When we touch, they will scream. Because we don't have bedridden cases. Here, Khun Doris always say that bedridden cases are not difficult because they will not go anywhere, but the time can be fixed. But, these type of cases, these cases are very hard because they still have their independent mind. If someone, we point at right hand side, they follow, but someone we point right side, they walk left. This is hard for us then. Moreover, we also have end of life cases, which we also take care.

R: Does it mean that they are bedridden?

P: Yes, bedridden... But actually, it is because they are getting down (worst), it does not like bedridden where they have to put on tubes, they can still eat. But they refuse to socialise. So, this is the last stage.

So, when we have this last stage, we have to talk to their relatives how they want to be…if they have conditions of dangerous or in pain, so we will send them to hospitals.

R: So it depends on the relatives

P: Yes, sometimes the relatives do not want them to suffering. So, they tend just to live and pass away.

R: How can the design of the outdoor environment support the guests?

P: I think for the guests…we tell them all the time that they are at the resort. They come here to relax. So, it is to feel like you come to resorts and the place especially outdoor, it fits to be a resort for relaxation (setting?). So, they think…this is the truth. You don't tell a lie to me. Then, they will follow us. So, they will relax for a period of time.

For our staff, they come to work…and face pressure and stress. But, when they are in this kind of environment, they are okay. They can feel like they also come for relaxation. It is relaxed. Because from home to…like I am living in a dormitory, it is a square room. But when we come here, even though a work environment, but our working environment is open environment with forest, mountains and water…that kind of thing. They seem to be more relaxed. Also, I think the sound of nature. I think it makes us more relaxed.

R: Any limitations?

P: From my experience, I think some of the pathway. I have encountered the hole or the connection of street. So, when we push wheelchairs, they are obstructed some parts. But some parts are developed. But, there are still some points. Also, the area for water drainage with grills. Sometimes, the wheels of wheelchairs are stuck. And, the clients…with dementia, if they feel it is not safe for the first time. Next time, they will refuse immediately the same care staff. Even though they have dementia, but they remember by their senses that they don't want this particular care staff. But sometimes, blue shirt right? No..There are a period of time which the clients spot on the staff's shirt colours. The shirt colours. Previously, we don't wear uniform. We can wear anything to work. So, they cannot remember who is who. To forget all the images. To forget all. So, when we push wheelchairs and stumble or stop immediently. Or, sometimes even leaves that fall down. So, they start yelling.

So, for the new staff, we have a session, which let the staff to try sit on wheelchairs and another staff push them through and around Vivo to spot on certain points which seem to be dangerous. Then, we will know that we have to be special careful with that point.

It has to be like this. If we continue push and we forget…game over.

R: So you let the care staff to try first.

P: Yes. So at the garden for example…we let them to try first…to try what weight or how much energy they have to use, that we will feel safe. If they feel unsafe, even though they like garden, but they don't want to go. So, we have to build trust and reliance first. So, they face pressure and stress. But as they are in this kind of environment…

R: Do you think weather effect the activities?

P: I don't think so. Some of our guests still think that they are in Switzerland. So, when they wake up, they know it is cold. Even though it is hot, last summer it is 30-40 degree celcius, they still wear winter clothes. They told us…it is hot (in German). But still, they don't take out the clothes.

R: Any effect on their body temperature?

P: As I have observed, as they wear them and go for a walk, they will get tired more easily. Then, they require regular rest. Or, we might arrange outdoor activities less when the temperature outside is extremely hot.

For rainy season, it is good that…they are quite afraid of rain. If it is a light rain, they still go out and walk. But if they start to realise that it is rain, then they will not go out. They do not use umbrella. I think they forget how to use it.

R: Yeah, as I have observed, there is no shelter for outdoor area.

P: If raining, we regularly organise activities inside. We tend to attract them to stay in here first.

Oh also, there are some points on ramps. Some buildings, I can feel that it is a bit too steep or not equal. For pavilion 6, it is okay. But for pavilion 4, I feel that it is too high, so I need to send out more energy/force. Use more energy…and because our clients are…their body size are huge. So, we usually have problems of back pain. Sometimes, we cannot and slide because we need to use our energy to push. Also, stairs, we require steps' corner with colours. Previously, there are not colours on step, then we ask for it because it is dangerous.

Also, another limitation is that…here during the nighttime is very dark. But, because here, it is resort, so they require dim lighting…like that. But there are already add on in some points and locations. But it is dangerous because of snakes, insects because it is close to forest and it is also damp. So, we have to be careful with this.

R: As you have mentioned about lighting and colours, how do you think these kinds of healing environment can support the building users.

P: I think it is very essential for them…the environment, it is important. For example, lighting…warm light can enhance the feeling of warmth. I think it helps a lot. Like, during nighttime, our building is mostly warm light which for them to recognise that it is nighttime. Eating or other activities, even though it is the same activities, but with different kinds of lighting that we receive are different, and create different feeling. Even though during at night, we sing songs or dance, but they will recognise that it is before bedtime. Not like…being active in the morning.

Also, smell…food smell, when it is 11:30 am or 12 pm, food arrives, when they served and smell comes. Then, they will come and wait at tables. This increases their hunger and appetite. The bedrooms' light here is quite dim.

R: What about cultural aspects?

P: I think in pavilion 6, it does not affect. But for early stage, for example in the restaurant area, they can feel-like home…like eat this one. Like, chandelier can create that feeling as well. To eat there can enhance their self-esteem. I mean…there is one guest…where she always eats at the pavilion. The food here is the one that nutritionists prepare for to smell their local food. As they don't have same local food as us. There is menus…but they cannot scoop for themselves. But this guest, she/he tries everything to eat at the restaurant. So, when she is there, she will be proud of herself…as a Madam…pride and get a chance to meet her friends as well. To prove that I am not sick.

Pets or animals also have advantages as they can concentrate/focus on them for a period of time. If they are agitated…then we talk to them about pets or animals, they are quite interested in.

R: How can technologies support the guests and for care staff as well?

P: I think for technologies for care staff should be a form of media…in terms of equipment. We have got turners. This can reduce our risks of back pain or other disease. Also, it is good for our clients because it is convenient and don't make them feel that they are not burden…like that heavy to use 2-3 people. So, they are more relieved.

Also, electric beds also help…but it depends on which clients will intend to use it. If they also have inserted tubes or hard to move. Electric beds help a lot and reduce chronic fatigue.

Including sofas which can adjust levels…because sometimes the guests, if the staff don't go in to look at them frequently, it can cause pressure sore….also musical instruments.

Censors as well…during night shift when staff are not enough for every room. So, we take turns, but if there is sound/noise, we will run to see. Previously, we use bells… but as we close every thing, it creates resonance. So, everyone wake up and scare of the sound.

We only use it only when our staff is not enough. So, if some days which there is enough staff and they can handle situations, we will not use it.

Usually, during nighttime…I don't know why, but every Buddhist holy days…like full moon nights, they all wake up and wander. Some people wake up and refuse to sleep all night.

We also use nurse alarms…they will import from Germany to connect the front office and nurse office as well.

R: What about trips to the local communities?

(53:06) we emphasise our clients to walk. I usually take them to open space such as forests, or gardens. They need to be vast and open and not crowded. Even though they can concentrate on for 3 hours because of medication, but if they are encounter too much noise, they will get confused. So, I emphasise to go to natural environment settings and places where we can control mostly. Places that we already talked or dealed that our clients are this group…that we can negotiate with them. For coffee shops, we are usually go there first…but we are finding new places. This is because our clients are different groups but we cannot separate. We have to go together. So, we have to brief staff to take care of different groups differently. Some people, they said this café again…they are bored. So, we try to find other new places. We did a lot of research but there are scarce. That's the reason why we decide to build our own arcade.

I think it is the whole system…such as drivers…our clients are quick in sensing. They will be dizzy especially clients with vestibular. We asked him to slow down. He said we will not be there on time. So, we need to see even like…who is a driver today and which cars. We must make sure. We have to identify cars and drivers. We call cafes and if there are other customers, we will change destination immediately. Sometimes, we (guests and care staff), walk/wander all over the place. So, we usually go to the place where it has friendly design and not crowded. The cost is alright, we can spend. But the place should support us.

Toilets outside are very dangerous. (…) So we need to prepare everything from here. There are twice a week for free and a trip such as picnic (1:11).

R: In summary, to what extent do you the design of the physical environment can support capabilities and independent living of people with dementia?

P: I think it helps a lot. Especially the ones in mild stage or moderate stage…they can still take care of themselves. Sometimes, they just forget and sometimes it is not enabling such as colour of sofa or size of it. They are all affected. Sometimes, they are just forgetting that, they leave their stuff there. But if it is colour, they tend to remember colours more…like I live it there at the yellow part. Or equipment such as sticks, cane, or wheelchairs…or writing their names or other forms of identity. Or spoons, from my study, there is an adaptation of equipment of paralysed patients. Becuase we want them to have more confident.

R: But stages of 3,4,5, might require care staff to follow closely. for example…brush their teeth. If they can take care of themselves. So, we don't have to waste care staff right. So we have a guide for them to hold and it fits and it is convenience. They will continuously do it. It is daily routine which they remember. Like if open taps and gove toothbrush means brushing. Or, sometimes soap, at first refuse to take shower. If we make bubbles and touch on them, they will recognise and use it by themselves. I think it helps them to be independent at one level and build up self-esteem.

Smell also helps…smell…in bathrooms for example the smell of hot water, they can feel that. The smell of hot water. Like Grandpa, he doesn't touch but he smells instead to know that it is warm. Or citrus frangrance/smell also makes them fresh. Even end of life cases, there is a care who already pass away, Khun Doris used infuser to diffuse change air to the one he likes. It makes him to feel relaxed and if he is in pain, it does not ask…mention about that pain.

Aroma is used in personal rooms because different people don't like the same odour/fragrance. Also, the staff, we have aroma candles and we used only one, but it diffuses to the whole building. However, our staff feels dizzy, but our guests like it. So, the outside…communal area, we don't encourage to use it. Or we might use it in some special occasion to make it special indeed.

Participant 5: Nurse (Case Study 2)

Gender: Female; Age: 32+; Nationality: Thai

R: So, starting from the first question…How do you think the design of the physical environment can support people with dementia as well as care staff in their daily living?

P: The design…from the entrance…when we enter…it is kind of ramps which we can take wheelchairs in. Also, it is wide which allows the elderly/older people to walk conveniently. Then, when we enter the indoor spaces, brightness of rooms is bright enough. The width of rooms…and inside the bathrooms, there are handrails for them to hold when sitting on toilets or during taking shower, we have seats for sitting down and taking shower for the convenience. What else…brightness…

If someone who have risks of falling, or falling from beds, our beds will be hospital beds, which there will be a rail to protect them from falling.

So, these kinds of…factors also help the care staff such as protect them from falling of older people.

R: Do you think there are any limitations of the indoor environment?

P: (Pause). Because here, they are designed like a hotel and resort too, in fact it is fine. But, to be better, because here, it is quite spread out from the nurse office. When there are emergency cases, we can get to them hardly. To make it better, it should be located in the same area. As a circle for example…so in the centre will be a nurse office. When there is an emergency, we can quickly get into the patients.

This is because, here, they want the atmosphere to be a resort (what do you mean?). So, the older people will not feel like there are at nursing homes. By limiting…like that. To make them feel like they are living with freedom. But, in time of emergency, it is very hard for us…for example in the street zone, to reach them. This is because it is quite far and the way is quite sinuous.

So, here, it is our main office where care staff and nurses will stay in here. The care staff in here is the care staff who don't have duties as personal cases. So, for helping them taking shower or emergency cases, they will press alarms, then office care staff will go for serving food or taking them to the restaurant….general services. So, I think it is easier for us to be at the centre because of the distance and it takes less time.

R: But the environment here is very nice. What do you think about the design of outdoor environment here?

P: Did you mean 'atmosphere'? I think it is about the shady of trees. It can help with mental state/mind of the older people. In some cases, such as Grandpa Ted, he always sit and look at the garden all day long…sipping wines…he always tells that it is his happiness. It is the garden…he calls it 'Eden'. (Laughter). It is 'Garden of Eden' which Adam and Eve live. So, he

says sitting like this, he is happy all day. Mental state…some people…but some people…like city life (lighting and colour). There is a case, Grandpa Nicky who comes here for only one month. Because he is habituate with living in cities…going out into bars and sit and drink. So, he cannot live like here. But mostly, I think the older people like the atmosphere like this.

So, Grandpa Ted is in the early stage of dementia…so he lives around the world. He says that this place. He likes this place. He lives here for about 1-2 months. He is 89…90 years old now.

R: For the outdoor area, do you think there are any limitations?

P: I think roads are too narrow. There are only some zones, which allow buggies to pass through. But if it is a bit wider when they walk using wheelchairs or walkers. Sometimes, they are very limited. This is because they sometimes have problems with eyes as well as visual impairment and how they balance their bodies, which is not quite suitable. Here, Khun Peter (the owner) already designs it for using buggies to take them out to the restaurant or this area. But mostly, they will not walk. But someone, which is very fit and active, they will walk to here.

R: For the active one, are they people with dementia?

P: They are in the early stage. Also, the main characteristic of this place is it is a slope. So, when older people walk, they will get tired. They will walk a little bit, then stop, walk a little bit, then stop. The slope is quite steep. Even myself, I also get tired. But it is good because it is also ways of exercising. So, it is the steepness. They have to take a rest. So, it is like we are hiking up mountains. It is not that steep. But for older people who are 90 years old, it is quite steep and at that point, they are tired.

R: Cases in the Netherlands…the concept of homeliness and home-like environment as they are mostly from foreign countries…

P: Wow…beautiful…

For here, it depends. Some houses, the design is following Khun Peter (the owner). But the older people's relatives will decorate by themselves. They might bring cupboards or something else. They also have photographs on walls. Sometimes, the relatives decorate for them. But some people, the conditions are like us. But…for example Khun Marie, room 12, She is British, so she creates an atmosphere like her home. There are photographs all over the room. Also, there is a personal corner where she can sit and relax. There is a kitchen because she (the nurse calls her mom) loves to cook. So, here, it depends on the relatives how they want to decorate. Then the owner is okay. So, we have to contact the relatives first. But some older people…with severe dementia…that we cannot do something much, so we leave them as normal. We provide only things that we have and we provide the convenience.

For Khun Marie, she is in severe stage, so there is a caregiver who looks after her 24 hours. Her room is very big…it is two connecting rooms…two big rooms. There is a kitchen and two bathrooms.

Still, she manages to do some daily activities. But, sometimes, she is in her own world. She still comes out for a walk and does activities. She likes to come out…Also, there is a person who does Thai massage for her…

She lives like a normal but the way she uses words or to communicate with others/those around her….many stories…stories in the past…that we don't know. She is living in her own world. We have to make her lives as normal as possible. Sometimes, we communicate with her and we have to pull her into the present time.

R: What do you mean by normal?

P: (Pause). To live with their daily activities I think….

If the environment is familiar to them…I mean the patients with dementia…the environment where they are familiar from the past, they are talking to us more. Sometimes, they tell us about their stories. Then, I know his/her background, creates interaction, then, we will learn about them more.

R: So, are people with dementia going to the restaurant area?

P: Yes they are. They live normally. But, there are cases in the clubhouse (dementia care unit). They are in severe stage of dementia. Previously, there is one case, Adda. She is Canadian. She is a chronic alcohol addicted. She drank a lot. So, we avoided her to go to the restaurant because she will order beer and alcohol all the time. But for other case, we don't limit them. We want them to live lives that they want. They can do anything they want, if it is not beyond the boundary such as going out without caregivers.

R: What about the cases in the clubhouse?

P: Khun Susie…she used to live in the US married and has a son who will come tomorrow. She has other diseases such as blood pressure, kidney…every thing. She is quite introvert, but we can understand her talking. She is very introvert, for a long time, she will appear outside to take in the scenery.

That day we went to celebrate her birthday…everyone went there for a party…but it depends on her mood. If she is in the bad mood, we will not talk to her. But if she is in a good mood, we will talk to her normally. She does not look like she has (dementia), but in fact…yes.

R: Are there any doctors in here?

P: No we don't. This is because we registered as a residential home. In fact, it is a general residential home…it is not a nursing home…the perfect one which has doctors in. But every case, we will screen and send to hospitals such as Chiangmai Ram Hospital or Bangkok Hospital (Chiangmai) based on relatives or the patients if they are inpatients. If they are from foreign countries, we will screen and ask first…ask the relatives which places do you want to cure. But in fact, they have to cure that diseases by follow-up…anyhow they have to follow up with doctors.

R: Do you think this kind of environment is healing environment?

P: Yes I think they can help healing…it is absolutely. (R: How?) For example, lighting...has some effect. For example in the restaurant, colour…such as yellow, can enhance and stimulate their appetite (eating). Birds…don't only need to put in cages. In the morning, there are many birds come to sing song.

I think it also reduces stress of the care staff that is working too. Also, for the patients, it may relieve stress and creates the feeling that they are not trapped. It creates the feeling of being at home and has care staff. The atmosphere is very good.

Also, it has affected both staff and the patients. Some places, if it is narrow and separated into rooms, locked and don't allow them to come out. I think the feeling of the patients with dementia…even though they are forgetting the status/condition of now, they still have the condition of…normal….as a human….normal people like us. They still have emotions like us, angry and sad. If we limit them, it makes them becoming aggressive. Consequently, if the

environment which is open (open space?), and they can do whatever they want. Or the atmosphere is fit to live in. It really affects them indeed.

R: What about technologies…how do you think technologies can be applied for dementia care?

P: Can you give me an example?...I think this watch/GPS is very interesting. Here, we have not used any of these. In fact, we have our technologies, which are alarms. It will buzz at watches. Each staff has a watch. So, if staff goes to anywhere, and if there are emergency cases as they press. When they press in bathrooms or outside, it will buzz on the watches of caregivers. (22:22), then staff will see room numbers. If emergency cases, staff has to press at the emergency room. If not, the noise will howl like that. Because we force to go and see. To look at how patients are. I think this is very good (she means GPS), because there are our dementia patients…there is a case…Khun Ron, he likes to meet his friends outside. Here, we have a van to go shopping at shopping malls. He often asks us to go to meet their friends. So, we used to make an appointment for places to meet.

(37:39) P: If they become attached to the atmosphere in their previous home, but here in our countries, the atmosphere is like this. It is quite hard too. But the patients who are severe Alzheimer's…they don't understand indeed. If the atmosphere we arrange, or the music that we turn on, but they are in their world, which I think it, is like there is something, which is covering them. Then, they do not interact with the environment. In this case, I don't know how the environment can help. Also, another case, Nella, she is 92 years old. She always collects leaves, and then her husband will follow her. I don't know if in the past, there is something impressing about gardening. But when we talk to her, she talks only in Dutch. Sometimes in English. So…the environment, she only focuses on collecting leaves. When she talks about something, and her husband translates, she always talks about the past or the imagination world that she builds by herself. So, I don't know the case like this…how to…

For cases with very severe dementia…so basically, she lives in her own world. Previously, she moves to many countries with her husband. Sometimes, there is an issue of stories in the past, that she mentions and talks about. So, it is not about 'now'/at the present that she is/being here…with us.

So, we cannot understand how to communicate with her…So, we can measure her blood pressure for a short period of time…then she walks.

I think for early and moderate stage, the physical environment can still benefit…but as I told you before…for the late stage, they have their own world. It is in their mind

Participant 6: Nurse (Case Study 2)

Gender: Female; Age: 28+; Nationality: Filipino

R: How long have you been here?

P: I have been here for 5 months. Because, I have been working here since March.

R: Did you work in the Philippines before?

P: Yes I did. I worked in a public hospital, then private hospital and then private nursing…and then here.

R: So for the design aspects…can I ask why did you decide to come here from the Philippines?

P: Oh yes, I think it has been a long time that Thailand has been a good place…Oh at first, I thought that I need to work overseas because of the salary. Filipinos nurses you know…they want to work like overseas. Some of my colleagues are also in Canada, different places in the world. Some are in London too. Different part of the world. Then, I have a colleague who is working in like…Middle East like UAE or…So, she asked me if I want to work here. But we need to undergo some exams. I am supposed to do my exam and went to there with my friends where they are working. Then, my father, they found out that his kidney has a tumor and need an operation. So I need to stay. My plan to go working overseas was kind of cancelled. So, my father gets well and I work as a private nurse. Then I decided to work overseas again, but this time…near…so, if whatever things happen, I can fly back right away to my country That's why I chose Thailand. I also have colleagues who work in Bangkok but in hospitals. They are Filipinos too.

R: Is English your first language?

P: No, our first language is Takalok (Laughter).

R: So, I will ask you more about the design aspects of Care Resort Chaingmai. How do you think about the design of the interior environment to support…?

P: Oh you know…before I thought that this place is huge and you need to walk far from every room right. So, at first…I like it and everything. But from then on, I realised that our guests have Alzheimer's and some are not. Like they are not good to walk from the rooms…at the gate to the restaurant here. It is like far. Why we need parking. So, I think the design of this place is good, but I don't know…At first, it is a resort right and they…the owner developed it into…They created this care resort. So, I think it is not designed for…(Laughter) for some Alzheimer's guests. Because you know, it is downhill and up hill like that. The rooms are far from the restaurant.

But I think the rooms are good. But the problem is our guests need to walk from…but well…we also pick them up by buggies. We use buggies to pick them up like that.

I think the bedrooms are good. The design is great. It is mainly designed for our guests who are Alzheimer's. Like, wheelchairs can fit in. Like, the owner, he knows the dimension and everything, so it is…good.

I think when we come to interior design; we have not got any problems with it as of now. So, I don't think there are limitations…as of now (Laughter). Also, the sizing is fine, I think the owner…there are rooms in here that are newly built I think. I don't know what year. But I think the owner have already planned for it. So, it is for the Alzheimer's. That's why he already knows about the dimension of doors and everything like that. And, it works for us too even the carers. I mean the care staff…yes.

R: Home-like environment

P: I think it has a touch like the room they have been before. I think it is great…I think it is a great design. Usually here…the new guest, they usually bring their own design from their home…like furniture like that…like furniture and paintings like that from their own homes.

Here, it is more like a hotel setting. I think they will be in a good…you know if they think like this design…I think it will be a great help for them.

R: Any examples from here?

P: (Laughter) Since I have been here, the restaurant itself…since…the time itself…I don't know if the owner has adjusted something or as it is before. So, yes…

R: What about other spaces of activities such as Sala, do you think support social interaction?

P: Yes, as of now because as we have less guests joining our activities like 5-6 people. Perhaps that is inclusive because if they become 10 or 12 people. More people to join or attend. I think it won't. Because usually, we have lots of people here (Nurse mentions later that it is seasonal). We do activities here at the hall. In the hall..so yes. So, it depends on the number of people joining.

R: What about outdoor environment and natural environment here?

P: I think the outdoor environment is good. As you can see…trees and everything…grass and everything…So, if the visiting guests living there far and…I think for us…walking is good. So I think it is good for exercise like that.

Before, our guests stay here for three years, two years, so first time they have been here…they are good. They can walk around you know. Walking is an exercise. But, as they go down hill (she means stage), they cannot walk as much as before, so it is changing. So, before it is good like walking. But if they go down hill, it is not good anymore.

I think being outside…to see trees and everything; it gives you a positive energy or positive vibe like that. So, I think it is good for the care staff as well as our care guests too.

It is kind of like give positive vibes and like healing…Like the guests that I have talked to. They like the environment here…the trees and everything. Some other guests are feeding birds too. We have a lake, so they can feed fishes too.

But when it comes to kitchen I don't know. I think here…kitchen. I don't think it gives positive side. As a resort for care guests and care staff, I don't think kitchens will be suitable.

R: Which one do you think you want to promote?

P: This one. The food aroma from the kitchen. Yes. I think…Here you know. Honestly, our guests…it is far from…the kitchen is at the back. So, it is far from…to see for what is happening in there. They are just only…when they go to the dining area, they only go there, sit and eat. And, they don't go inside or. Watch the kitchen. What's happening there. Sometimes, I think we have Thai cooking classes here. So, before, but now our physical therapist is the only one who is responsible for it. So…there used to be a cooking class. Not all of them. Only 6 or 7 of them were joining.

R: Have you heard about dementia-friendly technologies before?

P: You know. I don't have any problems with this. I am not against it but I believe in person-to-person interaction. Actually, human contact.

Well. When it comes to this…did I mention about emergency alarms and everything. In every room there is an emergency alarm that they can pull if they feel they are having heart attack or something. So, they can pull it and send it here. In our office machine here. So, it will show what room. Then we just run and use buggies to go into their rooms as soon as possible. That's all. And the iPads…That's all.

(52:22) P: Familiarity of the place you mean? I think the guests who are staying in the room 28….You mean before they came here or…

R: After they came…

P: Do you mean setting in or adjusting? Yes I mean…we have one guest and he is from England. Khun Ted…you meet him at the restaurant? Yes, he loves to drink yes. So, he just came here in May. So, he has been here for two months and he is loving the place. That is what his relatives want to happen. Like, he has to settle in and he is loving the place. He always sit in their and staring at the garden. He calls it Garden of Eden. Because he likes it, he really likes it. He always says that. When…because his daughter always call him, so they always talk…how are you dad? I feel magnificent. I am good here. Right now, I am staring at the Garden of Eden. This is a very beautiful place. So, I think…it is depends on person-to-person may be. But I think everyone loves the place. Every guest. But perhaps, they already settle in because some guests have been here for 3,2,1 years and currently Ted is a new guest.

R: How long it takes for them to settle down?

P: Well. Because I am new here…only 5 months. So I don't know how long other guests take to settle in – 3 years, 2 years…As I have observed from Ted, I think he settled in like right away. I don't know…a month perhaps. In weeks, perhaps a month. At least a month yes. Because you know he does not talk that he wants to leave this place…I want to go back to Hong Kong. Because Hong Kong, he is an English man but he lives in Hong Kong like 20 years also. So, as of now, he does not tell us that he wants to go back to Hong Kong.

As I have said some guests love to walk like Ron. It is good for him too to walk from his room to here or the dining room area. But, it is like they're prone to fall. I think there is both positive and negative (Laughter) sides fro our guests. Because I think some moves are far from the dining area. He can use the buggy but it is still far. We cannot be there to pick him up and…it is too far. If they want to pick them up and care staff are doing something with other guests…It is independent but risky.

R: Do you think the design can reduce those risks?

P: As of now, I am observing our guests and most of them they are going down hill…the design cannot support as of now. I don't know how can we change it, but I think we cannot. This is because it is already built-in.

R: Certain circumstances such as budgets and limitation…

P: But here, I don't think we have space limitation when it comes outdoor…plenty of spaces. It is good for our guests for mid or moderate Alzheimer's…if they know like early stage Alzheimer's where they can walk and everything. They will enjoy wandering around. But, if they go down hill. I think it is not good when they go down hill. So, it depends on the stage…. the early yes.

R: To what extent the environment can support the late stage?

D: I don't know, but it should be a functional…Because you know…for people with Alzheimer's and dementia when they go down hill, you are not sure. If you are asking them about the design of it, the color of it or the space of it, and they said yes or no. You will be not sure. Is it from them or….(she paused and she means their mind). They forget.

But for Ron, he knows his routine.

Participant 7: Physical Therapist (Case Study 2)

Gender: Female; Age: 30+; Nationality: Thai

P: In the afternoon session, it is mostly leisure activities for example cooking classes, watching movies (they are watching movie now), and going into swimming pools if no rain. We will arrange as schedules…as monthly schedule. So, I am the one who plan and arrange schedules.

R: So, do they have to register or put their name down?

P: No. If they want, they can just come.

R: So…

P: Like that….Also, another thing is about beds which I think it is too soft. The mattress is too soft. It is too soft, so it causes some difficulties when getting up. When they are getting up from beds. It is hard. When it is a time of physical therapy…you will see that it is hard when they get out of beds. But if they get out of hard (and stable) chairs, they are fine and can get up by their own. P: The chair is hard enough.

R: For each villa, how often do you go there?

P: Three times a week. Sometimes, 2 times a week.

R: And, how many physical therapist in total?

P: Only one. There are not too many cases.

R: How many cases?

P: Currently, I am doing with two cases.

R: One case is hip aprothopy and other case is Parkinson.

P: The first case with him, he also got dementia. But we specify on the hip anthro…

R: Do you think there are limitations of the design of the interior environment here?

P: (Pause). In fact, they are already designed well. Guests can use most parts of the rooms.

R: What about the outdoor areas, how do you think it support people with dementia and care staff?

P: I think that slope going to the Sala area is too steep. Wheelchairs are to go up and down. But they have already adapted to take them through the library instead. So, they can enter from this way (easier).

R: What about the green spaces, garden or other natural environment?

P: The pathway is surely accessible. But, the garden in the front of the reception, that area, it is laid out as continuous blocks. For that area, wheelchairs cannot access there. Some people who are not strong enough (in walking), they cannot go there.

So, it depends mostly on the zoning. Mostly, that area is unused…no one used that spaces. There are some day guests (she means tourists) who go there. Our care guests never go to that area. It is hard to get access.

We also used Pavilion (Sala) area for daily physical exercise session. The lakeside Sala…For the daily activities session, there are about 5-6 people joining. The guests are decreasing…many guests left the resort because it is low season. There are many guests who are just left, move to other places, or go back to their home countries. But then, they will come back again in winter. They will come back.

R: What about the usage of Sala area (lakeside) according to your activities?

P: We have to carry equipment and stuff around. I mean the equipment, which is used for physical exercises. Also, firstly, we talk about the size first. As of now, there are not too much guests. It is fine and fit in the space. But also, when we have to lead the activities, we have to turn over body towards the guests. And, there is no mirror. So, sometimes when the elder guest follow me, they get confused which sides they have to follow. This causes a little bit of confusion.

R: Can you explain more about mirrors?

P: If there is a mirror, it means like you can turn your body in the same way as the guests. And, I can see them in the mirror. Then, they will follow more easily. They will follow from the mirror instead.

R: For watching movie activity, so the guests with dementia will come to watch the movie in the hall right?

P: So, it depends on their interest and if someone cannot decide…there are some cases who cannot decide by themselves. Care staff will bring them here right away. If they like, they can continue watching. But if they don't like, we can bring them back. So, we let them try out first.

R: About the outdoor area, do you think there are any limitations of the design of the physical environment?

P: I think may be during rainy season, it is wet. Because wherever you walk, it is wet. The guests who can walk, they will walk to the dining area/restaurant. Sometimes it is raining; they even walk in the rain (no shelter).

R: Some care homes in European countries use the concept of homeliness in their design, how do you think about the concept?

P: I think it is the way to stimulate them. If they are at home, they will feel that something that they can still do by themselves. Activities…daily activities at home, they can do it here. For example, because they used to wash their dishes by themselves and…previously after eating, they will wash dishes. They can be independent and do this work by themselves…repeat the activities/routines by themselves. It is like…to maintain the progress of dementia…by not getting any worst.

R: Have you applied this kind of environment here?

P: No…not yet. But we have idea and plan about it. There will be a zone (like this) for them. Like, there should be a living room to stay together…to have social interaction…. It is better than a separation for each individual guest.

Is separation has benefits or disadvantages? R: I think there are benefits on the guests' privacy and disadvantages on less social interaction for their stimulation because everyone is separated here.

For the restaurant area, guests come for meals. Also, they will only sit at the open-air space because the upper floor which is an air conditioning room. It is hard to climb the stairs up. It is hard to access, so we sit at the ground floor.

R: Do all guests come here for dining?

P: No…only steady customer come to the dining. Guests, who are still able to walk, will come.

R: To what extent do you think healing environment can support people with dementia?

P: Yes, I agree. They are helping in terms of visual, hearing, touch, taste, and smell which are involving all five senses. These are all matter. Especially for patient with Alzheimer's and dementia, because we have…from cases that are mild to cases that are severe. For severe cases, it is hard for us and them to find something to stimulate. But if it is sound, they responded to sound. For smell, I have not tried, so I am not so sure. But sound can stimulate them for sure.

R: You mean music?

P: Yes. Music. There is also a CD of animal noise. We will turn on. For example, if they are lost…when they are walk…wandering…or are vexed, when we turn on, they are able to focus like…what is that sound. It is like they are going back to be kids again. So, we play games with them. So, this makes them more relaxed. This case is severe…so she usually cries. When we want to deviate her concentration, it can help too…

R: So, do you think healing environment also support the staff as well?

P: Yes it helps. Because the staff is also stress out. I think because it can help our work to be done easier (She means if the guests calm down)….(Pause) Also the natural environment. Previously, I have not worked here. I worked in a clinic, so it causes more stress out for me. I have a lot of workload and it is located in the place where it is more closed. But, being here, I am not stress out anymore.

R: What about technologies…have you use technologies in your activities session too?

P: I think it can help a lot. For example, the GPS watch is also good. But because we are in the closed compound resort, we have enough people to look after them all the time. So, it is not very essential. But if it is in the context of home, relatives are looking after by themselves…without people who are standby and take care of them all the time. Then, this will be beneficial.

R: What kind of technologies do the resort apply or use?

P: We have nurse alarms. We have calling alarm to ask for help. Also, emergency alarm which is separated. They are installed at the bedroom area and bathroom area (shower area). Another one is a portable type for the guests to carry around and press buttons for help. Then, it will show at the nurse office who is calling. Every room has a portable one. Also, the caregivers have watches that have signal receivers. Some of them who are not stationed at the office, room numbers will appear on the caregivers' watches. Also, it will state the location, for example bedrooms. After the room number will be number 1 and for bathrooms, after the room number will be number 2. Like this. Then we will know when there is any emergency

happens…Bedroom, then we will run into that location. Bathroom will run into bathrooms. So, it is the watches for care staff, which is the most hi-tech one we have got (Laughter).

R: Yeah, I think it is good that it is attached with the care staff.

P: Yes. So, we can go there in time.

R: Have you ever seen this kind of design tool or assessment tool for design for dementia care before?

P: For the standard right? It think it is in detail. I think it is good that we can score to each resort that how much they got. So, it can be shown to the guests or incoming guests or their families to make decision. Because some people, they are unexpectedly think about that some point it should be considered. For example, people come for inspection, it is hard to compare many places if they just come to look at. If there are scores which can be tangible.

R: For here, there are trips to go out into the community right?

P: I am the one who arranges the trip and I am the supervisor for every trip. Actually, I am the budget supervisor. I have to be there to control the budget for any payment. This is because the guests will not carry money with them. The one, who still understand, will have money. But we still take the worst case (she means severe) to go out to actually broaden their view/have an eye opening experience. But, they will not carry money. I am responsible for the money then we will send bills to the relatives.

R: So, cases with severe dementia, they can go out?

P: Yes. But there will be carers following closely.

R: Where do you usually go?

P: It will not be the same every month. Besides, I used the ones from the last two years, which can be repeated. At that point, the guests have already rotated. So, we consider the wheelchair accessibility…wheelchairs can get in conveniently….Only that (Laughter). Wheelchairs can access conveniently. Also, places should be quite interesting (in its content).

R: Any kind of limitations when going out?

P: Since the beginning actually, getting on and getting of the car. Yeah, it is common for old people. The van…it is very hard to get in because they don't have much energy to get in. Then…once I used to take them to Chiangmai zoo, I took them to a tram. There is a guest who has a large body size. We need 3-4 people to help him. So, it is quite a trouble.

R: Is it a big group when you go out?

P: About 5-6 people. A strong active person about 1-2 people. The rest is a group of guests with wheelchairs, groups of fat guests, and the group, which is dependent.

R: And, how many staff?

P: 1:1 for the guests who are dependent. Like 6 guests in total, there are 2 guests with no staff, and 4 guests with staff. So, it is 1:1.

R: So, the van is full.

P: Yes, always.

R: To what extent do you think design of the physical environment can enhance their capabilities?

P: Independent…Sometimes, the moderate stage guests do not take their staff with them. But that day, we don't have enough…the care staff is not here. So, we allowed him to go by himself…alone. Then, when he arrived, he got lost…in Central Festival Shopping Mall. It is certainly that it is my holiday and I went to the shopping mall with my friends. So, I saw the guest talking to the security guard…does not know where to go. So, I recognised him and walked to ask. As I have observed, there are not many people, who kind of helped him. When he approached people to ask, no one intended to help him to go what and where. If I am not there, how can he come back? I don't know. He would surely get lost. So, it is myself at last to take him shopping (Laughter).

R: He may be not familiar with the place…What about the concept of familiarity? Do you think the environment should be familiar as much as possible for them?

P: (Pause). This is because the environment is very different from their home countries. It depends. If they chose to retire here, they might want something different from their home. They intended to search for new experiences in their lives, or try something new. May be? I think like that. But there are some cases where relatives are the one who brought them here. That can cause homesickness…like the one who cries…to go back home.

R: So, do you think the design of physical environment can enhance independent living?

P: Yeah. I think design of the environment is one of the important factors for supporting them; including five senses that we discussed and also handrails. So, designers and architects should concern both our functions and usability. How it can be functioned and how to design the function…for them (users)…I mean the designers…to design the functions as easy (or simple) as possible.

R: So, activities sessions are everyday right?

P: Yes. But Monday and Thursday are for shopping…. Physical exercise is everyday from 11am.

R: Are the guests from room…will come out too? P: (Pause) I am not sure because her mood is not quite stable.

Participant 8: Nurse (Case Study 3)

Gender: Female; Age: 30+; Nationality: Thai; Time: 31:57

R: How can the designs of interior environment to support their daily activities?

P: But I think as a counter, it is kind of help because it separates function in particular zones…. For management and function of it. I think for the patient rooms, they are okay. But some rooms which are shared between two patients…but there are still curtains when we do some procedures with patients. When we do suction out the throat or change their positions to change diapers.

R: Are they couples?

P: No. They are mostly patients who are still conscious but they cannot help themselves. They are like twin beds but they have curtains to hinder.

For bathrooms…for the patients…if the patients take shower by themselves, there are handrails for them to hold. Then, it is okay.

But for the care staff, we can go anywhere. I mean we still have strength and energy. They can still help themselves.

R: Any kind of limitations?

P: I think…for here…I don't think we require adjusting anything…I think they might need to install more handrails for the older people for them to walk…along the corridor.

R: I would like to now for some cases that they stay in the rooms. Can they get up by themselves?

P: No. So, it depends on the care staff that will do physical therapy for the patients….Like, this particular time, they have to be in which room. So, for this, the care staff is responsible for arranging schedules to do everyday indeed.

So, they are partly dependent. But I think they take care of the patients really well. There are no pressure sore. But for patients who are independent. The care staff will take them by using walkers to get some air at the door area. So, it depends case by case.

R: What about wheelchair?

P: Similar…so the care staff will be there to take them out using walkers first and the care staff will follow them by wheelchairs. So, at least, there should be care staff to help at least two people…for one patient.

R: For the outdoor environment, have you used the spaces before?

P: If it is a vast area and the environment downstairs right. I think it helps supporting because the patients think that they can perceive the environment. They will think that they do not only stay in rooms. We take them out, depends on cases. For some cases, we take them upstairs.

R: Are there any design limitations for the outdoor environment?

P: I think you have to ask physical therapists, if…they do physical exercises…how they walk or what is their capability…(to what extent).

R: As you are nurses…are you the ones who take them to outdoor area?

P: Mostly, they are physical therapists who…I will only go there for a moment and come down because I have to stay at the counter. Just in case, some rooms, they can't help themselves. So they always press alarms to call us. When the care staff is not there.

R: Do you come here everyday?

P: Yes. But we also exchange with another person. It depends on hospital…like today who is free and then we come. So, mostly, here they are requested for morning shift from 8 am to 4 pm.

R: As here is a care home, do you think the concept of homeliness can help to support them here?

P: I think…it is good to apply. But if we want to apply the concept to this facility, I think it has to base upon…mainly on budget. Because it will cost a lot when you construct. Because it can…the minimum cost will be high (Laughter). Also, different people and different houses, they are not the same. Because it has to decorate each person each house…differently.

R: Are there any application here?

P: So, there is some furniture which the patients brought to the facility. In some rooms…such as refrigerators, beds…in certain parts.

R: Old photographs?

P: No, I have not see much about it. So, mostly they are furniture.

R: There are some kinds of activity rooms…

P: Yeah. It is like if the patients like to do some activities. We will do activities with them. I think they will stimulate the patients. It can stimulate the patients to bring their memory back…even though not to the utmost, most some part of it. It can help to stimulate for their entertainment. Yes, just that.

I think it can help them to talk to patients in certain levels. So, that we know…how/what are they thinking or what are they feeling right now. So, as they are staying in the room for a long time. It can give them chances to express…like drawing or do activities that they like.

But, for here, I am not so sure if I have seen it. Usually, activities will happen in an important day such as making merit or giving food offerings to the Buddhist monk. So, they are more like festivals.

R: As we have discussed, to what extent do you think healing environment can support people with dementia?

P: I think lighting; colours and sound can partly benefit patients with dementia. But, for the patients with dementia or Alzheimer's, they have an issue of confusion.

So, televisions (TV) cannot really help. If we turn on…something about violence, then they will remember that images. Then, they tend to fight with us too. It is like they remember, imitate and embed inside.

But, for lighting…for most older people, they have problems on their eyesight…. during walking in general.

R: What about for the care staff?

P: I think…for us, firstly, we will be more relaxed with the environment that we have encountered like this. When we meet the patients and to talk with patients, then we will not be stressed out. So, it will be more relaxed and talked to them…nicely. Also, at least, it can help in the aspect of mood.

R: Have you experienced using technologies in dementia care?

P: How the robots tend to help?

R: (Explanation)

P: Personally, I think robots can help…I think robots have both advantages and disadvantages because it cannot be accessed to the patients' mood that how the patients are feeling right now. I think robots…their benefits may be it can help for chatting when the patients are alone. So, it can allow them to have friends and not feel lonely. So, they may feel that they have friends with them all the time.

Also, for iPads….It can be used for playing games. If you choose the right games, it can be used to practice and rehabilitate. But some older people, they may not recognise iPads and don't know how to use them. They have to press application…in and out. So, they don't know how to use. Sometimes, in here, we tend to turn on televisions, with CDs for them to watch instead. So, iPads have not seen much in here.

Mostly, they will stay in their bedrooms. They will come out when there are activities and do physical therapy. So, in terms of social interaction, the care staff will visit the patients during the day and during feeding time. They have chances to talk and discuss. It is upon the routines and schedules.

R: So, have you seen this kind of assessment tools before?

P: If assessment tool for dementia…I have not seen before. This might be because I have not studied this particular subject matter directly. But, I think it will be very useful if it is for the context of Thailand. So, we will know that if any care facilities…may be accepted only this group of patients…only for dementia and Alzheimer's. So, they will know that there are researchers who have already studied like this and that…so that it can help the patients.

R: So, as you have mentioned, did you mean that each care facility should separate especially for dementia or Alzheimer's?

P: No…not really. You don't have to separate. But if you separate, it may benefit in another system. But, if they are mixed, I think that's alright (mai pen rai). They can be operated like that as well.

R: So did you mean that they can live with others?

P: Yes, they can live normally with others. For here, we kind of mixed them. For the cases of Alzheimer's, we will ask…what is today's date, what time is it, what day is it today. These are what we usually talk to them.

R: Dementia-friendly communities…

P: So, the patients can be outside like normal people right? In the outdoor environment…I think it is possible. Because normally, we have seen older people with Alzheimer's or dementia can spend their lives with us normally. So, we should observe symptoms and mood of the patients…just that. Because when we are outdoor, we don't know who have any symptoms inside. They did not talk or show symptoms with us. It depends on the case whether they have violent (mood). Because they spend their lives normally like normal people. So, we don't know if they have any memory problems. As we walk in public, we don't talk to everybody.

R: What about aspects of physical environment?

P: As you have mentioned before, I think enough seating and recreation place might be useful because they get tired quite easily…or confusion.

They can live their lives normally but it depends on their surroundings such as relatives or other enabling factors…if the relatives take them out, to go out and breath in natural environment, to see new things. Or, going to temples and making merits….similar to the patients…previously they like but currently they cannot remember and have not done it. But if the relatives know that they like, so they should do activities for reminiscence.

R: Like here, it is a care home.

P: Yes. It will be really helpful for familiar environment. Mostly, older people who live in here, they are separated rooms by rooms. So, they are almost the same and do not look like home. But, if we arrange furniture as their own homes, they are helpful…in terms of mental welling, mood, and feeling, from my observation.

R: Independent living

P: Environment and independence…It can partly help because as in here, they cannot help themselves as much. Mostly, it is care staff themselves who assist and help them. But if you have arranged the rooms to be home-like, they might have their strength or moral support for them. Like, they can eat by themselves like that. It can help them in certain levels. Actually, some of the patients, they can eat by themselves. But, for some cases, they don't want to do it by themselves.

Participant 9: Physical Therapists (Case Study 3)

Gender: Female; Age: 40+; Nationality: Thai; Time: 31:57

R: How do you think about the design of interior environment can support people with dementia and care staff in daily activities?

P: I think the place or the building is partly support. But, it has to concern about the suitability of some activities. I think the rooms for patients; the multifunctional room are not yet support the convenience of working on our duties to the utmost with all my capability…

In the case of dementia patients, in the early stage, if it is an environment, which he/she is not yet familiar with, the patients who are not familiar to the environment, they have to adapt. But if things that are in the rooms, are not enable for the convenience of doing their daily activities (various activities). So, the care staff will be the one who facilitate or provide additional services. So, they have to stay for longer, they will feel more familiar and get used to…to use their spaces. Sometimes, dementia 'disease'…we have to understand their nature, which is…the environment is a part of it. When they move out from their home and stay in this type of rehabilitate facility, the environment is different from the one they are familiar with. So, when they come to live here at the beginning, it will be different for sure for them to be familiar with. As they used to touch everything, which are in their own spaces, they are unexpected to be in the area where it is much smaller. So, functionality and picking up routine are different. Or, even the people who go into the rooms. Familiarity of faces, tones of voice of human resources that go into their rooms to operate their duties, this kind of factors are affected on how the patients will be offended. They will do or do not, participate or not. The place is physically supporting how they are going to do various activities and especially daily activities, in terms of ADLs. The ADLs are extremely effective. It helps them to do the activities smoothly (or not?).

R: So, ADLs are only for people in the first stage?

P: Yes. So, later it is the duties of care staff to do for them. The factors of physical environment will affect less in the late stage. But, the factors of physical environment of the rooms or the multifunctional room are affecting and enabling the convenience of people who assist them more. For example, if we need to move the patients from their beds to wheelchairs for taking a bath. Or, moving them to wheelchairs to wander in the garden. The place has to be enabling for dislocation. Or, if we need to move wheelchairs in and let the patients standing up and walk by themselves. So, the functional spaces are different from each other. It is different case by case. This is because the patients with dementia, they are not only lose only their memories, but also, they lose their control on motor power or the power of their muscle which requires some assistance. Or, some people, they have a condition of tonic spasm which can happen when they meet someone who are not familiar, then they will have this symptoms and their force will come out. So, if the place is too small or…it can affect the dislocation and can cause high risk of falling.

R: What do you think about design limitations in here?

P: Yes, I have some suggestions. They have already renovated or improved some parts. Previously, there used to be steps. There are sometimes that we have to lift up wheelchairs. Even though the patients who can walk or use wheelchairs, they have difficulties of lifting their legs up. Especially doors, where we have doorsills. So, the height of it has some effects. When they use bathrooms, if the doors are too narrow, when we turn, this group of patients are not like us, when turning (movement) they have to make a wide sweep. So, the functional spaces will be affected. Also, if they are not confident, the way they are getting up or standing up from toilets, the handrails at the side, which can enable them to do these activities easier. So, here, we still require doing some improvement.

R: Also, for the outdoor environment….

P: Yes it helps a lot indeed. This is because the patients need to see the environment outside which is not only a square room. So, at least it should be three times a week. Also, temperament is also important. Even if we are sick or not sick. If we see water or trees, we will be more calm. Sometimes, the patient with Alzheimer's, when they see something, they will be aggressive. Sometimes, when they see with this environment, it will make them calm. Also, they want to see and look at…and also stimulate their learning. It can support in this kind of development.

R: Can I ask if in the case of bedridden or the late stage dementia…can they come out of their rooms and go to the outdoor environment such as garden?

P: Actually, they can. It will be really good for them if they can. It will be the care staff who will service them by taking them by using wheelchairs. But the person who should interact closely should be family or relatives….that they are familiar with. It can really help in building the relationship. The familiarity or intimacy…. there will be some senses left. It will not lose all of them. Even though they are rarely come here, but as children or…That will be very helpful. I mean the relationship. If the human resources…and family members to participate in. We can have some spaces for them for care staff to push their wheelchairs up. But, the staff can be with them, but still we are the outsiders. When we are building the relationship, it will not similar with the family or relatives. If here, in this process, if there are relatives involving in this part, it would be great.

R: Like getting involved?

P: Not only going outside into the outdoor environment, the indoor activities, they can also participate in rooms if the patients don't want to go out. They can still do activities together.

Like, helping with feeding, cheering up, or talking. This will enhance the benefits, and will be better if they can go out into the outdoor environment.

For example, the case of Aunty, firstly when she came here, she didn't talk much. She will not talk but she will make some noises when she needs something. But if her family and relatives come, she can still remember that these are her children and her grand children. But if her husband talks,…if she heard her husband's voice, she will be quiet. But if other people, she will start to shout. So, it is an example of the importance of familiarity in here. At the beginning, her children come and take her out for lunch. Still have activities. But then, when the stage is progressive, the relatives never take her out again.

R: So, can she still going to the rooftop garden?

P: Yes she still can. But, sometimes, it is also depends on our observation. It is based on the training and education of care staff here. Sometimes, the care staff may not sure or cannot decide whether the patients' status today is suitable for taking the patients outside. Sometimes, they have to keep them here…on beds or inside their room. So, it means that they have to stay on beds most of the time. The only time, which they have movement is when they get down the beds and during taking shower.

R: What do you think about the limitation of the design of the outdoor environment to support the residents?

P: The main limitation is actually is the open space. The open space is good. But, the time period which the care staff take and have activities…the activities that they have to do (routine), such as feeding or something like that. It will be the time period (5pm) which sunlight…the suitable time period which depicts a beautiful scenery (aesthetics of scenery) or in the morning like 7 am. It is not the time which caregivers can take them up. Because it is the time for caregivers to give them a meal or water. So, the time which is suitable will be at 8-9 am and it is the time which the sunlight is too bright. (Laughter) You understand right?

But if there is a kind of shelter to cover or block sunlight and take them to see the scenery. Because sometimes, I also take some patients in other rooms upstairs but I have to choose the status of the temperature in the outdoor area too. Because somebody does not like. Not only patients with Alzheimer's but for the elderly, someone does not like too bright sunlight. Firstly, because the brightness of lighting is different from indoor…like this…the white light and when they go out to the outdoor area, their eyes cannot be exposed/their eyes are very sensitive to sunlight. There are various factors involving in this issue. So, we have to choose. I have to ensure for the caregivers too, if they are suitable/fit for them. If they go there first time and they does not like it, the next time they will refuse to go out. It is a fist impression of perception(?). It is about the stimulation of attracting them to come out.

R: Case study from the Netherlands describe similar to what you have mentioned.

P: I think it is a very good strategy indeed. I think it is good for them to be familiar with other things (?) and be bold to do when they are living in familiar environment. It is one of the stimulations – by telling that the patients cannot do these and those things, but judging due to the lack of motor power, and then they cannot do. It is not absolutely the whole. For this group of patients, when we communicate to them, we do not know exactly how they perceive the information. Because as they receive information and through their brain, then how they interpret the outcome. How they exactly transmit the information…then how they give feedback. So, we don't know exactly the process where they interpret this information. Mostly, they are built up by usualness. Because if we do…you cannot do this thing…(forbid them). I think the way they receive and transmit the information may have problems and defections. But the way to construct the familiarity and do something repetitively…it will become a routine.

More than like going into other (new) places and telling or adapting and be familiar with it again.

In fact the Alzheimer's and dementia cannot be cured, but this (kind of environment) can slow down the process. This kind of environment can be used to slow down. They cannot be cured and stages are progressive. But how can we develop to slow down the progress until they are bedridden (last stage), as slowest as possible. If they are familiar, they will still want to do activities. But if they are not familiar with, they will not want to learn or do anything. So, they have to stay on beds because there are no stimulation or support to eager to do something. So, they will go to that stage faster.

So, for safety aspect, sometimes, we have to assess whether that person has a condition of tonic spasm or not. So, we have to observe if they are reaching out, does it cause risks of falling. Or the person him/herself, does he/she needs to install more handrails to hold it everyday…like walk and hold. So, it has to be additional to enable the risks of muscles.

For the activities, there are partly encouraging the stimulation. Sometimes, 'we' (as normal) visualise images, space arrangement, and decoration, we will signify and communicate that this is a kitchen, this is a bathroom, or this is a bedroom. But for the decoration, we don't have to be this much. But, we can communicate it through images or something like that. They will be confused. Sometimes, it can encourage learning because if they are confused or questioned, they will go, touch, or pick that particular objects. But you have to make sure if those materials have high risks or if their hands are not stable, they will be risky of breaking or not. This is an additional point, which I go into details.

But this kind of arrangement…as a pattern like this, it is also helping stimulation, communication and recognition of that places such as this is a kitchen, a dining room, or a bedroom. I think it has benefits.

But, for here, we have not done like this. We still separate the rooms and we have a chef to cook for their meals. I think it (case study) is a good design, because Japan is starting to do it also.

Actually, it is not all about people with dementia, but also people with stroke, as we have to stimulate them to do ADLs and not to become a bedridden. So, they are designing a place like this with activities. So, what do you want to eat today, then they will go downstairs to cook by choosing ingredients e.g. eggs, chicken etc. And, the space arrangement like this, it will help the patients to heal themselves faster…to take care of themselves. It depends on the stages of their brains, but it may take about 6 months, but some people might be faster because they have stimulations and attractions to do it. This is for stroke cases. But for Alzheimer's, it is more about familiarity and habituate. If you take them every day…everyday…they will be habituate.

R: What about healing environment? Have you heard about it before?

P: Umm…I think on the 6th floor…it partly have this kind of environment and factors. However, the limitations are more about the factor of time. So, it causes delay and it is hard to get conceptual image. But if you ask me if this kind of factors is helping, I think it totally stimulate. For example, if there are birds, they stimulate them to walk closely to look at birds. It stimulates them to walk. It is automatic things. We cannot say like…Aunty, please get up and walk. You cannot. So, it has to be familiar…way of doing…the posture of getting up. So, you have to stimulate a little bit on knees, so that she can stand up. If you say…get up…get up. She will not do. But it does not mean that she cannot do it. So, it is more like motivation…for them to go and see. I think it helps. But here, we have not emphasise this yet. On the 6th floor, we can do. But mainly because of human resources, we are lacking of methods or knowledge

about…because we have to know that the 'actors', the study or level of education, things that they know and understand about the people…patients they have to take care. How they have to stimulate or support. So, the operating system is more like a routine job and nursing care. But in terms/aspects of stimulation and support, as a healing method…psychological method, the care staff is lacking the foundation of this. So, this means that here we cannot yet operate this kind of stimulations. But sometimes, I will take them up.

R: Are there any kinds of technologies used in here?

P: If there are the development of vital signs will be great for example heart rate. This is because mostly…not only Alzheimer's, they usually have other diseases underlying. So, when they walk, not only getting lost. But other emergencies can happen too. If it can be added up. It will be better than just monitoring their locations. Because for this group of patients, they don't only have Alzheimer's. They have other underlying diseases. If you want to develop and help more lives...

R: What about this kind of innovation such as design tools. Have you seen it before?

P: It will be important to attract the owners of the care facilities to emphasise and see the importance of the design that can enable the convenience of the users. This is because, especially in Thailand, we are lack of principles of ergonomics to enable the work of the staff as well as the patients…to be accessible to every place. This will be very helpful including symbols and signage, ramps for staff and patients. This is because everyone got back pain for all staff.

R: This links towards the concept of dementia-friendly communities. Have you heard about the concept before?

P: Nowadays, people are ageing and live longer. But as we live longer, the question is how is our quality of life when we are ageing. How can we slow down their stages. It is really great. This is because it can stimulate many activities. People…only they get up and sit upright, it is completely different when you are lying down. It is very good if you can do that…that kind of community.

R: But, to what extent do you think design of the physical environment can enhance their capabilities?

P: I think if people are facing something difficult, we will not do it. Anything that is designed to stimulate and motivate them to easily use it, then they are willing to do it more. If they are easy, they will do it. If they are difficult, they tend to refuse and don't want to do.

Participant 10: Nurse (Case Study 4)

Gender: Female; Age: 30+; Nationality: Thai; Time: 33:05

R: How do you think the design of interior environment can support people with dementia and care staff?

P: Overall, for here, firstly I would like to talk about the unreadiness. Here, there is a limitation in terms of spaces. So, there are many concerns that we cannot arrange many things like in foreign countries. This might be because it is the limitation of the countries' economics or budget of the patients themselves. If in the case of the patient with dementia, if we create the better environment or home-like environment, there might be an extra expense. So, that

causes the limitations. Also, the number of employees is small comparing to the numbers of patients…(staff ratio)

R: How many care staff in total?

P: There are only two nurses. Also, there are about 10 caregivers in total.

R: What about in the bedroom area?

P: For the bedroom area, if you mean about the place. The space is limited. And, we cannot do much to support for the patients. We cannot arrange a corner that makes the patients more relaxed…. there's a limitation.

R: What about bathroom area?

P: Yes. We emphasise on safety. So we have handles/handrails.

R: There is a rooftop garden upstairs as well. For the patients, we often take them to see scenery upstairs. Here, the scenery is quite nice. It can make them feel relaxed. But as I have mentioned, as we have limited numbers of staff. Once we take them upstairs, it will take approximately about 15-30 minutes. And, the patients downstairs we still have to take care of them. So, there are limitations. For this type of patients, we need to keep an eye on them to be careful with falling and accidents.

P: Do you usually use elevators to take them up?

R: Yes. But sometimes we use stairs (for exercise). Most of them are the ones who can walk or partly take care of themselves.

P: What kinds of activities do you usually do upstairs?

R: Sitting and there is a care staff to talk to them. But, we will not get in terms of activities. If activities, we will do it here (multi-functional rooms) instead.

R: How did you communicate with the Japanese residents here?

P: Most of our staff and caregivers can speak a little bit of Japanese. The caregivers here are very smart. The one who works here for a long time can speak Japanese. Also, most Japanese patients who come here are mostly the Japanese who live in Thailand before. So, they can speak a little bit of Thai language. So, bits and pieces.

R: Also, are there any limitations for the outdoor environment?

P: The arrangement of spaces? I want it to be more like a garden. Now, it is more like a rooftop and we see the natural environment. We did not do much decoration. But if we have a space where they can walk and sit, relax and relieve stress. This might be good.

R: How often do the residents go up to the rooftop?

P: Previously, Grandpa Anan and Otani (Japanese name) went upstairs everyday. We are trying to group the patients to go together. So that, they will go up together and there will be only one caregiver to monitor. So, we don't have to waste the staff. The downstairs one can still continue working on their jobs. But, now we are not going upstairs because it rains everyday. But, if the weather is enabling, we will go upstairs everyday. So, it depends on the weather actually.

So, when we go up, we usually go in groups because it is more convenient. Because we will bring only one caregiver. But, we are trying to manage time to bring the Japanese to go up and exchange the shift to take care them.

R: Cases in the Netherlands…

P: I think it is good for dementia patients because the patients cannot remember anything new and cannot remember quickly. So, if we arrange the environment similar to the one they used to live in. Like, if the objects that he/she used to pick…I think they can remember in this part. Also, they can partly take care of themselves and increase their self-confident and self-esteem that they can partly take care of themselves.

R: Alzheimer's are mostly bedridden. The Japanese, their children are more like…accept taking care of…to be at the facilities. Both of them. They can talk normally.

R: For social environment aspects,

P: I think it can. This is because when we take them to the physical therapists, they will communicate and play games and do many other things. But before doing, they have to be explained what to do, how do you choose colours etc. So there is more social interaction. The patients who are ageing, even though we are talking not many words, but they will tell long stories to us. How are they at the present (currently). The patients, as I can notice from…if they stay only in the room for patients, they will be more lonely. So, they want to talk more. So, like us, if we have to stay alone for a long time…we will be lonely.

R: So, these are examples of healing environment.

P: For the colour aspects, we have. But for smell (odour) and lighting, we did not pay attention much on the lighting because the room has glass windows. But for colours, there are some. But for smell, we have not applied. For, colours, we used colourful balls for the patients to pick up. So they can use eyes and hands to see colours and answer what colour it is. Then we will let them to throw into baskets. As a result, they can do many things at once. So, these are included in the activity sessions.

R: So, have you been involved in these activities?

P: Yes, sometimes if I am free. I will only walk there to see what they are doing. So, they are mostly one-person (1:1) activity session. But the Japanese will do activity together (the ones in the shared room).

R: What about technologies…What do you think about the concept?

P: I think if you use some technologies. It is possible. But it is only for some people. Such as iPads, if the patient who's their visual function is still fine, they will be able to use it. But if it is robots, I don't think it will be work effectively as human. This is because when we talk to the patients, we will know how they…how the patients talk in this manner, how do they feel/what is their feeling. It is similar to Grandpa Anan, if we use psychology to talk to him, we will suddenly know that he doesn't want to stay in here. The patient wants to go back home all the time. So, we will refuse to talk about something related to this topic (about home). So, we have to change to talk about the topic, which enhance his self-confident such as what kind of job/work do you used to do? Then, he will tell us the stories and he will be proud/pride of himself. But, I am not sure if you are using robots, they will be able to know which topics they have to talk…

So, here, for technologies, some relatives also bring iPads for listening to music more…for listening to music. Also, we have nurse alarms, which we installed in bathrooms and bedrooms at the bedsides for safety reasons.

R: Dementia-friendly communicates. What do you think about the concept?

P: I think it is hard to be done in this context. But for pathways are the most possible. Because the patients with dementia…

Also, what I have seen are the more adaptable one / cost effective one as a nametag instead of GPS. What I have seen is…there will be a phone number and relative's name in the patients' pocket. But to be that independent, the context of Thailand might not be that developed.

R: But if their stages are more advanced?

P: I think they will need someone to take care of them. But the care staff will have some limitations for having accidents…. limitations in visual impairment. This type of patients, they have problems with their eyes (visual), and to balance their body and many things, which can cause certain problems and accidents (21:00). So, it depends on the conditions of the patients.

R: Are there any outing or going out to the communities?

P: Just a plan for now. The ajarn has told us about the plan that there will be like for the patients to go out like a fieldtrip or educational tour. To go out and to travel…like that. To make them not feel like hospital-like. There are some cases in foreign countries where they have already done it. But still, the relatives/family should go with them and also with the care staff. The owner has a concept that she wants the patients to go outside. So, there should be care staff as well as relatives to go with. Like when the patients who have this condition, when they go out with the relatives, they are inconvenient. If the relatives want to travel with the patients, so here we can manage and arrange a trip with care staff to take care closely. So now it is a plan, not yet operate. Especially the patients who can take care of themselves.

R: To what extent do you think design of the physical environment can enhance their capabilities?

P: Both one-person (1:1) activities, as well as a group activities which make them not sad. To have friends to talk to. But for here, there are some bedridden cases, who we cannot group them. We can have knowledge exchange or talking to each other. If it is a facility which specialised for dementia care. The activities will be more than this. Because here, it is more like…mixed. The patients who have stroke will require other kinds of physical therapy. Also, the patients with dementia will require other kind of physical therapy (special type of). So, we need physical therapists that is important. But here, we have only 'normal' physical therapy. So, if we divide them into sections, it will work better.

Participant 11: Physical Therapist (Case Study 4)

Gender: Male; Age: 25+; Nationality: Thai; Time: 31:15

R: How long have you been working in here?

P: 7 months…

R: How does the design of the interior environment support people with dementia as well as care staff in their daily living?

P: So, in the room which is specialised for physical therapy. There are rooms, which are separated for checking up. Also, there is equipment, which are helping and assisting physical exercises. I think it is helpful and it is not too bad or worst. But it is still support in a good way. It can partly help the patients. Also, in the shared rooms, the spaces are fine right now.

R: What about the bathrooms…?

P: Actually, the room for physical therapy should have a toilet inside. This is because, for older people…in the aspects of excrete system, they cannot retain their urine for a long time. For example, in some cases, we have to quickly take them to the toilet, which sometimes it is not in time. So, for the additional comment, I think I would suggest a toilet inside the room. So, it is like…a distance between the rooms to the toilet over there (at the end of the corridor) is quite far. As the patients are ageing, to get there, it will take time.

So, each of the shared room has a capacity of six people in total. For now, we are not reaching there yet. So, in the aspects of enough or not enough, we cannot foresee the image of the usage (with full capacity). But, for now, we have five people, so it is still fine right now. But if we have an additional patient…so, if the space is not enough, we have to adapt beds, which I think I can do.

R: What about the design of the outdoor environment?

P: So, I usually take the patients up in the morning and again at 6 pm, which during that the assistance will take care of them. So, from my experience, I took them in the morning for seeing…and having breakfast, and do physical exercises in the garden. So, they only walk and look at trees. Walking on grass…by asking if it is good for the patients, I think it is good because they can touch more than just the normal ground. So, this point is one of the benefits.

R: Do you think there are any limitations on the design of the outdoor environment?

P: (Laughter). For the suggestion, if the patients can do other activities in the area such as doing some horticulture (planting trees and planting flowers) will be great. Like the uncle (points out), he likes to plant trees and flowers…But, the first reason is we don't have a sun shelter which the patients will come for physical therapists at 8 am, and the sunlight is already shine (too bright and too hot). So, for the patients to be there, we are afraid that he will have a fever. So, I think there should be a space where it can partly block the sunlight.

R: From your experiences, do you have any cases where you take care of people with dementia or Alzheimer's?

P: So, for the two patients (he means Japanese), she is unfriendly. The patients of this type (he means dementia), will be a little bit fierce and moody. If she abuses, she will abuse. So, firstly, I have to pay respect to them. So, I need to use good terms/words with them. This point is very important. For the physical therapy, the cure is divided in to three parts including physical exercise, daily activities…physical activities, and daily living, which they have to practice their brains which include writing, reading, pronouncing, and watching television. So, she is 93 years old right now. I think she is ageing, but I think she have not been diagnosed yet. But, the other one is more like…the 'normal' forgetfulness.

R: As they are people with dementia…how do you think home-like environment can support them (as examples?)

P: I think the most important factor for us is space limitation. If you ask if it is good, it will be good only for some people if they want this (he means the Netherlands' cases), but for this

type, it cannot support like this for sure (he means the budget wise and also the target group). This is because…it is more like a personal limitation. So, it is not suitable for everyone for sure.

R: What do you think about home-like environment?

P: I don't think the room arrangement and the decoration can support the conditions of the patients. This is because it depends on the healers…that how much they can support the patients. I think it depends more on what the patients like and trying to do what they prefer as much as possible to maintain their personhood (as themselves) as much as possible. The healers mean physical therapists and nurses.

R: Is it about communication?

P: Yes. Communication…it can stimulate them. If we cannot…communicate with them, it is over.

R: So, have you studied Japanese before?

P: No, I studied Japanese by myself here. So, I practice it myself here.

R: What is your motivation or your technique for approaching or communicating with them?

P: I studied in theory before, so I will know if how much this disease will be severe. So, we need to calm them down first. We need to calm them down. So, that we can move on to another goal. If we want them to walk…it is the fact that they don't even have to come to the physical therapist room. They can write on a table beside their beds. But I (as a healer) want them to walk for stimulating their ADLs. So, I want them to walk. At first, they refuse to walk, but later we try to please them at first (and become conceited). So, they will later accept to walk with us.

So, we need to be familiar and build up friendship first. It will approximately take about 3-5 days. At the beginning, they will just be on their beds and have physical exercise sessions (on beds). So, later, we are closer and we are more trusted (Laughter).

R: As we have a conversation earlier, how do you think the physical environment support care staff?

P: In fact…I think the main factor is more about the healers or the stimulators (people) at first. But then, the outer factor may support in the same direction that have…for example music to stimulate that they have to sing songs today. Today, there will be a cooking class…have kitchen and ovens, or have eggs to whisk. The cooking room…if there are these two factors, it will be good.

R: So, I want to ask if the physical environment also affect the care staff?

P: (Laughter)…in my opinion, I can work anywhere. For myself, I can heal anywhere. But, it is more about what kind of activities I can do with the patients. So, it is like I am fully charged, I can be adapted to anywhere.

I think it depends on the individual basis. I see it as…if I want them to walk; I have to find ways for them to be able to walk. If I want them to write…the equipment, surely it has to be there, but if we have to renovate to be like that…it is inessential. It is more about human resources.

R: To what extent do you think healing environment is essential in this context?

P: Yes, it is good if it arrives to that point. For the garden and natural environment, we also have. But, we have some limitations that we don't have a shelter. We are afraid of our patients to have a cold. But it is also good because it will produce immunity for the patients. They can also relax when they see many colours from the surrounding. Not only today, they come to this room, and tomorrow they have to come to this room again (not getting bored). So, they have more variety of choices.

R: How do you think about the concept of technologies for dementia care?

P: (Pause). So, like playing on iPads, I think it is fine. But, like bringing in robots to talk to the patients right?...(Long pause)

(For leisure?) So, as a physical therapist, we would like to emphasise the use of physical activity will have more effective outcome. Of course, instead of staying (still) indoor to play with iPads or watching televisions, so for only 30 minutes, they will get bored. But the benefits of doing physical exercise are much more. If I am answering in the aspects of physical therapy, I will recommend the physical exercise more.

R: I want to ask if physical exercise is a kind of healing or therapeutic approach?

P: Yes…if we are talking about Neurotransmitters…Then it is. It is a part of therapeutic approach. So, walking is to maintain the endurance of the patients. If they can do, then it means that their health will be better. In terms of their heart rate…

So, it is more like you have to push them out to do activities as much as possible, instead of playing with technologies. It is much better than sliding and watching on screens. So, I like to do writing activities or throwing balls. So, I answer in the aspects of a physical therapist.

R: From your experience, have you been to the outside communities with them. Or, how do you think about the concept of dementia-friendly communities?

P: So, if they are independent by doing everything by yourself. They all have the condition of forgetfulness. So, they have the main problem of cannot go back to their houses. Secondly, as they are forgetful, it can cause injury or accident with himself or herself. So, you have to make sure if pathways have railings for them to hold. If they have colours to separate between each step or not. It has to be in that stage because we have to make sure about their safety. So, they are also a person who requires safety in their lives. So, it has to be functional. So, it can happen but you have to concern about safety first.

R: Referring to safety aspect, have you ever used a design tool or an assessment tool for dementia care? If yes, how do you think about it?

P: So, the assessment tool needs to be adapted into Thai context first. For example, if this kind of assessment tools, it has to be adapted in parallel with the Thai assessment tool first. If it can do…

If there is an assessment tool, it has to be comparable. What I mean is it has to be able to compare before and after. For example, when the patients have not adapted their ergonomics, and after the adaptation, is it better for them? So, it requires the comparable to visualise that it is good. So, for the building, it should be like before and after the construction that it has affected in better ways.

R: Have you seen this kind of design tool before?

P: MMSE.

R: It is more like the assessment for dementia?

P: Yes. But it will make the tool more credible. It has like a comparable so that we can compare for the patients. So, it will make sure that the patients are better indeed.

R: Here, as you have many foreigners. I would like to ask about the concept of familiarity.

P: I think languages are much more important. Because we have to know what is their aims or objectives….if they want to walk or physical exercise. Like, languages are more important in terms of…if they are cold. We can decrease the air conditioning. If it is hot, we can increaser the temperature. But, if the language, if we cannot not communicate, it means that we don't know what to do next….

R: What do you think if you have various nationalities in the future?

P: I am not really sure. May be training?...so like if we cannot communicate and we have to arrange activities, they will not be enjoyable. So, we need to communicate with them.

R: To what extent do you think design of the physical environment can enhance their capabilities?

P: It can help if you do it suitably/appropriately. Firstly, for the group of elderly people, we have to make sure that we have railings all the way because they have to walk. This is very important. If there are steps, there should be colours that separate and can be seen clearly each step. So, if we improve in a good way (he means functional), it will be good.

R: So, as dementia is progressive…

P: So, we have to assess first who can join the activities.

Participant 12: Physical Therapist (Case Study 4)

Gender: Female; Age: 23+; Nationality: Thai; Time: 35:15

R: The first question is how do you think the design of the interior environment can support activities for people with dementia in their daily activities?

P: So, there should not be too much objects as obstruction….if we go to do a physical therapy, it will not be convenient. If it is untidy or obstructed in the part of the patients, it will be hard for them to get up or stand up. So, it should be as clear as possible. Also, the storage of stuff and organise them in place will be good.

If the patients get up and walk…and if there are objects or stuff which are untidy or there are too many objects (too much stimulation), so they will not know what to pick up or what to touch. This causes the risk of falling. This is because their visual function is declining.

For example, in the aspect of safety, if we are going to fall down or stagger (lose balance or equilibrium), they will hold…but someone who think quite slowly, they will hold something, which are unsteady. The objects, which are, unsteady. Then, go astray and fall.

R: So do you think there are any kinds of limitation?

P: In the bathroom, it helps supporting especially the patients with stroke, Alzheimer's, or other conditions, which cause slow motion. This is because…I think there should be handrails so it can create and enhance stability in walking, turning their bodies and sitting on a toilet.

R: So, how many cases with dementia here?

P: There are 3-4 people in total. So, one of the cases are in the state of prevention. She can still communicate, but their short-term memory is losing a little bit. So, another one, he/she is almost 100 years old, so he/she usually communicate in Chinese most of the time. And, he/she cannot remember anyone now. This is from the information from relatives. But he/she cannot walk now. We can only take/bring them to get up. But he/she cannot walk. Usually we use wheelchairs. So, we always do physical exercise on their beds. We are trying to let them get up by themselves. He/she can still raise up their hands and legs. They are still able. But most patients, they are not really accept, so we usually do it for them. They are not really corporate.

R: What about the design of the outdoor environment especially upstairs?

P: Yes, I have chances to use it. For some cases who are nearly bedridden, or their vital sign stable or they can balance when they are sitting, is still fine. We will use wheelchairs and bring them upstairs for taking the scenery. The patients like it because of cool breeze/ventilation. So, seeing plants, grass and flower, the patients like them very much.

But at first, the physical therapists and doctors have to assess first who can go out. But mostly doctors will order us, but if we assess and the patients are perceived but their vital sign stable might not be fine, then we will inform the doctors.

R: Are there any design limitations?

P: I think…flowers are not many and most of it is only green space. Also, most of…there are birds which for now there are not a shelter to protect from birds' poo. So, we will make sure first, if they are too many birds, we will not allow them to go out because it causes risk of infection. So, it is understandable. Also, the patients are likely to go out. But it is the only one area that the birds usually live in (at the balcony). And, I don't know how they are going to solve with this problem. So, there might be an awning or overhang to protect from pigeons.

R: For people with dementia, it is progressive right…

P: So, we usually assess the stages with the doctors. In their late stage or last stage of dementia, they are mostly bedridden and cannot go anywhere. But the ones who we can take them out are in stages 2 and 3. Like the first stage, they can still walk. Also, stage 2, they can walk. In stage 3, they start to have some limitations and they might have to use wheelchairs. And, stage 4 is bedridden.

R: For bedridden…

P: They totally forget. They cannot remember anyone.

R: But can they get up?

P: Yes…but we have to help. And, we have to use our energy and our own body for them to get up. So, there is a physical exercise, which physical therapists will do for them. Also, to let them sit by holding handles on the bedsides. So, mostly it happens at the bedsides.

R: Are there any late stage dementia here?

P: No. But there might be one case on the third floor who is 100 years old. She cannot remember anyone, but she still can talk. Her short-term and long-term memories are gone. So this is information from her children, sometimes she cannot remember her children. She can still communicate, but it has to be in Chinese because she is originated from China. So her children/family is the one who talks to her.

R: How often the relatives come?

P: They come quite often. They will come and stay at the bedsides most of the time. But some of them who have got strokes or Alzheimer's, the relatives usually bring them up to the 3rd floor for the atmosphere. If they want to talk privately, they will come in the early evening or in the early morning, which the relatives will come.

R: So, this is a case in the Netherlands…

P: I think it is good. Because the patients with dementia, they cannot remember anyone, so this is good that they have photographs. They can consequently remember. Also, the design for their preference or lifestyle, the patients then will not be moody/in a bad mood. For dementia, the symptoms are they have a fluctuating mood. If they match with something that they like or please, they will be calm and have concentration. But, here, we have not applied this kind of concept to here.

R: So, these are like rooms for activities.

P: Yes there is some interaction. For example, some patients they like and they are interest and they can remember. Because mostly they are based on the lifestyle of the patients.

We have jigsaw puzzles, drawing,…sometimes, we are asking them to calculating something. Easy mathematics. Also, we ask them first if they like to colouring. Then, we will print out images for them to colour. Also, some patients may ask us "can we listen to music". We will then..ok. Then they will think about the song names, then we will turn on for them. And, they will do the activities with the music as a background.

R: Is it group or 1:1 activities?

P: Mostly…some patients like to do it alone (personality). If they come in…There is a case upstairs, which he/she does not like, crowded. So, we will take he/she alone. But for the two Japanese, they will come together. They will persuade each other to do activities. If they come alone, it is like she has no friend. But for the case upstairs, he/she does not like people, so mostly he/she will come here in the late afternoon. So, we usually make a timetable/time schedule for the patients.

R: For the Japanese, could I ask are they having dementia?

P: Yes they are. One of them is in the state of prevention because she always forgets something. So, she takes medicines to slow down process. But…(Talk about other cases).

R: Do you think for them as residents…to what extent healing environment is essential?

P: This is also effective. This is because for the lighting…it should be the lighting, which is bright. The atmosphere should be quite and silent and not busy. For a group activity, these factors (sensory) are helpful for the patients to concentrate on the work they are doing, pay attention and focus and not ADD (Attention Deficit Disorder). To make them feel more relaxed.

R: Do you think this kind of environment can also support the care staff?

P: Yes….But at the corridors, I think there should be more handrails for them to feel more stable when walking.

R: Can you explain more about the handrails?

P: So, most of dementia patients, they are diagnosed and found at the age of 60-65 years old or more. Fall prevention is the most important protection task for physical therapists. If they fall down, they are ageing and we cannot do anything much. Also, the physical fitness/physical capability will be hard to restore and it will be slow down. So, this point of fall prevention needs to be emphasised….for their independent and mobility…

R: Next question is about dementia-friendly technology. What do you think about the concept?

P: By using technologies, it is good that it can collect the data from the patients….Collecting data from the patients that I have seen in Bang Kae area. So, they will use the collected data for an assessment such as brain assessment. For example, they will let the patients to play games based on the assessment. So, it is like playing game and then it will become to be an assessment. But for here, we have not applied any kind of technology yet.

We have an easy puzzle game, chess, or simple mathematics questions. Listen to music that they like…turn on music for them. These happen mostly in the activity room here.

R: How many residents come to the room each day?

P: Probably four people. One in the morning and three in the afternoon.

R: What about robots…what is your opinion towards robots?

P: The robots can talk right?...I think if it can do like answering, asking, or kind of Siri-like, it might be okay. Is it small or large? I have to see its function first, then I will have some opinions (Laughter).

R: Alright. So, have you heard anything about dementia-friendly communities before?

P: I think this is very important. But, in our context, it is not yet widespread. If they (means relatives) take them out, it will be only go for a walk in gardens or parks. The facilities are not yet take them out into the outside. I think this is very good because it helps them to go back to the communities to do activities or learning…learning daily activities that they have been forgotten. So, they will go back and repeat their daily activities and remember what they have to do including transportation. Like, this is how to take a bus.

R: So for people with dementia, it means like they have to do something repetitive to repeat themselves?

P: Yes…it is like to stimulate them to remember things. In medical aspects, if we did all the assessments, the first stage is we will open photographs for them to look at. It is mostly for them to review their memory.

R: This is an assessment tool…

P: I think it is good. During my study, we also have this kind of assessment or tool for the patients who use wheelchairs. Like, we have to inform the relatives that the door…it is too narrow, it might have to repair. I already forgot that how wide it should be (Laughter), ramps and the steps. Also, we need to the adaptation of corridor, toilets also, and bedrooms for the

convenient of the patients and the fall prevention…for their safety and security. In addition, the ground such as the floor of houses has to be in concrete. Lighting has to be bright enough.

I think it should have…so we will know what are the limitations of the patients. Then we can design to fit them.

R: What do you mean by limitations?

P: Such as are they good at standing. Or, are they good at stepping up. So, does the floor fit them? So, the environment has to be adaptive/adaptable to the patients. As we have assessed them, we will know which kind/type of environment fit them the most. This is because they are different. Each person has different illness, but…may be the same, but different levels.

R: They are living together…

P: They cannot choose whether they want to stay in private or shared rooms. But if the patients who have not got relatives, they should better stay in the shared rooms because it is easier for us to take care of and monitor. If they want to get up or sit. So, it depends on the relatives and their objectives.

R: How do you think the concept of familiar environment can support the residents in here?

P: Yes, it definitely supports the patients. Firstly, their mental status…it is very important. For example, Granpa Anan, his house has a garden. At the beginning he was a little bit petulant. But when we took him up to the 3rd floor to get some fresh air. Then he saw green grass, he can see because he has visual impairment, he took sometimes to focus his eyes. Then, he mentioned 'you have to plant more jasmine', when I am at home and came down the house, I can smell its fragrance when there's wind breeze.

For the two Japanese cases, they are quite hard to take out from the room. Another case, she likes train because she came from Nakornnayok province. So, she always told me that how to get on a train when she saw trains. But actually it is airport rail link train. So, she is stimulated to open her eyes to look at trains. If I told her, the train is coming, she will open her eyes. She always closes her eyes because she is not interested in surroundings and environment. But if she sees something that she likes or interests, then she will open her eyes.

So, we will be ordered by the doctors to see which cases the doctors want to rehabilitate or recover (if it is here).

R: What about the foreigners?

P: There is another Japanese case, who is not feeling…not very responding. But the doctors mention to us to take him in a wheelchair. So, we take him in a wheelchair. Also, the partner told us that he likes Americano. So, we will bring an image of coffee, and music for his to listen. Also, there is an imitation of Sakura flower (Japanese flower) for him to look at. So, we checked and he turned around. Because they are ageing, so it is risky for them to become bedridden.

R: To what extent do you think design of the physical environment can enhance their capabilities?

P: For the design aspects, like examples that you have shown, I think it can. But in the context, we have not applied. I also studied like this (the concept she means/in theory). In the context, as I have seen if the residents for people, it is a bungalow type with an activity area in the centre. It might be because of budget, which I am not so sure. So, when I studied, it says to

do things repeatedly, and do activities the patients like, do physical exercise, and exercise. But in practice, there are many limitations.

(We continued discussion about activities, and she mentioned that Japanese does not like to do (physical therapy) with her. The clients also chose who they want to be with.)

III. Interview transcriptions of caregivers (Group 3)

Participant 1: Caregiver (Case Study 1)

Gender: Male; Age: 25+; Nationality: Thai

P: (Pause)…Inside the pavilion right...Yes it helps. But sometimes, it does not support that much. This is because there are too many people living together in one building. When there are too many people, our patients…they will be more confused. It does support but because of the numbers of rooms might be too many. Also, the number of rooms in each corner might be too many also. There are three rooms in each corner. Like, inside the rooms, there might be nothing much. But when they come out of their rooms and meet many other people, it makes them more confused and more irritable. Like, when they walk out and they encounter too many things. Then, they will walk to that place, or those places and they will not concentrate with us. Just like that. Also, sometimes, there are too many objects…like there are too many tables and chairs. Sometimes, inside the building, it is too small. I mean the walkway…like here (he points to the corridor). I mean the corridor and inside the rooms which also have too many objects. Inside the bedrooms…there are too many…for example tables or their objects that are too many.

R: For the living area in front, do you have chances to use this area such as dining with the guests?

P: Yes, in the front zone. But, sometimes only. This is because…there are guests…based on how many guests are there. Sometimes, it is okay and it is not. Each individual guest has different ways of eating. Each individual have different personality. Like, some people like to pick other people's food.

So, we would have to separate the tables. We will separate them in different tables. But, even though there are many guests, the chairs are not quite enough. I mean the spaces for dining is less (not enough). But our guests are increasing.

Sometimes. It depends on if our work is busy or not. It depends on if there is enough staff to take care of them in order to eat with the guests. Sometimes, we serve the food and we are going to feed the guests…So, it depends on how we talk with the team, how we manage and how we are going to take care of them. Like, one-person serves, and another person feeds the guests.

For the concept of home-like or homeliness, I think it is fine if they live in there temporarily. Like, they can enter or be in there only sometimes. But, if they have to stay permanently, I don't think it will work efficiently. Because…our patients, when they see stuff and objects, they will just pick them up and move which…like the stuff will not be in the same place. Also, the

safety issues too. There might be too many objects that they don't know what they are. They will pick randomly and the objects will be destroyed.

R: I heard that some of the guests are homesick. How do you think the design can support them in this aspect?

P: I think it can support. Like, it allows them to be in the same old atmosphere such as the same old images, or the same old wall colours, or, the same old corners. I think it can support. But…they have to be there sometimes only. Like, when they are homesick. But, not be there all the time (permanently). So, it should not be the guest room itself (have to be in a shared space). It should be another room…a separated room. Like, if they are free, we will bring them and sit there. So, it should be only in the living area, not in their bedrooms.

R: Yeah, I have noticed that some of the rooms, there are not much stuff in there…

P: Yes. It is mainly for safety reasons. Some of our cases…inside the rooms, there are nothing. There are only a television and a bed. This is because some of our cases, sometimes they pick up something continuously. There is one glass that he/she always takes glasses into his/her room and breaks them inside the room. However, we did not know that he/she brought glasses inside and broke them. It is very dangerous. So, we took most objects out and left only a television inside his/her rooms.

R: What about the design of the outdoor environment here…how do you think it can support the care?

P: Yes, it is beneficial. The time when we take them to the outside, they are happier than being inside the building (reduce his voice volume). It is like changing to a new atmosphere. To different places that are not the same. Change to different places that are not repeated (again and again; have not been before). Yeah…from my observation.

I like to take them to the back area, which has a Sala (pavilion) and a lake because it is shady (cool and pleasant). Also, there is wind breeze, which we often go there when there is sunset. Both of myself and the guests, we like to go there to see sunset. That place is the shadiest spot of Vivo Bene.

R: Any limitations of the design of the outdoor environment?

P: Yes, of course. Sometimes, there are ascent and route of descent. Sometimes, the way is rough or there is only grass lawn. We want to sit next to the lake but there is no ramp for us to go there (no accessibility). It is a rough way. Because we want to feed fish in the lake…next to the edge of the lake.

In addition, for the healing environment, it is really good for the guests and us to be more relaxed. It can let them to meet the natural environment more than before. And, it also helps the care staff as well.

R: At the moment, you mentioned that this one you totally agreed. What do you mean by that?

P: Yes, it is good if we can see natural environment from their own bedrooms. It might help the patients to feel fresh or feel better than before. They might…when they are moody/or in the bad mood, they might feel better. They might be happier because they are closed to nature.

R: Is this called near (point to trees near window next to the kitchen)?

P: Yes, it is quite near. But, it is not 100%. I want it to be more accessible. Here, it is like we are just looking at them. They have nothing to do. But in the image, it is like you are living closed to nature…next to trees. I think nature helps a lot in healing for both guests and us. It is like…when we are with the guests too much, we can just walk out to the outside and breath clean air…look at green leaves…it can just feel more relaxed. We just breathe and feel comfortable…and can think about many new things. And for the guests, I can observe that they are happier.

R: Have you used any kind of technologies here?

P: Here? I think there is only telephone that we use to call the guests' families. Also, there are only alarm buttons for ringing and calling.

For alarm buttons...they help when the patients are living alone…like the patients who can take care of themselves…in the level that they can live independently. Then, they can call us to see them. So, we don't have to go round to see every room frequently. So, it is kind of reducing our time to visit every room and every patient.

R: Have you been visit the communities with the guests before?

P: Yes. The main limitation is mostly ramp for wheelchairs. Like, some shops, they don't have ramps for us. Some shops have ramps, but they are too steep. Sometimes, we cannot take the guests there…We can, but it is harder. Because most guests' body size are quite big.

Also, it is also about getting in and getting out of cars. It is not that hard…but it is still hard. Toilets in some shops are not suitable for wheelchairs. So, we have to solve problems by wearing diapers for them first. We have to be prepared from here. We have to prepare diapers or tubes for urinate if they are male.

R: Have you heard about design tools or assessment tools before? How do you think about it?

P: I think the design tools are good for both the patients and also for us. Like, when we are looking…we can see only the guests and stress out. But if we can see any other colours, it might be better. We are like the guests. We are similar to them (Laughter). Even though we are not in the same condition as them, but…I mean the environment can make us more relaxed. If we can see colours which are comfortable to our eyes and more comfortable. It will be okay. But here, it is white. I don't know but the colour should not be too much as it can stimulate them too much.

R: Back to the topic, which we have discussed before. Most guests are foreigners. How do you think familiar environment support them?

P: Yes…Most guests who live here, they like to do everything repeatedly and as before. Eating repeatedly, and do something the same. They are doing…doing…doing…like at the moment…at this age…they cannot do them now but before they can still do it. In this age, they can still remember that they can do them now. So, they still do them repeatedly and repetitively. Doing everyday repeatedly. They do them everyday…two or three times.

R: What about culture?

P: Each individual has different culture. They are more like themselves…for that culture. If when they were there (means home countries), they were cold. Then when they are here, they still tell us that they are cold. So, they are cold all year round. Even though it is hot now, some people will say that they are cold. It is depending on each individual guest. The guests here,

they are cold all year round. They never feel hot. They are familiar with the old atmosphere. When they come to live here, they are familiar with…(Pause). They feel by themselves that this place is their home because the atmosphere is the same everyday…

R: So, how did you get familiar with the guests?

P: I gradually learn about them. However, it took quite long time to be familiar with them….like a year for us and the guests to be familiar with each other. It took a while to understand the guests like what do this guest want/need. But each guest requires different ways to approach the guests. They are completely different. We have to approach them, not them approach us. Firstly we have to understand them first….and have to be energetised.

It is like we are one of the actors. When we are working, it is like we are one of the actors. This is because we have to act exaggeratedly with the guests to make them feel like they want to do the activities like us.

So, mostly…at the end of the day, I often go back to listen to music and watch movie. But, for here at Vivo Bene, it is usually at the kitchen where we (the care staff) often come to talk and share. So, as a shift, we mostly come to eat here (at the kitchen) together, with staff, or sometimes, we eat with the guests. Sometimes, we eat there (the common area) and look at the guests simultaneously. So, mostly in pavilion 6, we eat and talk to the guests. So, it is more like sharing…like what is the main problem today and how to solve the problems. It is like mouthing. So, it is kind of like…disappear…this kind of stress.

R: How do you think the design can support the quality of care?

P: Yes of course. For example, the bathrooms can enhance the guests to use easier. The gap between going in and out of the building. Or the safety of the patients in the building. Like, sometimes, when there are too many objects…like untidily…It has affected our patients in walking. It is like obstructed the way and can cause the risk of falling.

R: So, do you think about independent living as well?

P: Yes. So, I mainly look at the patients first if they are capable of doing activities with us or not. If they are not capable, I will not let them do it. So, we have to know what they can do, or what they could do when they were healthy…

R: To what extent do you think the physical environment can support independence?

P: (Pause). I think it might be the seating in the living room…it might be a seating or a sofa for them to enjoy interact with each individual guest or doing activities with each individual care staff (private area). Also, the table arrangement…and the groupings…for the benefits of staff and the guests. Also, the atmosphere and the colour of the room…may also help to support…to be livelier.

R: What kind of language do you use to interact with the guests?

P: English…also German sometimes. But, they are not usually in sentences. Mostly in words or terms in everyday life.

Participant 2: Caregiver (Case Study 1)

Gender: Female; Age: 25+; Nationality: Thai

P: Everything here is totally okay. Not only the bedrooms…each bedroom is different. Some bedrooms have care beds. Some rooms have a big king-size bed and a double bed, which the smaller double bed is better for caring because…sometimes our patients use lots of spaces. Some of them use wheelchairs or someone doesn't have. So, it depends on the patients. Like for Oppa, even though he has a wheelchair, but he still can take care of himself. He still can walk; he can walk and not always sit on the wheelchair. So, when we wake him up in the morning, he gets up and walks to the bathroom by himself. Also, for wardrobes, they are fixed over there (point to the wardrobes), then it is easy because we know that what are inside (there are labels). What kind of shirts is locating which are easy for him to find? Also, when he sits on the toilet, we can run to get stuff and run back to him in time.

Also, the outside living spaces are okay as well. The entrance area is fine because there are parts of stairs and parts of wheelchair to go down. It is good and it is still okay. It is not too steep. Because like Khun Champ Luis, we want him to walk which when he firstly arrived, he can walk up the stairs. But, he is not convenient lately. So, we have to let him use the ramp to go down. Also, the descent ramp, what they called…at the floor, it is non-slippery…like non-slip tape. So, it is okay.

So, the living area zone, when I firstly arrived here, it used to have a long table. I mean…a long table as small tables are connected together about 4 tables which each guest knows who sit at which position. They were doing it regularly. Like, Oppa, he always sit at the table head. Like where he usually sits now. Also, everyone knows the position they have to sit, or who sit where. So, later, we try to change and adjust to separate them.

This is because…the reason why we separate is because some patients…their moods, sometimes they are not getting along with each other. Like, previously, there were Khun Audry and Khun Pa Marie, they are couples and they always sit oppositely. And, Khun Nigel, previously he lived in this building and he made loud noise. The patient with dementia…they like to knock tables. And, Madam did not like that. They are from different background. Then, Madam became scolding. So, we solve the problem by separating tables…spreading the tables who sit which position, who can join the table with whom. So, it becomes, Oppa's table, Madam's table, Khun Luis' table…separate individually…to eliminate the problems.

Also, during dinning time, staff can come to eat with the guests. I mean we can join them, but if their food is nearly done, we will go to get more food and serve them. I mean…we know that the guests such as Khun Nigel, we have to sit with him. If we are getting up, he will start getting up as well. So, I will sit with him and he will sit still. Like, I sat with Khun Luis previously, I could get my food and come to eat with him because he didn't stand up. Khun Luis will sit still at his place….like that. Like Khun Ludwig, it is sometimes that she follows us to get up. It is sometimes. So, we have to observe first like how the guests today. The guests are not the same everyday. Sometimes, they are like…I want to go home. So, I know that today they are going home. So, we will talk and change topics which avoid them to think something else. Sometimes, they were like I want to go out…I want to go out. So, we have to be like…Madam…try to do these activities together? Painting and drawing. Because previously she was an artist, and owned a gallery. So, we use these activities that she likes to do which will attract her to sit with us.

R: What about the design limitations of the design of the physical environment?

P: More convenient? Not only for myself, we have voted that there are vacant spaces here (pointed out to the space behind the window). Some buildings, they are developing…they have this part of balconies here. But, for here, we are not there yet. We are not sure if they are additionally constructed for us or not. So, in building 3, we have balconies here. So, we can like…sometimes the guests' relatives come or sometimes Khun Luis' wife comes or Khun Patterson's parent comes. It is like, we can perforate this space…like 3 rooms. They are

connecting two rooms together to use this space. For example, the guests' families come…they can come to join in this area. How to say…like a private zone when their families come they can sit here and chat. This is because…like last time when Khun Luis' wife came, they want to stay together…only two people. Like, his wife said, "I am leaving now, I want some privacy". So, they are eating inside the room and set up a place inside the room. But, they cannot close the door. So, we don't know that if Vivo Bene will add.

R: As you have mentioned about the homesickness of the guests…

P: Here…like here…the kitchen. We allow the guests to join us at the kitchen where there is a sink. We will let them try cooking. Like easy cooking. We have salad, because every meal we have salad for sure. So, we let them to help like decorating plates, arranging vegetables on plates, or put food on plates for them to do. Like Khun Ludwig, she can do, so she can do. Sometimes, we go out to harvest vegetables in the organic garden at the front for them to try and cook. It is easy cooking. We have a gas stove, to let them fry something easy…for her to do and recall. Yes, we have…

As you have mentioned, we have activities…we do them frequently at the living area including leaf origami and flower arrangement. So, this is the duty of the OTs…occupational therapists. So, they are entertaining the patients. Also, we have…to go out for afternoon tea sessions…we organise them at the Sala (pavilion). There is music too. We turn on music as a background. So, we are making tea and coffee there for our guests to join together. To change the atmosphere.

R: What about the design of the outdoor environment?

P: For the activities in the outdoor area, in my opinion, the guests like them. Our patients, they like to listen to music. They like to sing songs. They can dance. Our guests, they like to dance. They are really enjoy dancing…our guests. The space is quite enough. The sala (pavilion)…like when there is a birthday party, we always set up at the Sala. It is large enough…for the capacity of the guests…about 20 people. Also, we have watching movie too. But, our guests mostly…they don't really attend. Sometimes, our guests do not like. Sometimes, for the elderly…as I have experienced to observe them…they like to dance. They like to listen to music and dance…two things. For them to watch movie, they cannot concentrate. It depends…for each individual. Like Khun Nigel, he cannot sit still for a long period of time. If there is something attracting to him, he will suddenly go. Also, for Khun Ludwig, she mostly cannot sit still for so long. She likes to walk. And if she asks about her home, we have to let her walk outside. Then, we have to change the topic or deviate her attractions from her home. Like…I want to go back to see my kids. So, we have to say, Madam, should we go to that garden over there. This garden is beautiful. So, we are trying to persuade her. Like…Oppa also likes to go to the garden. But, he can sit still for a long time. Khun Sonja also can sit for a long time. Khun Henry…he likes to dance. Khun David, he also likes to dance. But, we have to approach them and invite.

For gardens, there are surrounded. The gardeners are planting trees and flowers…most of them are Hibiscus…for ambience. Mostly, we also have activities in the evening as well. Like Oppa, he likes to pick flowers to put in vases. He can still do it by himself. So, he sits on the wheelchair and we ask…Oppa, do you what this flower. Then, he points. And, sometimes, if the wheels of wheelchair can access to the flower, we allow him to cut flowers by himself. For him to participate in activities.

Also, there is a lake and inside there are fishes. So, we often let Khun Luis and Khun Thompson, who are on wheelchairs…or Khun Henry who can walk, so we will take leftover bread from breakfast for fishes. This is the evening activities. So, we are like 1:1 and keep an eye on the guests. Like if I go with Khun Luis, I will just go and sit next to them. If Oppa, we

will go to cut flowers. Or, Khun Henry, we will walk. Or Khun Ludwig, we will walk. Khun Nigel, we will take him to walk. If it is summer, we will take them out for swimming. In the morning, we are not having activities at the Sala. Sometimes, we go to play Petanque too, which is next to the swimming pool.

R: Any design limitations?

P: In my opinion, I think the area next to the lake; it should be accessed more easier. But, we still can do it now. There is one corner, which is grass lawn, we can push them into. But if we can arrange spaces where we can take wheelchairs to be closer. It will be great. As the whole, I think the outdoor space is quite good.

During the time we push wheelchairs…we know from the patients that how each individual like or be…like are they heavy, or are they fear of…like that. Like each staff knows that how is each guest is like. For example, Khun Luis is quite heavy, so the staff should have a big body size too. Like, Khun Thompson, staff can be smaller. And, sometimes, we know about the floor…if this part of the floor the wheelchairs can pass through. If they can or cannot. So, we will follow each other. For example, if we cannot access, we will not go because we have to save the patients. If we continue to go, it might cause them to fall down.

R: To what extent do you think healing environment can support dementia care?

P: Yeah, I think that lighting is really a part of it. For example, Khun Patterson…he has a problem. Mostly, like…the patients, it is true that they follow the lights. It is true because when we turn off the light, and he wakes up. Then, we will walk following the light…following the light. He cannot see us but he knows that where there are lights, there are people. This is true.

Also, if there are doors to access the garden, this building has them. There are two rooms which you can access directly to the garden…there are four rooms which are located that side. But mostly we want to save the patients more because the group of our patients are having dementia, if they go out, they will walk out…walk. Most staff is inside like this right. For example, if they are sleeping, so we (the staff) come out of their rooms. But we will not know when they wake up if they go out from the backdoors. So, it is not quite good right. Because we are not with them…when they are asleep, we will come out to clean or other things. So, we are often at the outside of the rooms and don't know when they come out. If you ask if we have it, yes. If you ask if it is good…yes. But it is depending on the patients.

For example, spa…we also have it here but it is not located inside the building. It is separated. We have a hair salon and nail salon. We also have fitness equipment, which our patients also go there to use.

Also, we have a henhouse at the front…at the garden. We also take the patients there as well. But currently, there are only chickens now. In the future, there might be other kinds of animals.

R: Have you used technologies here before and how do you think about them?

P: Bells…call bells that we use here. There are some calls to call us if we are not there. Because if there are calling from building 5, it will ring at building 6. The reason why it is ringing at building 6 is because most care staff is here. We are here mostly. So, if they press the button, we can run to see which room and then we will run to see them. So, for the call bells, they are mainly for people who are dependent. Like sometimes they are on beds, or on wheelchairs. Something like that.

For this building, for example, Khun Thompson, if we take him on the bed, he sleeps on a care bed, which he cannot take care of himself. If he urinates, we have told him that comfort is over

here…we put call bells at the nearest distance. So, if he urinates full two of them. Then, he will press the button to call us…to tell us that they are full. He presses the button. There are two compartments, the large one…we can just go and see which room. Then, we will walk there.

For censors, we have one. We uses mostly at night. We have 4 people for the night shift, which is not as many as the daytime. Building 5 has 2-3 people. Building 4 has 1 person. We have censors…like sometimes, we went into Khun Thomson room to clean up but we don't know if Khun Ludwig will wake up at night or not…like when. And, staff stays at their positions which sometimes, the patients they are very smart. They are very quiet and sneak out from their rooms and we don't know when they come out. If we are not in time, so we have a censor at the entrance door. If they walk pass, it will create sound like in 7/11. Then, we notice and know what is happening. So, if they wake up, we have to invite them back to the room. Like where are you going Madam?...inviting them back into their rooms.

R: Do you think it helps supporting you as well?

P: Yes. Sometimes, I have to change diapers for Khun Luis at night because he cannot take care of himself. So, I came into the room but I didn't know when Khun Henry went out. So I heard the ringing sound and know that there is someone out there. So, I had to leave the work, and ran to see whom. So, it helps a lot.

I think for Vivo, it is quite safe. How to say…it is quite developed. Like, there are call bells…When we mention about bathrooms, normally, there are no non-slippery floor. But we know…for example Khun Luis…the guests individual guest, if they cannot walk properly, we can ask for the non-slippery floor mattress. There are seats for taking shower for patients. If we need. Here, they are ready for the guests. The floor that I have mentioned, there are not marble or concrete…so it is alright. It is safe for the patients.

R: So, you mean you can inform Vivo if you require anything?

P: Yes. So, we…every room for the guests, there are no non-slippery floor mattress. Like Khun Thompson's and Khun Patterson's room, there are no non-slippery mattress because they do not walk, they sit on wheelchairs. Then, here, they provided the shower seat. So, we observe the guests that how do the guests like. Like Khun Luis, he uses a rattan chair which is different from the normal shower seat…for patients they are different. It is a rattan chair to sit inside. Sometimes if the patients, they are not the same everyday. Some days they stand for us to take shower. Or, sometimes, they are like…I am unable, so they tend to sit down. It depends on each day…. how do the guests are feeling each day.

When I come to work everyday, I have to ask whose am I going to take care. Then I start to assess…yesterday…here we have to handover shifts, so we know today how's this person. Then, we have to listen, if today it is like this. Then we have to cope with the patients. Like how's today. For example, Khun Ludwig, today she is asking about her home. Okay…walking…4-5 rounds. Walking and looking at scenery…to reduce the energy inside. Like, I am tired. Then at night, she will sleep well. Because she can get exercise.

Similar to Khun Nigel, sometimes, he walks 10 rounds. He has a lot of energy. We cannot offend this person. If we do something wrong, he will get upset easily. So we walk, walk, walk, and walk. And, at night, he is okay.

R: Are there any chances that you go out to the communities with the guests?

P: Yes. But these activities are under the occupational therapists that will take them to have coffee. The guests who we take…if we use local term, it is called amenable. So, we still select

the guests because some people…if we carry the whole group. We are unable. So, we need to select them. Like, firstly, they have to be able to take care of themselves. Secondly, they have to be understandable. They have to be…listening to us. We can still control them. Like that. But the one that cannot, we still have to look at…like their emotional conditioning. If they go outside and they are too many things…too many things than inside Vivo. Then, we will be troubled.

R: Have you experienced to go out with them?

P: Yes. But it depends on that day I take care of whom. Like, that day, I take care of Khun Nigel, and then I can go out. This is because the staff that we are 1:1 with and go out.

R: Do you have any limitations when you go out? For example toilets…

P: (Pause). For toilets, there are not yet limitations because before we go out, we always prepare for, we have to prepare from here first. Like, if we are taking Khun Nigel out, we need to change his diapers and prepare for extra clothes in case there are any accidents that we don't know before. So, we can change. But, there have not been this case because we are always prepared. We have to be prepared before we go out.

Or, Khun Sonja, if we take her out, she still listens to us. Like…drink coffee with us, she still listens to us. But, some people who we assess that this period they are not in the good mood. They are not stable. So, we will not take risks. We are not taking risks. We don't take them to get some risks. So, you have to stay here but might go to eat at our restaurant instead. So, go to have coffee at the restaurant and have ice cream at the restaurant. So, we arrange it at the restaurant. So, our team needs to clarify who are suitable to go out, who can be controlled. Because when we go out, we have to meet strangers who we don't know and cannot control. But for the café, the occupational therapists are already fix the time like when there are not too many customers. Then it will be okay and can go. But sometimes, if we go during peak hours…so they have to think about it.

R: Because most guests are from foreign countries. How do you think about familiar environment?

P: As I have observed, when Khun Ludwig firstly came here, she still listened to us. But, she often asked, why did I come here. So, we answer we are healing your legs…it is quite big, did you notice it? Then, after you are healed, your children will come to pick you up. She still listened.

Or, Khun Nigel last month, he just moved his room from building 6 to building 4. He stayed in this building for a year…1-2 years. Like he is familiar with the way he orientates his head when sleeping in this direction. So, when we relocate him to building 4, he is not familiar. So, he turned his head to the feet side and his feet to the head side. This is because he is strange to the place. The way he orientates his body when sleeping. But it takes only 2 days, then he adjusted to the direction where they arranged for him.
When they start asking about home, we deviate by taking them to do activities. Like, you come to heal your legs right. She said yes. But I am worried about my children. But, this person is taking care of. You don't have to feel anxious. You are here; I will take care of you. For them to feel relieve and not anxious. Then, invite them to do activity together. Like that…

It is like a chance…like a chance. There is one case in building 5…previously he likes to walk, and then he often looked through the fences and saw walking cows. Like, I said that is a cow; he was very exciting like kids who get new toys…How many cows. Let's count…He really likes this time and he knows the time when cows coming. Then, he walked to look at cows. He also

speaks that these are cows…white cows. He really likes them and Vivo does not have this. There are only situated in outdoors. Something like that.

For example, the fountains can also support us. I like to sit next to the fountain…but it also depends on the guests again. Like, Khun Ludwig, she can sit for a while…but she can still sit. "Madam…look at the fountain, it is beautiful.". The atmosphere is helping to create…with wind breeze, with water from the fountain….So, she enjoys a very short time and said I don't like it anymore. Then, she starts to walk. So, we give bread to fishes. So, there are activities all the time.

But it still depends on the guests. Like Khun Ludwig and Khun Nigel look out all the time. Sometimes, they sit with us. We listen to music and Khun Nigel listens to my music as well. Khun Ludwig, she is like a hyperactive, but she likes music and socialise. But only just a short period of time…like going to the restaurant.

R: To what extent do you think the physical environment can support independence?

So, we emphasise to enhance them to use their capabilities as much as they can. I mean some people that really like to do activities. So, we invite them to play badmintons, table tennis…many activities. Because they have a lot of energy. Like, because most guests have large body size. Like one of them like to eat…so we persuade them to walk. To come out for a walk or swim. Trying to persuade them to do activities. We have to persuade them but some guests we don't have to. Like some guests they sit still, we have to approach them to ask if they want to play games. For not making their brains think about something, which we also don't know because, we cannot read them. But we can notice their facial expression and know that there is something. We know there is something but we don't know what is it. So, we directly approach them…."Mommy, do you want to try colouring?" If they said no, we ask them if they want to do something else. Or, we know weaknesses of each patient. Or other words, we know how this patients like.

I usually listen to music…like this morning, I take a shower for Khun Thompson…some guests, they are still know…for example, I said what did you do Khun Thompson (in a loud noise), so he started to cry. Like, sometimes I am just kidding…saying like I will let you stay alone. So, he cries. I mean I am kidding. Sometimes, when I want to relax, I turn on music, which he also listened with me. The patients when we sing songs in Thai, the patients often ask about the words that what is that mean in English? I think sometimes it is not stress. But we just have to know that how this person is like. They are using different words also. Because one of the guest call the call bell, "ambulance". So, he keeps asking where is ambulance? So, the staff is very confused about because there is a nurse who owned an ambulance. So, we know for now that if he says something about ambulance it means a call bell (Laughter)…

Participant 3: Caregiver (Case Study 1)

Gender: Female; Age: 25+; Nationality: Thai

P: It is good because there is no step. It is the continuous smooth pathway, which is good if there are wheelchairs or when they are walking. As there are not too many steps, the guests will not…how to say…not fall. Also, there are railings for holding when they are walking because there are some guests who are practicing walking. So, this allows them to practice walking around the building. They practice by themselves. They can walk but they are practicing too…everyday for their muscles. So, they are walking by holding railings, and not use canes. So, they don't use canes, just hold railings and walk.

R: Are there any limitations in the design of the physical environment?

P: Inside their rooms and inside the building too. As the whole, it is okay. But I think there are some problems on the lighting inside the bedrooms. It is not very bright. It is a bit too dark. Also, it is dim and it is in orange colour (warm light). It is dim. So, the guests cannot see clearly and sometimes cannot see. The light is not in white colour which might be brighter. But it is in orange colour and quite dim. Also, the area outside the bedroom (she means living area), the natural light also supports the guests and care staff. It is quite good.

R: How do you think about the concept of homeliness or home-like environment?

P: For this concept, firstly, I think you have to have enough budget right? You have to have enough money to inspire this particular concept…to inspire this kind of decoration. The care is also expensive right?

I think it is good because the guests will feel like they are staying at home. Like being here, there are cases that they want to go back home because of the environment or something like that. And, also because of the weather…it is not (correct?). As they are German, it is cold there. So, they are wearing winter clothes all the time…all day. Even though our countries are hot, but because they cannot adjust. And, they are like…this is not my room, this is not my home…something like that. So, we have an additional decoration but it is just photographs because it is easier too.

R: As stages are more advanced, how did you adapt or adjust the spaces for them?

P: It depends on each case. For some cases, they keep arranging their objects…all day. Okay, it is fine because it is also their chances to move…no problem. It becomes like an activity for them to do also. But, there are also some cases who walk and are absent-minded and know nothing. Then, we have to move out stuff. We need to move out objects only because they can fall, collide with or hit. So, it depends on each case that how things are arranged or should be inside the bedrooms.

R: What about the living area, how do you think it can support social interaction?

P: For tables and chairs…there are some activities, which happen inside the rooms too. For example drawing, or colouring or nail painting sometimes or playing card. It is more as 1:1 activities. In the living area, the tables and chairs can sometimes help with the interaction. So, we can get our food to eat with them here too or we can…after finish eating we can come to talk with them also. Like sit there with them for a while.

R: Do you think it is related?

P: Not really. For the guests, it might be in another aspect. If they are starting to be confused, they will go out to the outdoor area. They are not really inside the building. They are not really inside.

R: Then, how do you think the design of the outdoor environment can support both guests and care staff?

P: It is like changing atmosphere. If they are only staying inside the room, they might feel cramped. So, we take them to feed fishes, to take them for a walk, to look at garden, to look at gardeners while they are gardening. Or, if they want to help watering, they can. They can also harvest vegetables. Also, the green spaces also help both myself and the guests.

I think the atmosphere and the environment are okay. I mean the condition makes it okay and good. Also, for uncles and aunty when I make a conversation, if they are thinking only they want to go home, we then take them out to walk. Like, talking about trees, flowers and many

things that they like. Then, they will stop can say…I like that green colour. This tree at this position, I really like. This flower I like. Then, they feel relaxed.

R: How many times do you go out each day?

P: (Pause). So, in the afternoon like now…they are starting. In the morning, they are a bit sleepy. So, they have a rest or sometimes there are activities at the Sala (pavilion). Then, they are back for rest and have lunch. But, in the afternoon, the time in the afternoon, there are quite large amount of free time. So, they start to think…to think and then they start to walk. Yeah…Khun Doris used to tell me that it is called…Sun downing syndrome. So they usually start in the afternoon. So, now they are starting. Like 3 pm onwards approximately.

R: Do you think there are any design limitations of the outdoor environment?

P: (Pause). Not really…But if it is during the nighttime, the pathway is very dark. The outdoor area is not bright.

So, there are some cases that we take them to go to the restaurant. We use wheelchairs. And, also we use our mobile phones as a torch to lighten up our ways. It is quite dark…even though there are some lights already. Also, there are some snakes too.

Also, for safety and security…the fence is not high is also an issue because the uncle often climbs up the fence. He usually climbs up (Laughter).

R: Healing environment (Show examples)

P: Yes for lighting…it is very true because they are walking by following the lights. If they see the lights over there, they will immediately walk to that destination because it is very dark. The range at the corridor, it is quite dark but at each corners of the building, there are lights in front of rooms. If they open the door, they see, then they will immediately run into.

R: So, the light under handrails still turns on at night?

P: No. We turn off during the night shift but in the evening before they go to bed, the light under handrails are still on. The night shift is from 11pm onwards…only two staff is here at this building.

If it is in the aspects of garden, there are only some rooms that when you open the door…it is not really a garden. It is only a small grass lawn and then a street. But for that zone of this building, usually we don't open because our guests…if they go out, they can suddenly disappear. So, there should be one door for entrance and exit for safety. There are doors at the back as well but we tend to lock them and not allow them to go out. Because if not, they can go out two ways. We are at the front and they are lost. Something like that. This mean that…in this case, we have to stay in the room with them. If they go out, so we can see. But there are some cases, that we don't have to stay with them in the rooms all the time.

R: And in the night shift…

P: We are staying outside (in the living area). There are some cases that we are in the rooms with the guests too. So, we are sitting there. In case, if they get up to go to bathrooms, so we can help supporting them. If there is nothing else, they go back to sleep.

For this one…mostly the occupational therapists, they take them to travel outside. So, it is a zoo which is not far from here. It is okay. So, uncles and aunty have time to relax.

R: How do you think about Technology? Have you used it before?

P: The patient with Alzheimer's…they are still developing and experimenting right? Yes. Technologies do help. Like some cases over there, they also have iPads with them. The relatives told us that they like to play Facebook or they like to watch videos. Or, sometimes, there will be their friends' greeting/say hello to them. Or sometimes, there are video calls or their friends' call. So, we have to help them pick up. So, when they talk they are happy.

R: What about in safety aspects?

P: Technology and safety…Most of the time, we take care of them as 1:1 basis. So, we are with them all the time. So, we don't have in this aspect. Like, some cases which the guests are lost. Like, we are responsible for 1:1, how the guests can be lost because we have enough people for 1:1. Or, we can support each other…like this guest goes out for walking. But there is no staff to follow. Then, we entrust the guest we are taking care of with another care staff and told them we will be back after following. So, it is more like teamwork.

R: Have you seen this kind of design guidelines before?

P: I think it is good. It is like a standard as…what can I say…that there is a standard for them to follow. From my past experience, I used to work in a five star hotel. So, there is their own standard, like they have someone to check every month…like this. So, I think that it is okay. If there is this kind of toolkit…like a hotel.

R: Have you been visit the communities with the guest before?

P: Yes…for the size of the typography…it is true that they only read the letters that are big enough. These smaller letters they will not read…

Most of the time when we went out to the communities, the occupational therapists are the one who find places and they will survey first if there are wheelchairs, they can go or not. Toilets are far or not…or where are they locate. Something like that. So, when we arrive there, it is quite prepared already. Otherwise, it might be sometimes that the place is very limited…like wheelchairs cannot access. So, we can take only guests who can walk to go there.

R: Because most guests are from foreign countries. How do you think about familiar environment?

P: Firstly…when the guests are firstly arrived here, they mostly are confused and so many things. But, when they stay here for a while, they tend to remember that where are their rooms. How to walk back to the buildings. Or, after eating, how can they go back to the building. It takes less than a month for them to remember. It is okay.

There are only some special cases that they used to stay in this building, and then we moved to another building, they still don't know that they are relocated.

As a whole, it can help a lot, as the places' floor is smooth.

R: How can the design support independent livings?

P: I will give you some examples then. It is like…sometimes if the uncle cannot stand by himself. I will take the uncle here and put the wheelchair here. And I told him, pull it and stand. So, he can do it. Or, the descent slope, he used a walker and I am afraid that he will fall down.

It is not convenient when he has to raise. So, I told him, you have to hold the railings one hand and hold a walker on another hand. So, he can pull himself to walk. Like that.

R: So, you are the one who tell him…

P: Yes. That case is Alzheimer's. So, we told him some instruction to do and he can follow. So, it is like…I have seen someone who did that, but sometimes I tried them myself for a better impact.

I, personally, when I was with uncles and aunties, I don't really have things to stress about. Like the case, which is hard, it is like…only have to follow them. If they told me to go right…I will go right. If they said left…I will go left. Only that. If they speak too much English, I will be blurred and confused. I said…again please for four times and we laughed together…just like that. It is like…we are being their children or their grandchildren. We are living and talking...with some teasing as well (Laughter).

Participant 4: Caregiver (Carer) (Case Study 1)

Gender: Female; Age: 35+; Nationality: Thai

P: So, for this building, as far as I know, because our countries have hot climate. First of all, I have observed that there are many layers of roofs…So, as I know, it can make the building to have a cooler temperature. As they told us…I might not use the formal word.

The roof type can make the hot temperature in our countries to be better. Not too hot. So, that's why they have many roof layers. Secondly, there are handrails, which are supporting the patients or older people. Thirdly, there are not too many slopes. They are in the same levels. Because the patients need to be…they can get harm from this type of things. This little things, we also think about them too.

Also, if you have noticed, in our building, you can hear the sound of every door. When you open, we can hear the sound…"Bang Bang". Firstly, it might be because when any person comes out of rooms or something like that, we can hear them. Also, for this reason as I can observe from this building…

R: From your experience, what are the main limitations of the design?

P: The hall, I want it to be bigger because this room (she means TV room) I don't want them to have because it is waste of space. You can see that…if there are patients in this building. In fact, there are more people in this building who are under my supervision but they can go to the restaurant to eat. If there are 4 patients in the room, it is already full. It can be too cramped for walking or doing something else. If there are areas for example here (point to the garden area), it can be constructed as a balcony. It does not have to be connected to any rooms just extended them into the outdoor area. So, there will be another corner to be in. So, there are more choices of spaces for us to go. There will be two sides. This is what I think. I think by myself.

Like, there should be more spaces for us (patients and staff) to walk out. To walk out to the spaces where there is an air. Not walk outside straight sway. But it might be a balcony. To go out but there is still a frame. They don't have to be connected to any rooms.

R: For the balcony, can I ask if it is for the guests or yourself?

P: For the guests, they should be able to walk out to somewhere outside the building. They can walk outside the building but it is beyond our control…for some people. For some people, they might go within reachable distance.

Also, there are handrails for elderly to walk. They also have lighting underneath so they can hold. Lighting is very important because it can support them to see clearly. It does support us as well.

R: How do you think the concept of home-like environment or homeliness can support dementia care?

P: Here we have as well. Like, this person is a designer; we have photographs or paintings that she did. The paintings she did, we also hang them in her room. Or, Khun Sonja, she is a kindergarten teacher and likes to play guitar. So, we have photographs of her at that time and photographs of herself playing a guitar at that time. Each individual is different.

R: Does the design support the social interaction between the users?

P: Yes it does support. For example this corner, in the evening we come out of the rooms. We sit, the guests also sit. This sofa is also beneficial. Tables…dining tables are beneficial during the lunchtime or leisure time or between mealtime. It can be public area at large.

R: Do you usually eat with the guests?

P: Yes. I eat with the guests. It is like they eat, we also eat. You can see…you can see that this guest, in the restaurant he didn't eat, he just stared at you. I think that normally if there is a friend who accompanies him to eat. Because at the restaurant, I cannot eat with him because it is improper. So, we went back from the restaurant and asked if he wanted to eat. So, when he sees someone eat, he starts to eat and finishes his meal.

There should be another person who accompanies him. Or if our patients lose concentration, we are the one who have to think that what we have to do next. We have to be their brains, hands, legs, friends, relatives, siblings, and caregivers. We have to support them in all aspects.

So, we have to think. Like, this grandma has an issue of taking shower. We have to think what we are going to do next. We have to try other methods or ways to take shower. So we brought wheelchairs for taking shower for her….for taking to shower as smooth as possible. To make her feel…not barrow (?) as much as possible. So I try. I like to think and I like to try. I like to think many solutions.

R: Like choices?

P: (Pause). Choices for them and choices for myself as well. Like, I know what is a problem, so I go there if it is possible. I did not expect that it could be solved directly. But I would do them first. So, I try first, if they don't accept, it is faultless (never mind).

We cannot change them. So, we need to find ways to change ourselves to see when they are ready.

R: How long did you work here?

P: I have worked here since we had only two patients. I have worked with Alzheimer's and dementia for almost 10 years now. I have to quit my job to support another family because I

see the need and distress that they have to encounter about dementia and stroke (…). They really need help.

Their families are suffering you know…to fight and they are taken a toll on their mental wellbeing. So, if I help them. Firstly his wife can go outside and she can relax. Also, her husband can relax as well. He used to go to see doctors by lying down, sitting on wheelchairs, and eventually he can walk to see doctors. This is my success. At last, they did not need me anymore. This is my success. So, he only needs little support. So, my duties end there.

R: How does the design of outdoor environment support people with dementia and staff?

P: Yes. It really supports us. But I use each place…each place for individual patients that are different. It does not like…Sala (pavilion) can be used for every people. For Sala, I used especially for Khun Ludwig who like to go to many places. So, I have to search for new places. If we only walk only inside the building. She is like…it is not her answer. Because what she wants is to go to some places outside. She keeps searching for train stations or bus stations. For outside, it looks similar…with roads for crossing.

We didn't tell lie to her…you know. But, we just don't tell her everything. We didn't mention what is happening. I said this is the main road and this is the station, which you can wait. So, there will be a car passing by. And, there are our buggy which has truly passed. We didn't tell a lie. But, we have to go with the flow. To go with her narratives. When she says something and we can integrate with her stories.

R: Are there any design limitation of outdoor environment

P: No, because here we have a surrounded fence. There are sometimes…some guests who still have lots of energy. They can still climb up. But here, there are people all the time including gardeners or our staff or our guests…Some of them are also helpful like this person…

So, not really…there are no limitations. (Pause). May be only one thing which is they plant trees next to the pathway which is too narrow. So, those buggies cannot come in and park at the building. Previously, some of my patients, they hurt their legs. I want them to park buggy at the front of the building, walk and then take a buggy straightforward.

In fact, the main objective is for the patients do physical exercise. That's right. But some of them are not able or if they use too much energy on this and they have to go to see doctors. They have to use their energy outside too which make them feel very tired. Because my patients, they may be good or can be in the bad mood. So…only things that I can think of is the trees along the pathway. It is too narrow. If there are no trees, it is still fine. I think it is too narrow. It is limited because the owner or the managers he mentioned that the buggy is not allowed here. The buggy might crash or something like that….

I think it is only if they can walk…to have enough spaces. But for buggies, for some situations, which I require to pick up at the front of the building. There are some issues. Other than that…I don't think I have an issue with. Because the road, they use that kind of material which is not slippery. Only the trees next to the pathway. They might not plan this before that the buggy can enter this area. But we have to plan because some patients can walk and some cannot or some are unable to walk. They have not focused.

R: To what extent do you think healing environment can support dementia care?

P: They are not the same….for a bird cage, I also think and I told Khun Doris that I want to do it here because not inside but outside. We have plenty of spaces. In fact I have idea. Have you seen, there are some circular spaces outside…free spaces which I think they can be more

functional. I want to have an exercise equipment in open spaces or if they are open spaces and afraid of rust due to rain. But I just want my patients when they walk and they can find activities. At the back, I want them to be a rabbit cage. Not attached to the ground. So, we might go to get vegetables for rabbits. I cannot do them because I am not an owner.

We have to create or generate activities…in which we don't have to tell them or when we walk pass, we can do as an example for them. Because sometimes, we have to do something to attract them.

A thing that I use everyday is music. Because when we don't know the patients when they firstly came. We take them to the meditation and that day, there is music. At that time, the patient starts to stand up. So, we know that the new patient, she likes to dance. So, the next time, if there are birthday or tea parties, I use this music to invite her to participate with us. And, she will easily participate our activities. Sound is very important.

Lighting…in terms of making atmosphere for sleeping. That's the reason why we have to turn off the light right or dim the light…to make atmosphere for sleeping. So, they know daytime and nighttime.

R: What about smell?

P: Yes, yes, yes. But for smell like aromatherapy, I have not followed much. I don't know how effective. Building 4 has an infuser that they turn on. But I did not follow.

R: Do you think natural environment support people with dementia and you as well?

P: Yes. For example, in building 4, from the morning when the sun rises, when there is not yet sunny. It is a very good place, which I take my patients to have breakfast. To eat outside and have wind. Firstly, the activities that we do with the patient in the morning e.g. taking shower. There is no good way to persuade them to take shower. Not any of them….So, we eat and…there is a good atmosphere under trees…

R: You mean for yourself as well?

P: 'Firstly'…you have to be happy first. So, that we can pass this to them. Because they can touch from us. So, we have to be very positive.

Sometimes other staff thinks that I turn on the music during caring…I have to do for myself first. So, that I can pass to them. They can touch these. Sometimes, it is like I don't concentrate on working. But I treat myself first then I pass on to them.

It is really affected on the guests. We have one staff post about overtime (…), I think that it affected my mental wellbeing and that mental wellbeing can pass on to the guests. (…)

The patients can sense very quickly that we are not okay, we are upset. Something like that.

R: Have you used any kinds of technologies before? How do you think about them?

P: Yes it really supports…Like phones which we have Wi-Fi. Sometimes, we sit in the area where it has a nice atmosphere and turn on background music for that person's era or in his background/profile that they like this genre of music. Or, this person came from Basel, in Switzerland and he/she likes to watch this particular channel. We have Wi-Fi, so we can open for them to watch. We can treat them. Then, they are happy. We are happy. But, if some days, Wi-Fi is broken, we find other activities for them to do. We have to adapt. Adaptation helps. Day by day. Situations by situations as well. Shift by shift too.

R: What about for safety aspects?

P: Yes. We have them…not to loud noise. But we don't let them to manage by themselves. We still help them. So it is not dangerous.

Alarms also help a lot. We have not used this equipment for so long. Previously we used another system like alarms, which installed. But now it is all over vivo. They can help to reduce danger. If there is something, they will press and we can run to them. And, we are the one who turn off. So, to get fastest help, depends on us…so it helps.

R: Have you seen this kind of tools before?

P: Many people come to visit here for case studies. They come here to assess? But not myself who did it. Yeah it is good then. But for us, I think it is okay, for the white wall because white wall it is suitable for many things.

R: From your experience, have you visited communities with the guests? What do you think about the concept?

P: First, if we have to go outside. We have already checked that there are disabled toilets or not or toilets for wheelchairs. So we choose to go only for places that are able for us. So, there are no problems. The places should be fit for our guests.

Or, we may go only…we observe if they have ramps for wheelchairs or not….toilets for wheelchairs. Or, we spend time only 1 hour to go out for coffee. So, before we go out we usually take them to toilets first. Or, for emergency cases, we have diapers. We have to protect ourselves. We have to be prepared. And, their conditions have to be prepared. I mean if they are not in good mood. We choose people who…their conditions are ready….for that particular day.

Like some people, they might not sleep the day before or they are moody all day. So, we decide to not take them out.

R: Because most guests are from foreign countries. How do you think about familiar environment?

P: I don't know why our Thai guests cannot stay with us. Might be because of food. Actually they are from foreign countries because their children are married with foreigners (farang). They said they couldn't communicate with others understandably. Actually they can speak English.

R: Any situations of homesickness?

P: Because they have dementia. They can remember only at that time. They can remember that story…. at that particular time. For example, grandma, she always goes back by trains. She always goes back home by trains. Even though she does not know how far apart is Thailand and Switzerland. She keeps saying I want to go back by trains at that particular time.

Another case, she woke up at 2-3 am to ask for trains. She did not mention during daytime. When she woke up at 2-3 am, she wants to go back by trains only. At that particular moment of time. At that time, when she is young, the trains might leave at 2 am. If she wakes up, it keeps going like this.

R: From your experience, how important is familiar environment?

P: The atmosphere that they used to be. Secondly, their personality. If they like to socialise or read books or something else we need to support. Or, they like to play sports…their techniques or skills are very good. They can use their bodies. So we usually play sports. Like this person, she likes to walk then we usually walk. So, we choose to support or to support things that are suitable for them…follow them.

R: As they are becoming more advanced, what are the main roles of physical environment?

P: The environment has to delay the progress. Like, she is a designer. She used to paint pictures (…). But we tend to keep drawing. Even though the same picture is different, different, and different and totally different. So, we keep doing that.

We keep doing but we have to accept their capabilities and limitations. Or, they cannot finish or they can draw only a line. We have to accept because we cannot expect from them. In that line, they already think that they have done something.

R: For caregivers, you have to wait and see?

P: Like, this morning we went to the restaurant since 10 am and I keep waiting. (48:55)

R: To what extent do you think the design of physical environment can enhance independent living for people with dementia?

P: Yes it can. But, we must not expect. We should not expect how much they can do. As I have mentioned, that we arrange rooms…. but how much they accept…I don't expect…It is myself who don't expect the pattern…it should be flexible.

But still, it depends on the one who is their hands, legs, that how their lives can be enlightened. For example, their capabilities to go into bathrooms or toilets. If they don't have anymore, the caregivers must manage them to not getting worst than before. I mean cleanliness…

What I mean is…even though they can do to certain extent or they do something dirty, we cannot expect from them. But the caregivers must have methods to find or to do for them. Not to be dirty, not to hurt them not to be problems for another person. Because we have you here to be their legs, hands, and brains…replacing them for not letting their lives to be worst. Not to be better…. but to maintain…

If they make something dirty, we just clean it. They don't feel anything. They are unable. But they don't feel anything. But the caregivers have to completely do daily activities for them e.g. getting dress, taking shower…To be back as a grandma…. the one who is not yet dirty…

Participant 5: Caregiver (Senior Carer) (Case Study 2)

Gender: Female; Age: 25+; Nationality: Thai

P: You mean the environment right? For here, it is mostly natural environment. For the patients, it is very supportive because the weather is good too. But if you are talking about structure…there are some points that still have problems. Some guests…some guests, they cannot walk, so they have to use wheelchairs. But, at some areas, they are too steep because it is in mountainous area.

But for the inside, it is okay because some patients who cannot walk but they use wheelchairs. They have…if they want to use additional equipment; there is something like railings for

supporting them to be more independent (take care of themselves). For the normal patients, the rooms are quite safe for them.

For bathrooms, they are also okay because we also have seats when taking shower. It is not dangerous. Also, we have…they are called a mattress…for non-slip floor. For the floor for some rooms, if they have problems with balance, we will have…we call…It is a sheet which is soft. So, when they fall, they will not hurt much. But I am not sure too, what is it called. If they fall…it will be only bruised not broken. To prevent from broken…

It is a square like this big. It is a module, which we have to connect by ourselves. Like a jigsaw in a room. Not every room that have these. Only some rooms who have a problem of balancing and we don't monitor 24 hours. Or, mostly if they are in the rooms alone. But, it depends on the relatives' requirement. Like, what do the relatives require?

This is because for here, if we are doing something with the patients, we have to inform the owner and inform their relatives first. We will not do it arbitrarily. So, we have to inform the owner first.

R: Any design limitations?

P: In some cases of the patients, they are requesting that they would like to have kitchens. They want to cook by themselves. Inside the villa I mean. In some rooms, they have kitchens. We are renovating and constructing the new one. But the expenses are very high. Some guests, they cannot afford the price. So, this is the request from the patients themselves.

R: So, actually they can do them right?

P: Yes. They are able to do it because currently there is one room which during the lunchtime, they (the guest) cook lunch for themselves. But the space is a bit limited. There is no gas stove…so he/she can use only a microwave to do. So, it is more like a normal counter.

R: So, there is no communual kitchen here right?

P: No. There is no communual kitchen. So, there is a restaurant where they can come and order over there. Except from that, there are only microwaves, kettles or electric stoves.

R: Can the guests with dementia cook by themselves?

P: Yes. For the guests with dementia, they can do it. But, we have to support them. Like you have to do this and that. For some people with dementia, they don't know what they have to do, what kind of ingredients they have to put in.

R: How do you think the physical environment can support social interaction?

P: Yes, they can. For the normal patients first, during the time they meet each other, between guests and the normal patients are during the lunchtime. They like to come out for having lunch, to meet their friends and to talk with each other. Mostly, it is during the lunchtime when they interact (talk to each other)…at the restaurant. But, sometimes, they know that which rooms their friends are. Sometimes, they walk to visit. There are many rooms like this.

But, some patients with dementia…like this…as you know, we have to take them to come to meet the normal people sometimes, or to talk to the nurses sometimes. They are quite good in collaboration, but when they are back to their rooms. They are already forgotten. But, we as carers have to support them all the time.

R: How do you think the concept of homeliness or home-like environment can support people with dementia and care staff?

P: Similar to this…there is one room where he/she arranges photos, like family photos. They are set up in different spots in the room. Also, there are photo albums. I think the room is decorated like the room where his/her room over there. But, to decorate or arrange like this, there is an issue of expenses, which have to be increased.

Like guests in some rooms, their relatives have limited the expenses that they should be around this. So, some rooms cannot be decorated like this or similar to how they used to be. We cannot put everything in. But some rooms, there are no limitations. Their relatives said if their moms want anything, just provide for them.

For us, we want to provide the best things…arranging rooms like this is a great idea. But the problems are the expenses to do them and if we want to buy any equipment. We have to ask their relatives first and…because some relatives are very demanding. Something like that.

R: For the guests, what are their nationalities mostly?

P: They are British and Australian mostly.

R: Are there any Asians?

P: Used to have. But, they moved out.

R: So, here, the resort is still opening as a holiday resort right? Is there any zoning?

P: No. There is no zoning. At first, when the guests came, they can choose which room they want to be in. So, we cannot separate like this zone is for care guests and this zone is for hotel guests. But sometimes, they like this room more than that room. So, we did not separate. The guests are spreading around. So, it depends on which rooms they choose. Mostly, they choose the rooms, which are near to the restaurant. Like this area, they are all full. So, it depends on them again which rooms they want to be in because some people are not satisfied with this room. This is because each room, we arranged differently. Some rooms are next to the lake and depend on the view also.

R: Social interaction and carers…Do you eat with the guests during lunchtime?

P: No. The guests eat with guests. Also, for this part, the restaurant is the one who take care of…like arranging tables. We have duties to send them only. Then we eat later.

But, some rooms who don't come out of the rooms, we deliver food to them. They call the restaurant to order, then the restaurant will send us messages again that this room orders this. Then we deliver food to their rooms.

R: So, do you have to be 24 hours with them?

P: No. There are some private cases, which we will be with the patients 24 hours. There are three rooms. There is also a clubhouse zone, which is also 24 hours too. But, it is the area where guests are living together. The third one is called office guests which are spreading over the resort. They are living everywhere in the resort. This type is not 24 hours, except if they press alarms to call us. So, we have alarms for them.

R: What about the outdoor environment…how do you think it can support the care?

P: Yes it is really support. Here, we have an activist. For activities, we have them all the time. We have Tai-chi or stretching. So, we do like a month schedule for which guests who want to participate can come right away. So, we distribute the schedule to them to see what activities are for today. If they want to join, they can come. Mostly, they do these activities at the lakeside pavilion (Sala). It has a good atmosphere.

Also, there is shopping as an activity outside the resort. We have a trip once a month…seems to be travelling in nearby destinations in Chiangmai. So, there is every month. For shopping, we go to Maya Shopping Mall and Central Festival. So, we keep changing…week by week. But for shopping and trips, if the guests who are interested, they have to reserve first. Our seating in vans is limited.

R: So, for guests with dementia, they are going out as well?

P: Yes. But they have to have carers following closely. Only if they can walk…not yelling and not act madly…we can take them.

R: So, we have to observe first if they can go out and do they have any necessity to go out or to buy stuff or not. Like some people, the relatives said that don't have to organise, so we don't take them out. Similarly, for trips and shopping, we have to ask the relatives firstly before…to ask them do you want them to go. So, we have to communicate with the relatives because we have expenses for transportation. Something like that. So, we have to consult with them first.

R: Is it not included in the cost of care?

P: It is the part, which nurses are the ones who manage.

For the outdoor environment, I think it also helps us a lot because we are working here, there is a lot of stress. We have to adjust the patients' emotions and we have to be patient. When we meet natural environment, for example, when it is good weather. It makes me feel better a little bit.

R: Other than the steepness or slope…are there any limitations of the design of outdoor environment?

P: Not really. Except for mobility (movement). Oh…another point is weather. Sometimes, when it is raining, it is very slippery. There is some signage to beware. Like the entrance ramp towards the reception, it is very steep. And, if it is raining, we cannot access or go up there. It is very slippery. If the patients want to go up there, they cannot. So, we have to tell them that, "can you sit at the ground floor instead?". So, this is the limitation.

R: To what extent do you think healing environment can support dementia care?

P: I think it supports us quite a lot. Here, we have a spa as well. So it helps to support the aspects of smell. Some patients who are conscious of their appearances, they like to go for nail and hair salons as well as massages. Most of them like to massage. They are foreigners…like Thai massage. They help a lot because they help them to relax. But it is also depends. Some people can go for massaging unlimitedly. But, some people there are some limitations due to their physical condition. They cannot massage too much for example. It is based upon their physical conditions and their expenses/budget too. I mean everything is based on expenses. So, we have to ask the relatives first. Like, this month, we are arranging this for mommy, are you okay. If they are okay, then we will arrange time with the spa for scheduling. If the patients are not convenient to go, people from the spa will come to the room…for hair and nail salons. But for the message, we usually take them there because they

can get/absorb the atmosphere more. I think it can support us as well because if our patients, they are happy with activities they are doing. We are also okay simultaneously. I mean we are also happy. If they are not happy, our work tasks will be harder. We have to find ways for them to have good mood and happy. It also affects us.

R: For lunch break, where do you usually go?

P: For the office carers, we have lunch and then work immediately. We don't have break time. There are staff dormitories over there and two staff rooms on the second floor.

R: Have you used technologies here before and how do you think about them?

P: Here, we have alarms. But I think…technologies they are really good. For examples, if we have a GPS attached to them, it will be easier for us to find them. But in here, there are not yet used it. Things that we have is a signage to prevent them from getting lost. When they go out to the outside, and they cannot find us. If someone helps them, they will call us. The signage says…if you meet this person, please call back at this number. Mostly, we attach these signage to them when they go out shopping to prevent them from getting lost. But there is one case, he/she is already left. He/She wears as a bracelet with a signage. So, the bracelet mentions name, I am a person with dementia…and a phone number to call back.

For here, there are emergency alarm and normal alarm. For emergency alarm, it is for when they fall or break their heads. They are located at the bedside and bathrooms. So, it should be in the nearest distance. If they cannot walk to the alarms…at least they have to crawl to the alarms to pull with a long string…and low enough. Then, we will try to be there as soon as possible…if they pull an emergency alarm. But if it is a normal alarm, sometimes we are not free, so they have to wait for about 3-5 minutes. But if I am free, I will go there straight away. But if it is an emergency alarm, we have to leave everything that we do and run to see. If we are eating or doing something else, we have to run. There is a case in here who broke his head…inside the villa.

R: Have you seen this kind of tools before?

P: I think it might help the patients a lot. But sometimes, I think if we adhere too much on this…or fix too much for them, some patients, they don't like. For example, if we have constructed, but somehow it is not that fit for them…different personality, different characteristics and different thinking…and different symptoms.

Because here, there are not only patients with dementia. Other patients…they are normal patients but have some physical problems such as cancer or something differently. So, it is quite hard to take care because the resort does not accept only patients with dementia. There are a lot of people with dementia. But some people are normal. They just come here to relax. So, they don't want us to be around. They want some privacy.

R: Dementia-friendly communities. Any kinds of limitation when you go out?

P: The transportation…I think some places, there are not many ramps…or the ramps for wheelchairs. If we bring patients on wheelchairs, we cannot go or access any further. Also, some place, there are no toilets for disabled people. The places that we go. So, it is quite hard. But when we go, when we go up and down the vans, it is okay because we have an equipment to lift up. If we go outside…Like once we went to a zoo, there are only steps and stairs and way up. The patients they did not know that. Also, they are lazy to walk too. It is far. Also, most carers are female, males are minority. The patients are quite heavy. So, there is a physical therapist who teaches us the best way to lift up the patients…to support our backs as much as possible.

I think the benefits are the natural environment. We are closed to nature which most patients are from cold countries. As they are from cold climate area, for here, there are sunshine and lots of trees. So, they like. Also, some days when sun comes out, they will go for sunbathing as we have a sunbathing area near a swimming pool. It helps a lot for them. And for us, if they are good, if they are in the good mood, we are also good as well.

But the main disadvantages are the pathways. Because if you want to adjust, it would be quite hard because the land is not flat.

R: To what extent do you think the design of physical environment can enhance independent living for people with dementia?

P: It depends on each case. Some people, they are active. They are helpful and trying to be as independent as possible. If they are really unable to do, then they will call us. But, some people, they don't really want to do anything (unmotivated). So, we have to do for them…and support them. It is really case-by-case.

R: Or it depends on levels?

P: Yes may be. It is also due to levels. But some people...they are in the early stage, but…they are lazy to do…so we have to do for them. For example, we ask "do you want to go for a walk today?"…but the answer is "no, today I am very tired and I don't have energy.". We convince everyday and we get the same answer. They like to stay in the rooms, but there is a time when he/she comes out which is dining time. But, if we invite he/she to do Tai-chi or something else, he/she won't. So, he/she likes to come to the restaurant to socialise.

R: Do they come here for breakfast as well?

P: Some of them. Some of them will be served in their rooms.

R: As most guests are foreigners, from your experience, how important is familiar environment?

P: Yes, this has affected. Some people as they left their home to live here, they don't recognise where is this. So, they start yelling to find the husband, or go back to see her kids. So, we have to gradually explain, "You are in Thailand. This is a place for caring older people. We are taking care of you. But some people with dementia, when we tell them, they forget. So, we have to repeatedly tell them. But most people who live here, they recognise themselves that they are living here. Their relatives have already informed them. But, the symptoms that I have mentioned are mainly for people with dementia because they forgot what their relatives have told. But, for dementia, they only remember their past stories, the house that they used to live. Their memory in that part. So, when they are here, they cannot remember.They can remember only the past that they used to live there. I want to live there. So, we have ways to talk to them.

But, if we tell and they don't listen. Then, they start to act madly and violently. So…we have to follow them first. Like, start packing and start walking around this area first. Then, when they forget, we ask them if they want to eat. So, we don't try to break or stop them. You can continue doing, we are just wait and follow. So, normally, we take them out for a walk. Because if we lock them inside, they will be act more madly. If they are lazy to walk, we usually use buggy and say "we will go travelling together." For a while, they forget. Then we take them back to their rooms and have a better mood. There is only some period that their memories come back.

Participant 6: Caregiver (Carer) (Case Study 2)

Gender: Female; Age: 22+; Nationality: Thai

P: The lakeside is good…the atmosphere is good…The environment can relieve their stress. We can take them travelling towards different points of the resort…such as Sala at the lakeside. It is good. The atmosphere is good.

Also, the bathrooms...handrails are supporters for patients and also help us when they are getting up….standing up or when they are doing activities in the bathrooms. We are mostly assisting them every morning.

R: Any design limitations?

P: Not really.

R: How about the lighting?

P: Mostly, the patients they want lots of lighting in their rooms. They want the rooms to be airy…

R: What about the design of the outdoor environment?

P: The arrangement of the garden? (Pause)…I think the pathways support the convenience of movement or the ease/comfort of mobility. Because most of the patients here, they sit on wheelchairs. So, it is easy to move them.

R: How often do you come out with the guest?

P: For the room which I take care of, it is rarely. The room 67…because she does not like to come out of the room. Mostly, she stays inside her room. She is living alone.

R: Is she a guest with dementia?

P: I am not sure…

R: So, do you have to ask her first if she wants to come out?

P: (Pause). Sometimes I take her out by myself (Laughter) because she often refuses to come out.

R: Is she come out to the terrace?

P: No. Only stay inside the room.

R: So, what kind of activities she usually does in her room?

P: (Pause). She wheels her wheelchair back and forth…around the room. Then, she has snacks and listens to music and watches television. So, she stays inside her room. She does activities inside the room.

R: To what extent the concept of homeliness or home-like environment can support them?

P: I think it can because they might feel that this is look like their homes, so they….they can be bold to speak.

R: Do you often talk to the guest (room 67)?

P: Yes. I talk to her. But mostly, if her children come, she will talk to her children more….more than talking to us. It is usually a general stuff. But, if she talks to her children, it is about their past memories

R: So, does she come out of her room for eating?

P: She just came out for dining if her children take her out. If we take her out, she will make loud noise and start yelling…And, every morning she has breakfast in her room…

R: How often her children come to visit?

P: Once in 2-3 months.

R: So, do the guests interact with each other?

P: Yes. But, they always ask to go back to their rooms…usually at the restaurant and the Sala at lakeside. The one with a pool table. We rarely go there…like 2-3 times a month.

R: What kind of activities do they do?

P: We take them there to sit and sometimes read books. But sometimes they don't read. So, we take them to go for a walk. We take them to look at water…and read books.

Table arrangement…I think it can affected because they can absorb the atmosphere like similar to their past.

R: Do you join the table?

P: No…I don't join in the table. After I bring her here, I just wait nearby but not join. I let them to sit with other guests. So, the carers sit another table but just sit there and look at them.

R: To what extent do you think healing environment can support dementia care?

P: I think it can…(Pause). The surrounding atmosphere. Like trees…Because they like to look at trees. They like to look out (means they are inside) to the outside. But, they are usually look through windows because she likes to be in the room.

R: But, does she come out to the terrace area?

P: No, she does not want to come out. She refuses to come out.

R: Do you open windows?

P: Rarely. She does not like to open windows or doors. She likes to be inside the room…which is quite dark.

R: So, do you take care only one guest? For 24 hours?

P: Yes, just one guest. But there is a shift. But, I permanently take care of room 67. (work for 3-4 months).

R: Have you used technologies here before and how do you think about them?

P: There are only alarms. They are locating at the patients' bedside and the bathroom. Also, there are alarm button for pressing to call for nurses or carers.

I think it can help supporting because it can provide the convenience for us when the patients are getting lost. It will be easier.

There used to be one case, which walk to the outside and get lost. He walks through the main entrance. Then, the local people came to tell us. The patients are outside, so we have to bring cars to pick him up. Not that far, only at the front. So, the locals inform us. But, currently, there are not many of these cases who go outside without permission.

R: Have you been visit the communities with the guests before?

P: Yes. Quite often. So, they usually take them to have meals outside or travel in tourist attractions nearby.

I have experienced once with the group to a shopping mall. From my experience, it is quite difficult when pushing wheelchairs up and down….next to the stairs which are oblique (she means ramps).

Toilets…when we take them into the toilets, it is quite hard also. But, still there are toilets for the people with wheelchairs, which are good.

We don't have any problems with cars because we have equipment to lift up wheelchairs. Sometimes, many people go out for the outing. But, sometimes, we go out only 3-4 'rooms'. So, sometimes, we go out…almost occupied the van. Some require an individual carer. Some do not. It depends.

R: From your experience, how important is familiar environment?

P: It is also depends on cases. There is a case…room 40 who wants to go back home everyday. Everyday she dresses up and packs her bag and ready to go back home everyday. She does it repeatedly.

So, we take and push wheelchairs around (the resort). Then, for a while, she forgets that she wants to go home. But, she still does this everyday repeatedly.

I think it will be very helpful because they will be familiar with and feel that here is their home. So, they don't have to want to go back home repeatedly. So, it is like…being at home.

R: So, if it is feeling like home…how do you think it can support you?

P: Yes. So, they will not be upset/in bad mood. When they want to go back home, then we told them…you cannot go back, they will get upset. It depends on each individual. Some of them don't ask about their home. They continue their lifestyle as normal…as a routine…wake up, eat, and sleep…about 7 pm.

So, dinner is the same for every villa…6 pm because there is a person who serves out the food to each house. For the food, the guests can choose by themselves. But, the guests who cannot order by themselves, we tend to observe what they like to eat. Then, we order for them.

R: So, they wake up the same time for everyone?

P: No. It depends. But we try to wake them up before the breakfast round. There is a time for breakfast which we come to pick up and deliver…about 7 am.

After breakfast is taking shower. Then, there is an activity which they insert days by days. But not everyday. But there are activities every week. Yeah…at this room (she points to the multifunction room). So, after that…(Pause). Sometimes, I turn on music or turn on television to watch. In the evening, after they have dinner, they relax. At night…they lay down quietly…they tend to think about something.

R: To what extent do you think the design of physical environment can enhance independent living for people with dementia?

P: (Pause). Yes, it can help supporting. They are helping themselves…some guests, they still have energy. If they still have energy, they will guide themselves to stand up and get up by themselves by using handrails inside the rooms. But most of the cases, they don't walk. But, some cases, they have their own walker to help them walk along. The design…I think it helps to be more convenient. And, it makes doing activities to be more convenient.

R: Does the natural environment support you as well?

P: Yes, it helps me to be happier and calm down (jai-yen) and in the good mood…

Participant 7: Caregiver (Carer) (Case Study 2)

Gender: Female; Age: 30+; Nationality: Thai

P: I have been working in here for only 6 months. I have worked in a hospital before and I have quitted the job in Chiangrai to come back home in Chiangmai. And, they recruited so I came here. I have no experiences in taking care of older people before because I always work in a hospital…10 years. So, this is kind of a new job.

The rooms…like when we take care, we persistently come to visit them if they press the alarm to call us. But because I take care of…the house over there…the clubhouse. It is a house consisting of 4-5 rooms inside. But currently, there are only two patients left. So, they live there…I take care only two people. So, we have shifts there...two caregivers for morning shift and two caregivers for afternoon shift. And one for night shift. Just for the clubhouse only.

The physical environment can possibly support them. But, the second case, for Nancy…it seems like she cannot remember anything. It is different…like for Susie, it is like she is at home. In the morning, after she finishes having breakfast, then she comes out to sit at the front of the house. After the housekeeper finishes cleaning the room, she then goes back into the room and watches TVs. But for Nancy, we have to take a special care because she has a fluctuating mood. Something like that. Her mood swings…sometimes it's good…sometimes it's bad. Sometimes she cries and acts madly. So, they are not the same.

R: Are they talking to each other?

P: (Pause). Yes…but only for a short time. Because Susie…she is more independent, she does not interact much with others. She only interacts with cats and her rooms have one cat. And, Nancy, she is a person who talks rattle on. And, Susie asks what she is talking about. Something like that. So, they are not contacting or interacting.

For bathrooms…when they use toilets, there are metal bars (she means railings) for them to hold. But when we walk down to the bathroom area, there is a little bit of 'slope' for us. Also, for the bathrooms, we have housekeepers to clean for us.

I think the limitations are…(Pause)…the bathrooms' flooring. If it has water on it (wet), it is very slippery. So, I feel a thrill of fear like this morning when we take shower for Nancy…the bathroom…is quite narrow and small. And, when we take shower, there is a use of soaps and makes the floor even more slippery. So, we have to have a special caution.

In the patients' bedroom, there is shockproof flooring…like for kids…It is like a jigsaw and it is soft. It is like for kid's playground to put on flooring. For the patients' bedrooms, they already have it. But for Nancy, her bed is special because it has to be a bed for patients in hospitals because there is once when the patient falls from the bed. Because the bed is quite high. It is a normal bed but then she falls from the bed. So, we have to change to a bed which has railings. But for Susie, her bed is the normal bed. Just normal bed…

R: So, your shifts are based on taking care of people in the clubhouse?

P: Yes. But sometimes I come to help in the villa area as well.

(Pause). The dining area…it is integrated into that outdoor environment with a wide table in the middle for the patients to sit and eat. Previously, Nancy could sit still and eat. But now, she walks and we have to gently feed her. But for Susie, she never comes out of her room to have lunch because she only has lunch in her room. So, we serve her lunch in her room. There is another room…room 41…it is a private guest, they leave the guest at the clubhouse first and at 2 pm, a caregiver comes to pick her back to her room. For this case, she sits on wheelchair and has lunch on the table.

R: For the outdoor environment, do they come out of the rooms or clubhouse?

P: Susie only sits in front of the house (terrace). There is a garden next to it. So, she keeps looking around. But for Nancy, we cannot take her out because she will be nervous. We are trying not to take her outside. Because her mood goes up and down. One day, she has about 100 moods. This morning, it is quite okay, she woke up and we took her to brush her teeth and do other things. Then we got her to take medicines…But some days, when she wakes up, she is in bad mood and not allow us to do anything. So, it depends day by day.

The garden is quite okay. But because we don't have chances to come outside. Mostly, I stay inside the house because…the patients they never come outside. They kind of come out for a short period of time. Like, Susie, we have to look through a peephole at the door to see what she's doing in her room because she does not come out of her room. She only comes out in the morning. Sometimes, she comes out in the late morning because she lets her cat to come out. But for Nancy, we have to keep an eye on her because she keeps walking all day. So, she keeps walking in the area and we have to monitor and not let her to fall down.

But, the floor inside the house, it is like this (point to the wooden floor) and there is no shockproof. So, we have to keep her under surveillance closely when she walks. There is shockproof flooring in the bedroom.

R: To what extent the concept of home-like or homeliness can support people with dementia and staff?

P: If it is like this for Nancy…it would be a trouble because she always destroy objects. She destroys everything. Tomorrow, you can come and observe. Because she walks, and I keep watching her from distance because her eyes cannot visualise things much. But, if she is upset and she sees a human figure, she will directly go straight to attack that person. We have to hide at her back. It depends on each day. Luckily, we take shower today…some days we take shower for her in the afternoon, she acts madly and yells and hurts the staff. But, today we can take shower in the morning, which is a fluke because she is not frantic.

So, if there is these much objects in the clubhouse. I am sure it will be destroyed completely inside the house. But, if for the private guests, it is still okay, because they are quite normal patients. But for the clubhouse, the mood swings.

R: Because of advanced dementia?

P: (Pause). As I have been working here for 6 months, she is like this. Her mood is…she will be throwing up all the time. Like sometimes she sits down and cries. She always talks about her kids, her boyfriend and her mom. But, 2-3 days ago, her boyfriend comes; she still talks to him normally. It seems like they can communicate understandably. But she cries and hugs him…like she misses him and talks about her kids. Something like that…

In room 67, there is another Alzheimer's patient too. They told me that for that case, you cannot open the door and she yells at people. This is what I heard. Also, for room 12, if you said something, he/she will completely forget.

R: Is the clubhouse's door lock at night?

P: You have to use a keycard to open the door. But for Nancy, it does not lock because we let a technician to fix to open and close the door (to access). But, for Susie, it is not normal as we have to use a keycard to open. I mean I have to use a keycard to open the door, but from the inside, she can open from the inside. So, we usually go in there when serving food for breakfast, lunch and dinner. You can access the clubhouse from the outside, but you cannot go out from the inside without using the keycard. Because we have to prevent Nancy to open the door and go out. So, it has to be locked from the inside. But, from the outside we can access thoroughly.

It is depending on her mood. But, you can see that we might have to be violent with her because firstly when we get to change diapers, she refuses to take shower, get dress, and change diapers. She will act madly. We have to be a bit harsh and you might see a cruel image. But for today, we can take shower for her. Normally, one person has to get her still and another person rubs the body dry, get dress, and change diapers…We have to be rush because if we are doing them slowly…Some staff, they have been scratched because her nails are long and she does not like cutting nails. She does not like people to bother her.

Most guests in the villas, they tend to eat at the restaurant. Or some people they eat in their rooms. Like Pupae, he/she likes the office to serve food at his/her room. As he/she does not like to come out of the room because he/she has a large body size. And, room 67, there is a care staff to monitor 24 hours and room 12. Not many that requires 24 hours care…only 67, 12, and 42. For 41, they are looking only from 2pm to 10pm because in the morning, they will leave her at the clubhouse. Tomorrow you might see her. That person, she sits on a wheelchair. But we like to take her to sit on sofa because she does not do anything. She just sits and sleeps. When it is time for meal, we just feed her.

R: So, how do you interact with her?

P: She does not talk…she only talks to a care staff who take care of her because if other caregivers who are not permanently take care of her, she does not talk. For Susie, she still talks to us but rarely talks to other guests. Or, rarely, she walks to the lakeside room…Bobby's room…like go travelling. So, we rarely take her out.

R: To what extent do you think healing environment can support dementia care?

P: For lighting…it is hard to say…because for Nancy, she cannot see things clearly, so she does not interact any of her surrounding. And, for Susie, she keeps being in her room. Just like that. But it can be possible if she does not act madly. If there is a bird cage inside, or any other activities for her to do…

R: Are there any activities for them to do?

P: Not really. Because they don't interact with other people. Like for Nancy, sometimes if there is an activity…she cannot stay for more than 5 minutes then she starts to yell. We cannot take her because she starts yelling. So, mostly she stays inside the house…walking, walking around inside the house.

R: Like drawings or something else…

P: No…because she cannot do them. Previously, before she is getting worse, her mood is very fluctuating. Previously, if we turned on music for her in the morning…every morning when she woke up, we turned on music. She sang songs…And, she was in good mood. But now, when we turn on music, it does not help anything. Even though we turned on music, her mood is still bad. So, we don't turn on because turn on or not turn on has the same value. It does not like previously. Her condition is getting worse like…within this 1-2 months.

R: Have you used technologies here before and how do you think about them?

P: For technologies, I think it can help. For those cases they don't like to go outside. But for the private guests, it may help supporting because sometimes they go and we cannot find them. For example, they go to a shopping mall and it is large, if there is a GPS. It will be okay.

Also, we have nursing alarms in every room. For my cases, there are as well. There are in bedrooms and bathrooms. It is like for them to pull…only to pull…not censors.

For the turner, it is also good if there is in a private room because in the clubhouse, the patients are small in body size. But for private rooms, this should be okay because some people are big and they have to use energy to lift…like two people to lift up.

Actually, Susie can speak Thai. She is like…a Thai who live in foreign countries and then she came back.

R: Have you seen this kind of tools before?

P: You mean…bedrooms and bathrooms like that? If there is this kind of tool, it might be good because in case they can adjust….for the owner to adjust, but I don't know if he will or not.

R: Have you experienced to go out into the communities with the guests?

P: Yes I have…with Susie. They have a day for shopping. So, I go. If we are going outside, I take her to sit on wheelchairs and take her for a walk. Something like that…

Pause). The pathway inside the shopping mall is okay. So, we only go to Meechoke Plaza which is a small shopping mall. It is a bit troubled because Susie…she likes to go to wash her hair in a salon, which is another side of the road. We have to push the wheelchair cross the road. And, there are many cars parking so it is a bit of troubled when take her to wash her hair. So, she has to walk, and leave the wheelchair behind and support her walking to the hair salon. The toilets are not big enough. But the distance is fine. She goes out twice a month and she has to register first. But she signs up for every month. So, we always go in a group because there are also private guests. But, in that case, my responsibility is only for Susie.

She is normal. But, she cannot wait for so long. If she has to wait, she will be upset. Like staff in shopping malls, if she cannot communicate with them understandably, she will abuse them. It is like that.

R: Why did she stay in memory unit then?

P: I think it might be because of her children because staying in there…I think her children want to save the expenses. For the villa type and you also need care, it will be more expensive. But, if she stays here, there are staff inside and can take care of her. So, you have to pay only the cost of the room. So, they have to save the expenses. Her kids…like that….

R: So, she can still walk by herself?

P: Yes, but we still need to support her because she is ageing. She used to fall once…inside her room. But her room has a camera. Her son monitors her all the time.

R: Like CCTV?

P: Yes. Installed in her room. But for Nancy's room, there is not. Because we always go into her room. The room is not locked.

R: But will she come out of her room if tomorrow I come to observe?

P: No. She will not come outside.

R: She eats inside her room?

P: Yes. She eats inside her room.

R: Most of the guests are foreigners, from your experience, how important is familiar environment?

P: Mostly, they are homesick. The patients here…they are homesick. Like Nancy, she always say…I want to go back home all the time. For Susie, she also misses her son but she always says, I might not have chances to go back. I think I have to die here. For Susie…

But for Nancy, she keeps saying about going back home all the time. Previously, there are more patients in the clubhouse; they also wanted to go back home. They don't want to stay here because here it is not their home.

R: How did you manage the situations?

P: I can only just talk and console them…like tomorrow you will be back home…like that. Because sometimes, when we talk, then suddenly they forget.

But for Susie, she rarely talks about it. She says she stays here she is also comfortable. In the morning, she always sits at the front. When the housekeeper comes, she talks to the housekeeper or gardeners. So, she still has friends to talk with. So, it is kind of relieving her loneliness. When she goes into her room, there is a cat…something like that. So, it is like she's making herself home.

For Nancy, she is staying only inside the house. We are trying to avoid her to go into her room because we want her to be outside (means living area). If she stays inside her room, she only walks around repeatedly, dismantle clothes from a wardrobe.

But I don't know if she will talk to you because even nurses…she does not talk. She does not really like nurses…You don't have to talk to nurses…they have works to do.

For Nancy, you can try talking to her. For us, we cannot communicate with her much because we cannot communicate with her in sentences. But if you try talking to her, you might understand her.

R: To what extent do you think the design of physical environment can enhance independent living for people with dementia?

P: Mostly, they are not usually come outside. But when we are still fear…it is like this when the pathway is like this. Especially in rainy season, it is very slippery. We have to have a special caution. So, I think you have to follow them closely all the time. Some people if they can walk alone, they can be independent. But some people who are not able to walk or not bold to walk, then there is staff from the office to pick them up to the dining area…

Participant 8: Caregiver (Carer) (Case Study 2)

Gender: Female; Age: 30+; Nationality: Thai

P: I work here for almost 2 years now…

There are some areas, which are not suitable. For some places, there are some areas which they use tile flooring. Like the reception area, it is a type of tile, which is very slippery, and there is no friction at all.

Also, there are spaces where they have handrails. Also, inside the room, there is something like…inside the bathrooms, there are handrails when they sit or when they get up, stand up and walk. It also supports us as well because some patients like room 12, he/she does not know anything much. So, those handrails can still help him/her.

R: How many of guests with dementia here?

P: Yes…quite a lot. Some of them, they are like the normal people but they still need some assistance because they are already aged. Some of them are affected a little bit…like forgetting something. Or, some of them, their ears cannot hear/function. Something like that...

R: Any design limitations?

P: I think it is the footpath…outside the room. For example, some of the footpath is quite narrow. Currently, the office has driven the buggy and we cannot estimate the width of the footpath. Sometimes, the patients are…Sometimes, the footpath is quite steep also. So, we are worried that the patients will fall down.

There are some rooms that come outside, to eat outside or for us to serve the food. So, not all the guests come out and eat at the dining area. Because there are some people who are still healthy and can walk to the dining area. People who have meals inside their rooms are about 3-4 people. There are both people who come out of the rooms or we can serve the food to their rooms. It depends on the patients. Inside the rooms, there are some arrangement of chairs and tables like a normal one.

R: Do you join the table?

P: No, I don't join because for carers we have a canteen. But for some private cases, we can join the tables with the patients. But mostly for the 'office', we don't eat with the patients.

R: What do you mean by office?

P: I mean the normal service for the customers that they don't have a private service. They don't have 1:1 personal carer. Because if the guests require an assistance, we need to go…calling by nursing alarms.

R: How can design of outdoor environment support dementia care?

P: Yes, possibly. For the outdoor environment…like the lakeside or a swimming pool, we are using them for doing activities with the older people. Or, to organise events…something like that. But, they are not often. It depends on the occasion or which period or festivals…particular holidays.

R: How often do you go out to the outdoor area?

P: (Pause), I don't usually use the garden area or the outside. Mostly, I use the area…the lakeside pavilion. So, mostly, we do some activities such as Tai-chi or something like tubing. So, there is a schedule like what activities are happening today. But, some days do not have activities. It depends on the activity organiser who set up the timetables. The activities are about one hour.

R: I heard the owner said that sometimes you also use the multi-function room here?

P: Yes. If there are parties or something like that. In case the lakeside pavilion, it is not quite convenient. We tend to use the room here. Mostly, it is like if they do yoga or watch movie. They tend to use the meeting room for these activities. Some activities, which require bigger spaces.

R: Can guests with dementia attend the activities?

P: Yes they can…but it also depends on each patient if they want to participate in the activities because some of them never participate. So, we tend to ask them first…

Because there are carers as well…

R: You mean 1:1 carers participating the activities?

P: No… I mean there is activity organiser and office carers who participate…to monitor, to help monitoring. So, we are helping each other to look and monitor.

R: How many guests in total for activities?

P: Depends…it cannot be estimated because sometimes they come very few. Sometimes, many of them come. So, it depends on which kinds of activities too.

R: How important is the physical environment to be familiar for them?

P: I think it is okay because some patients…they can remember the time period when they were at home. As they are in the place where they are not familiar with. When they firstly arrived, they don't think that this is their own home.

Previously, there is one patient who asked all the time that he/she wanted to go back home because even though we said that this is their home. But, the patient didn't believe and still wanted to go home. Because the design…it is not really similar to their local ones.

So, we have ways to persuade that currently they are here for their holidays because some patients can remember for approximately about 15-20 minutes and then they forget.

Within 15 minutes, we have to convince that they are on holiday here. This can make them to be steady and calm down. Some people scold angrily or act madly because they don't know where they are (orientation).

R: From your experience, how do you think the design can support…social interaction?

P: I think it can because it can make them like being in their own home. They don't have to be anxious about anything also.

For the guests in the dining area, there are some interaction by joining in the table….sometimes, to ask about all happiness and sufferings. There are patients that are normal who like to talk to each other.

But for patients with dementia, they might interact sometimes…some normal patients they try to make conversation with patients with dementia.

People with dementia can walk out from their rooms but there should be a carer to support. Because some patients…in the room below…the patient cannot remember if he/she has eaten. So, he/she walks to the restaurant and go back and come back to the restaurant again. That person has a care staff to take care. But, some people…their families pay only certain limited amount. But, there is staff who come to visit them quite often.

Because sometimes, we are worried that they may fall…something like that.

R: To what extent do you think healing environment can support dementia care?

P: Most of the time, I stay in the room 41. So, I take the patient back from the clubhouse. Then, I take her back to the room and change diapers. Then, I take her to sleep. When she wake up, then I may make her a cup of tea. This is because her children have already fixed that what kind of activities she has to do each day…to do activities. So, her family has already fixed what activities she has to do. So, to create the feeling of home as much as possible.

R: So, there are not many extra activities for her?

P: Yeah…don't have to have. But sometimes if there is a lot of free time, we might let the patient to do activities such as drawing and colouring, or reading magazines. The activities are located mostly inside the private villa and there are not many group activities together.

R: Do the carer also involve in these activities?

P: So, we usually do with the patients or help to support the patients sometimes. As I have mentioned, their families have already fixed the schedule for the patient to do what kind of activities…to go for a walk or watch movie. Something like that.

R: Oh. So, there's a timetable for them. (P: Yes). How often do their families come?

P: For room 41, her children visit quite often. They usually come this time and leave for a month and come back. She has two children, a son and a daughter. Like this month, a son comes. Then, next month, a daughter comes.

R: Also, as you have mentioned, that she has to go to the clubhouse in the morning?

P: Yes. So, her children have already fixed. Like in the morning, the office staff to help talking shower and dress up and take her to the clubhouse. So, she has a private care starts from 2 pm to 10 pm.

For room 67 and room 12, there is care staff 24 hours. But for this room, there is only 1 shift. Because in the morning, she is at the clubhouse. So, she just sits in the clubhouse…in the living area…everyday.

She can still communicate with us but sometimes she forgets something. She might not remember us but she can remember our faces and voices. But for this room, she is an introvert. So, she does not want to bother the ones who she is not familiar with (Strangers). If they are not her permanent carer…

R: Is it rotating shift or permanent shift?

P: (Pause). For room 67 and room 12, carers are sometimes rotating. But for room 41, there are only two carers who are permanent because her children have already selected and fixed. So, others cannot access in her room.

R: Have you used technologies here before and how do you think about them?

P: I think it can support us a lot. As you have mentioned about the watch, it can help us to know where the patients are because sometimes some patients walk and get lost. We don't know where they are. So, we can find them more easily. For iPads, or other communication devices…the patients can send messages or call the families or their relatives.

R: In Care Resort…

P: Not really sure, but the patients here, they have their own communication devices to contact their families and relatives in general…which their families gave them.

R: What about for safety aspects of technologies?

P: There are nursing alarms or ring bells that they can call for assistance.

R: Are there any censors for preventing fall risks or that kind of devices?

P: (Pause)…Oh, there is an alarm at the bedside. Like, some patients, their kids…There is a patient in one room in the clubhouse. We cannot open the door for them because she closes the door all the time. Also, she closes the door and turn off the light. So, we cannot know what kind of activities she is doing. But when she gets up from a bed, we then hear the alarm noise (to know that she gets up). Because she closes the door all the time. So, no one can go into her room. Because sometimes…sometimes she wants some privacy. She does not like to interact with anyone else. Something like that. Unlike the private care, the care staff can join activities and be in the room with the patients. But as a shift…

R: Have you seen this kind of tools before?

P: Not, I have not seen this before…I think that it is beneficial because it can help to assess if this kind of design is good such as pathway or other elements of the room to be suitable for the patients. Also, it also helps support us as well.

R: I heard that there are outing to the outside communities right?

P: Yes. There are some trips and shopping. Most limitations are some patients are hard. Patients with dementia don't know where to go at this time or something like that (orientation of time). For example, if we invite them to go, they may refuse to go or don't want to go. But eventually, they go. We convinced them to go together. Most of all, it depends on the patients that they want to go or not. Also, some patients require some extra equipment for assistance for walking such as walkers. It is quite a trouble when we take them outside. We take them out about 8-9 people at once. Also, private patients require 1:1 carers or patients who cannot walk alone and use wheelchairs also require carers to follow closely.

R: How about toilets in the communities?

P: It depends on the places because some places do not have toilets for patients. Also, we go out sometimes for trips and have meals outside. In this case, we have to inform and reserve the places first because some patients are hot-tempered. Something like that. So, we have to inform the restaurant first. Or, we might have to ask the patients first what do they want to eat and when we arrive, they suddenly serve the food.

R: I observe that there are some tourists around, how did you zone the resort?

P: Yes, there is some zoning. For private cases, they certainly stay in the different corner of where the tourists stay. But if some private cases who don't have any problems, they allow tourists to stay next to them. But the dining area, they are integrated. It depends on the situations.

R: Most of the guests are foreigners, from your experience, how important is familiar environment?

P: I think it helps a lot. For example if you design and put photographs into the room. They can bring their own furniture. No problem. They can put their photos on the wall. It depends on the families too because the families recognise that the patients may miss their home. So, they brought stuff from their homes to relive homesickness.

R: Do you think languages?

P: Yes sometimes…I am worried about the accent because sometimes we speak in our accent, but if they are a native British, they can hardly understand us. Yeah…you have to be careful with an accent. Some words we may not pronounce them clearly. So it is also a problem in communication too.

Sometimes, I have to call the relatives to speak to the patients or use posture or body language to communicate. For room 41, sometimes she says I cannot understand you what you want to say. So, I talk to her by using body language. So, she can listen and understand more clearly.

R: To what extent do you think the design of physical environment can enhance independent living for people with dementia?

P: I think it is very essential because if we can design for the patients to do their daily activities such as have railings to hold or places to secure can make the patients feel safe when they

do activities alone. When we are not with the patients because some patients we are not there 24 hours. So, there should be some arrangement or compositions. Also, on the floor too, some rooms they always fall down. They also put some sheet for shockproof. So, we put that for them because they always fall down during the time we are unable to look at them (monitor).

Some guests can eat by themselves. But some patients, we have to feed them because they may think that they have already eaten. Something like that. Because they cannot remember if they have eaten or not. Yeah…for patients with dementia. Sometimes, they have not eaten, but they say they have eaten. So, we have to help them feeding. But still it depends on cases.

(Room 41 observations – when she was in the clubhouse she had to be fed, but once she went back to her room, she can eat by herself.)

Participant 9: Caregiver (Carer) (Case Study 2)

Gender: Female; Age: 22+; Nationality: Thai

P: (Pause)…I cannot think of any…(Pause)

There are handrails…there are handrails, which are quite convenient…for the patients. (Pause). Mostly, there are nothing much…If there are something, the patients will press alarms to call us. But, this is only if they are not private guests. Just the normal patients…

It (the environment) helps because of when they order food, and then we manage for them if they come to eat outside.

R: How do you think…design limitations?

P: (Pause)…In bathrooms, I think there is only one issue, which is hot, and cold water temperature when taking shower. The patients don't really like cold water. It is hard to adjust. Is it depending on places? Here, it is quite hard to adjust. I mean the valves/taps are hard to adjust. Until now, the patients don't want to take shower. Yean…cold and hot water…the patients do not like to take shower…It wastes more time…it takes time. It happens every room here.

Only just some rooms that we help taking shower. Some rooms we go in to assist them…to help them just to sit down. There is a chair for taking shower to support for sitting down while taking shower. But some rooms, we let them take shower and we wait outside.

R: What about the design of the outdoor environment?

P: Yes it is kind of supporting. But, I think it is too far apart. Like this (point out to the pathway), I think it (the villas) should be closer because when we go to deliver and serve food, it is difficult because I have to go to many villas. If they are closed to each other or in groups, it will be more convenient.

R: How often do you go out to the outdoor spaces?

P: Rarely, because some patients don't like to come out of the rooms. They just want to stay inside their rooms.

But there are some patients who come out for activities. Just only for that. The activities are from 10 am in the morning…. only some days. For these reasons, they would come out. If not, they like to stay in their rooms more.

R: What about the terrace area. How these spaces are usually used?

P: (Pause). Not really used. They only stay inside their rooms.

R: Turn on air conditioning all day?

P: Not really. If they are cold, we will turn off for them.
R: And not open windows?

P: (pause). Some rooms open windows. Some rooms are smelly if not it will not ventilated. Like this room (point to the villa in front) to ventilate the bad smell.

R: Interaction?

P: Yes, because it seems like it has something to do. It looks fun and enjoyable. It does not look unattractive/dull like this. Here, it is somehow 'stuffy'…something like that. It is like everything is very silent. It is like dull, depressed and inactive. Some patients have depression because they have to be in the room alone. Even though there are group activities, they choose to not to come out. So, this makes them more depressed.

R: Are there any spaces similar to this in Care Resort to support social interaction?

P: (Pause) No.

R: Like in the restaurant area, when carers bring them, do they have to wait or join the meal?

P: No. So, we have to do other tasks. For the eating, the restaurant department is the one who is responsible for them. There are no care staff…they are F&B (food and beverage staff) who take care of them. So, they just confirm the food order and then the F&B staff will call us to pick them up after their meals if they want to go back. So, we are coordinating. We are coordinating and communicating through LINE application group.

For the lakeside pavilion, it is for activities. If it is not raining, we will go to do activities together including Tai-chi and stretching or Baton Dance. It depends on which days and also weather conditions.

If it rains, they will move to the big meeting room. If there are no 'group tour', they will move to that place. If the meeting room is occupied by a group tour, and it rains, they will just postpone the activities to other days…or to cancel the activities.

The activities have about 4-5 people participating. Previously, there are many patients participated in activities but they are dying one by one (Laughter).

R: Are there people with dementia included?

P: (Pause). Not so sure. Mostly they do not come out.

R: Have you participated in the activities?

P: Yes. If I have to monitor them, so I participate. If I am on duties for private case, I must go and participate because I have to stay there to monitor. So, I go stretching with them in order to let them follow me. Yeah…we have to support them first and lead them.

R: To what extent do you think healing environment can support dementia care?

P: (Have pets?...I think it is good). Yes, because they are living alone in the room. Mostly, there are cats. When cats are lost, they are in trouble/distressed. It is like they are lacked of something…it is like they do not have partners. So, they want friends to stay with them.

R: Any kinds of aromatherapy used in here?

P: I don't know…I know only pets, which don't make them feel lonely. They are talking to each other. (Laughter). So, they usually talk to pets. Most of the cats are from somewhere else. Then, they took these cats as their pets.

R: Do you think it support you as well?

P: Yes it supports because we are always with the patients…(Pause), so it may be stressful. Yeah…I think these factors might help to be happier. It is like…I might be happy with the patients as well.

R: How do you think natural environment support?

P: (Pause) Very little, because most of them do not come out and only stay in their rooms.

R: Have you used technologies here before and how do you think about them?

P: Most of the time, they stay in their rooms. So, sometimes they turn on televisions or play games in their own iPads. It is based upon individual.

So, here, we use alarms. If there is something happening, they will just pull alarms or press alarms. Then, we will come to look at immediately.

For iPads, it depends if the patients have them or not. Some people have computers in their rooms.

R: Have you seen this kind of tools before? How do you think about it?

P: Yeah…it is good because like different care facilities…different places are not the same and they are constructed differently…homes by homes.

R: Have you been visit the communities with the guests before?

P: Not really. I have only experiences to go to hospitals with the patients. Only that…

There are not many limitations…but there are some patients who cannot walk conveniently. They cannot walk properly. So, we have to support them while walking. So, we are going to the nearest hospital.

I don't think there are issues about the environment. But most problems are from the patients themselves...when they pay for something (expenses). For example, medicines. But not all the cases.

Also, there are more issues like eating...inside which some cases they cannot walk properly.

R: Most of the guests are foreigners, from your experience, how important is familiar environment?

P: Not really homesick…But there is an issue that we cannot communicate and understand them. Like they are stubborn and refuse for taking shower. Then, they want to go back home. But now they are better in collaboration…

R: Physical environment and independent

P: No… If they walk inside the room, they can walk to pick or touch their stuff. But if they walk outside, they are unable. When they are in their rooms…only for private that we are in the room.

If they are not private cases, they can get up by themselves, but they tend not to come out of the rooms. If they want to come out, they will call us to pick up or to assist. That they want to come out…

If there are handrails outside…it would help. But (Laughter), for here it will require way too many. Like, one hand holds a cane and another hold railings. So, we don't have to support them frequently. It is good…but they might still need us to follow closely.

R: To what extent do you think they can cook independently for their daily living?

P: No, I don't think they can…in the room, there is nothing fully provided. They cannot do. It is not safe and it is not convenient.

Participant 10: Caregiver (Carer) (Case Study 3)

Gender: Male; Age: 25+; Nationality: Thai

P: Yeah I think it can partly support because in case of Alzheimer's patients. Sometimes they are lost and forgotten. The rooms are not too small for them. Because sometimes they forget and they come out of their rooms to go out. Sometimes, we are sitting at the counter…we cannot be with them all the time. So, they can open and walk out. There are one case which the patients are attached to his/her couples. The patient asked for her husband all the time. Previously, she can walk or something like that…She will open the door and sometimes her husband is not there…like he goes to the toilets. He comes out of the room, so she follows and comes out of the room to find him. Personally, I think the room is alright because it is compact. If you ask if it is compact…it is wide enough to…if depends upon if the patients…how much memory she can remember…

Like it depends upon the level…someone who is really forgettable. Most of them will not go anywhere. Mostly, if they are very old, most of them will sleep on bed…bedridden and not do anything.

R: Are there any activities in here?

P: Yes there is physical exercise. There is a basic physical exercise, which the caregivers at about 10 am, there is an exercise of raising hands and legs. If that person can walk, we will take them walk. So, it depends on different cases.

For bathrooms, most Alzheimer's patients, they do not go to the bathrooms by themselves. The caregivers are the ones who take them to the bathrooms. It is quite general. So, the caregivers take them to the bathrooms and support.

But this still depends on each case…For example, some don't need to go to the bathrooms because they wear diapers. But, they forget that they are wearing diapers. So, we have to

check if they urinate or…So, it depends on each patients and their capabilities to be able to do these activities.

R: How do you use spaces for group activities here?

P: For group activities (Pause), the group activities are mostly during the festivals. But we have to ask them first if they want to participate. If the patients don't want to go or they don't want to go outside the room, they will start screaming. So, we have to ask for their voluntary…for patients with Alzheimer's who can still remember something, they will sometimes participate. Or, if some of them cannot do…they will not do activities and start screaming.

So, mostly, we do activities in this room here. So, we usually arrange the spaces…for patients to eat and to get together. So, most of the time, it depends on the festivals or days of the month.

But most of the time, the patients are in the room. And, then their kids come; they usually go to do activities inside the room. They don't really come out of the room. If their families come, they usually stay in their rooms.

R: How does the design of physical environment support the caregivers?

P: I think it is convenient and comfortable. Also, it is easier to take care of them. It is convenient for us when we work. When there is something happening with the patients, it is convenient because they are separated rooms by rooms. If there are something happen, we can help each other one at the time. If it is a shared room, it will be chaotic. Also, it provides more privacy as well.

R: I heard that there are some foreign residents here?

P: Yes…they are here for

We have a basic physical therapy for them like raising hands and legs.

R: From your experience, are there limitations for dementia care?

P: For me…I don't think I have any limitations because

So, I am quite familiar which alarms are…

Because the place is not too big…and the distance is manageable. If there are any issues like some patients have flu, we can immediately go there. If it is a shared room, it will be a bit chaotic. If…when they are in their rooms, they can do something in their rooms most of the time.

R: How does the design of the outdoor environment support dementia care?

P: So, we usually take the patients there in the morning. But, only for some cases to look, to walk, or to do physical exercises upstairs at the garden. They are cases that can walk and consent them that we will take them to go with us. There are 2-3 cases that we take to smell the atmosphere upstairs. Sometimes, we organise activities to have meals together upstairs or to the open space downstairs to change atmosphere. But now, it is a rainy season, which is overcloud. So, we rarely take them up. It depends on the weather too.

For cases of Alzheimer's patients, we also take them up, but it also depends on her husband if he consents or not….is he okay if we take her up. It depends on them if they are okay and consent. We then take them up.

R: Is her husband living here too?

P: Yes, they are together all the time…they live in the same room. But for other Alzheimer's cases, we take them upstairs too. After we consent to go up and have meals and feel them upstairs.

We have to ask them for agreement and willingness first because if it is hot, they will not go and only want to stay in their rooms.

R: Any design limitations?

P: (Pause) I don't think we have. It works quite well. We can do most of the things up there. We can take them travelling and they have good mood because the atmosphere is quite good up there. The patients are okay with the open space downstairs too because it is next to the canal. When we go there, it is like…broaden their view. They are happy because sometimes they stay only in their rooms. So, they are okay.

R: Have you been visit the communities with the guests before?

P: Some of them because some are bedridden patients. It is hard to move them. Importantly, Alzheimer's patients…if they are in the good mood, they are good. But, if they are in bad mood, they scream and start yelling. Previously, we have, but recently they are difficult to move. Sometimes, it is far and also the patients do not want to go out too.

R: How do you deal with their mood?

P: Sometimes, we talk to them like what happen...But it is just minority that they scream. Some rooms, they are normal but they forget everything. Most of them have a good mood. But there are only some special cases that scream and yell. Mostly, when they scream by themselves, then they will stop by themselves. It will disappear. It is usually when they remember old and same memories. When they want to do something…they certainly forget.

R: To what extent do you think the concept of home-like or homeliness can support?

P: I think if the patients with Alzheimer's age around 60 years old. It will be okay for them. Here, most of the patients are very old age. They cannot walk and can remember only certain amount of memories. Most of the time, they can remember the past mostly. They can remember the past such as people's names, but for these things (point at images), they cannot remember. Most of the time, during their stay in here, they never talk about it or something like that. They only talk about their families, or other people's names that they can remember…So, they can remember more about people, but not environment.

Also, I think it is about the levels of Alzheimer's as well. If they just start (at mild stage), I think it will help them to support and rehabilitate. But here, as I have observed, they are only older people who are just in mild stage. So, they will not come to here. Most of them who come here are from moderate to severe stage. If they are at the beginning of the disease, I have not seen much here. There are not much here.

R: To what extent do you think healing environment can support dementia care?

P: Not really…they are more like rooms and vacant rooms. There are televisions for them to watch sometimes. But it depends on…If you ask if it is beneficial, it is. But because our space is limited, when we go up to the rooftop, the patients are cheerful and bright. Sometimes, there are birds too. But they fly to many places. The patients…they often upset and they are not interested in these things. They are just sitting still and are absent-minded (looking out for nowhere).

If have here, it will be good. But if it is too confused, it will not okay. Because it is based upon our convenience too. For example, if there are bird sounds, if we have rooms separated, it is fine. But if the rooms are open floor plan for sharing, some patients who are not suffering Alzheimer's or dementia, they might not like it. Sometimes, the noise is too loud and they feel annoyed. Like, sometimes we watch television outside and they can hear us…and they say we are too noisy.

The design of physical environment to…remember?

R: Do you think the design of the physical environment can support social interaction?

P: (Pause)…yeah, some interaction. But, most of them if we take them to see and they can remember…it's okay. If they cannot, it's okay as well. They just look and look through them mostly. They are not really interested. Some of them can remember and so we can have a long conversation. But if they are not interested and not recognised, they will not even talk or say anything. They will just ask, "What is this?". So, if we decorate the rooms and they remember. That's okay but if they cannot remember. It is ineffective/have no result from them.

We talk…We normally ask them e.g. how are you, how are you today, if they answer or if they can remember. They will answer like which year…But, if they are in bad mood, they will not answer. So, it depends case by case.

R: Have you used technologies here before and how do you think about them?

P: Not really because different patients are not the same. As I have mentioned before, the patients they mostly come when they are in late stage or bedridden or Alzheimer's with bedridden. As they are in these states, they do not 'play', they always sleep or watch TV. For phones, we also bring them to the patients to play, but they do not play. This is because they cannot remember. So, we just put them there.

So, most of them are care staff who go into their rooms to talk or play with them or tease with them.

R: How about safety aspects?

P: Yes there are nurse alarms. But for Alzheimer's patients, we always tell them about the alarms. But they don't remember, they don't remember how to press buttons, or where to press. They cannot do because they cannot remember. Eventually, we have to walk and monitor more. It is more human-based…every two hours. Or if we heard something strange, we then have to survey and look first because we are not sure what they are doing inside the room. So, we look through small glass windows at the doors.

R: Have you seen this kind of tools before? How do you think about it?

P: Ramps are okay. For some patients who are in good grade (?) of Alzheimer's, if we tell them to lift their legs, I can do. But if they are older people, if we tell them to raise up their feet, they don't do. So, we have to help them. If they are ramps, then it is okay.

If you ask if it is good. Yes it is. But most people who bring them here are relatives. Sometimes, we set up/arrange rooms like this, sometimes the relatives don't like, then they don't come to us. But, if the relatives like…it depends on the relatives if they are okay with our place.

R: So, you mean it is based more on the relatives?

P: Yes, because if the relatives come to survey the rooms and they are not okay for the patients to live. Then, they are finding new places. But, if they choose us, even though they are rooms which are not 'looking good', but they are fine with staff or places where their parents are coming. Then, they come. But most of the time, factors about rooms, they are not related. Most relevant factors are relatives or the one who take the patients here.

R: Can you explain more about bedridden?

P: Cannot walk. But previously, they can walk. So, they only lay down and we kind of help with everything on the beds such as physical exercise, take shower, and wipe their bodies. Sometimes, we take them down to sit on wheelchair. So, they stay here and progressively cannot walk. They are ageing and begin to unable to do anything. Previously, they exercise or walk but they are deteriorating due to their age. Or if you ask if Alzheimer's is increasing…sometimes.

R: Have you been visit the communities with the guests before?

P: If we are doing it is alright but it is based on elderly in our countries, they are not the same as elderly in foreign countries. Elderly in foreign countries, they like to do physical exercise and do something active. But elderly in our countries, as they are ageing, they just give up and sleep. Or tired…also they don't want to be their families' burden. If they go out to outside communities and they fall, they think that they are burden. So, they decide not to go out. Something like that. From my observation, based on my grandparents, they are ageing and they cannot do anything. So, they don't do because they don't want to be burden. They want to do something by themselves but they don't think about the consequences like if they fall down. If they fall, they overthink about why they did that and fall and be a trouble for their families. This is what Thai people think. If for foreigners, they don't think like this, they can go wherever they want. But Thai people it is different because they want to go but they are courteous. Also, they are worried that they are burden. If they go and get lost then the families have to find them. Also, their families don't allow them to go anywhere or live somewhere else. If they are old, they have to stay at home (25:32). It can be easily observed from bringing elderly to the facilities; their homes don't have time for them. So, they have to bring them here.

R: How often do the families come to visit?

P: They come quite often. But it depends as well. Some relatives have more time, so they come quite often. Sometimes, they have many children so they alternate their roles. If they don't have time, they do not come.

R: From your experience, how important is familiar environment?

P: I think it depends mostly on their relatives…

R: To what extent do you think the design of physical environment can enhance independent living for people with dementia?

P: Do you mean the whole area? (Pause) I think if they are the early stage patients, they are fine. If their levels are progressive, they cannot take care of themselves. Sometimes, when they do something, it is like the ones they are on the news. They forget to their keys. They

forget to turn off the lights. If they have to turn off or close these kind of things. They are not okay for them. They have to have someone to follow closely all the time. If they are patients who are in the early stage, they can still do something by themselves. It is okay. Here, it is not 1:1. Most of them who are in the late stage or start to become bedridden, we let them sleep (or lay down?) in their rooms. So, we enter each room to do…they are single bed or double beds. The staff then comes into the rooms to change diapers. If they (the patients) can help, they help to turn over to help us. If they cannot help, we come into pairs to help each other out.

Participant 11: Caregiver (Carer) (Case Study 3)

Gender: Male; Age: 25+; Nationality: Thai

P: If for myself, I think it is clean and tidy…something like this. But for patients, it does not make them feel cramped. If it is a dark square room, if they don't have to be inside. But if they are outside of their rooms, they are okay.

There are quite a lot of dementia cases here. Not only the Aunty. But it depends on how advance they are. But mostly, they spend their time in their own rooms.

 Inside the rooms, they are okay…to support the convenience. For bathrooms, it depends on the guests. For dementia patients, they always wriggle (in bathrooms). So, the bathrooms should be wider. For the bathrooms here, it should be solved. Because we as a care staff we have to use space when taking shower…require 2 staff to help. For the case of Grandma, they have to take her on a wheelchair and the spaces which can be used with wheelchairs are a bit too small. So, actually me and another friend have to help each other out.

R: What about the common area here, how the space support you?

P: Yes, we use the space for meetings. We mostly use for our meetings…like a monthly meeting.

R: What about the residents?

P: Oh…yes they also use this space such as if we have making merits events…like this month…it is happening soon. A festival such as Loy Krathong, we also organise.

There are other common spaces at the back. But that is only for views and scenery. Also, there is a space on the rooftop too. For letting the patients to see something outside. Something like that. So, we take the patients upstairs. Only for people who can go up. Then, we take them upstairs. It depends on each individual…like some people are not convenient to go up, so we don't take them up.

R: How about the residents with dementia…how often do they go upstairs?

P: Not quite often. They are not convenient…I am afraid that they will interrupt other residents. Because most patients with dementia scream, scream and yell all the time. Something like that. So, we are certainly afraid that they interrupt others.

R: How can the design of outdoor environment can support?

P: Yes, for sure. Because if they are getting bored when they stay inside the rooms, they will go upstairs to look the surroundings. Then, they can get some breeze. Something like that.

For the care staff, we often go up there when we stress out. We go up there and feel relieved.

R: Any design limitation?

P: Yes. I think the main limitation is weather. When it is raining, there is no shelter to cover. There is no pavilion/arch for the patients. Also, when the sun is shining, the patients cannot really get out. So, it depends mostly on which days weather is nice. We are unable…

R: To what extent the concept of home-like environment can support dementia care?

P: To make it like home…I think it is okay. But it depends on the patients again, because some cases of the patients, they…For example, the case of (name), she does not want to come out of the room. She is an introvert. Most of the patients, they don't want to socialise. Most of them make a living inside their rooms. When we persuade them to come outside, they rarely come out. But, we also talk to the residents. They talk to us but they just don't want to come out.

R: How about social interaction?

P: Yes, it totally can do. When they are making merits or other events, if there are tables then often come to sit together and talk. But they don't want to come out because if they come out to eat, there is no table. Something like that. So, if there is a table, then they will come out. You can observe from events that they usually come out when there are some organisations. But if they are small events, they will not come out. If large events, they come out. When there are some event organisations, then they can foresee what is happening.

But for us, it does not help much because mostly we sit at the counter at the front. The patients will call us by pressing alarms. Because they are staying in their rooms. Like these activity rooms, we are not often go in there. Most of the time, staff will stay at the front counter only. Because if the patients press alarms, we have to immediately go there. If we are in different area, and the patients are in different area, we might not hear the sound. Like, for this room, we do not come recently. We come here only once a month for a meeting.

At the counter, for a morning shift, there are about 5-6 shifts in total. During night shift, there are about 4-5 people. We use only 1 floor for now. The second floor is renovating.

R: To what extent do you think healing environment can support dementia care?

It can support the patients because sometimes they watch televisions. They always stare at the televisions. If the televisions are broken, they don't have something to look or watch. But, when they are coming out, we are not available. Sometimes. Sometimes, we want to relax/take a break. So, if they want to go up to look at birds, they can go.

For now, they often watch televisions inside, but if there are these kinds of facilities. It will be good.

(Pause). I think if we have these kinds of activities or spaces, we can take the patients to different places…I mean we can have more choices to go. I have seen that they are bored and dull. They are dull and inactive. We keep asking and they refuse to tell us. So, we take them outside and they seem to enjoy. Like here, there is a window right…If we take the patients on wheelchairs to look through windows. And, we ask…is it beautiful? He said yes it is beautiful.

R: Have you used technologies in dementia care before? How do you think about them?

P: I think it helps a lot in terms of technology especially GPS or tracking systems. The monitoring system is very useful because sometimes I don't know where the patients are

going. Like there is one room which is Khun… who sometimes they are in the rooms, but sometimes she goes out to somewhere else and we don't know where she is. So, we have to walk and find her. Something like that. Also, for iPads, most patients are also playing their mobile phones.

If there are iPads which their screens are bigger, it will be great. This is because mobile phones' screen are too small for them to see. Sometimes, they are bored.

For here, there are bell alarms. It is kind of like calling alarms in every room. But, our morning shift, we often go into their rooms and check quite often. But it is usually during at night like 2 hours in each time. But if the patients have additional needs or services, they will use alarms to call us. They are located in both bedrooms and bathrooms.

R: What is the main age range?

P: 70 -99 years old. But for the 99 years old case, the patient is less severe than the Grandma (18:26).

R: From your experience, how important is familiar environment?

P: Yes it is important because when they firstly arrive here. They cannot sleep well because they are strange to the place. When they want to walk to somewhere, they are confused and become unclear. So, if making the place to be home-like or feel-like home, I think they will not stress out and become more delighted. Because some patients really want to go back to their homes.

R: So, how did you persuade them?

P: We usually deceive them. We have to deceive them by persuading them to watch movies. Sometimes, we have to tell them that your relatives will come. Then, we take them back. So, it is more like the way we talk with them.

I don't know how to answer the question…like where to relax…because stress is everywhere.

R: Do you have lunch with the residents also?

P: No. We eat separately.

R: To what extent do you think the design of physical environment can enhance independent living for people with dementia?

P: I think…the place is the most important factor including rooms. For example, bathrooms are essential which should be constructed to support the patients as much as possible. We should hold the patients as priority. For the care facilities or something like that…we should consider the patients as the main priority. However, for the staff facilities, they should be separated from the patients' ones.

I think it should emphasise the wideness of the rooms. The sizing of the rooms. The size of the rooms are the most important factors because they stay in their rooms for most of their time. In this case, they might have more personal spaces.

For the common areas, for here, I don't think they are essential. This is because most patients, they are in their rooms and the staff is at the counter.

Most of the patients, they are not able to walk much. They are dementia mostly. They come out at a very short period of time because they are introvert…no longer than 5 minutes (Laughter).

He/she comes out to order food. So, sometimes he/she walks to the counter or sometimes he/she go down to the kitchen at first floor. After he/she finishes ordering, then go up and go into his/her room again. And, will not come out after.

R: So, they can still walk?

P: Yes. But only some cases only. Most of the time, they stay inside their rooms.

Participant 12: Caregiver (Carer) (Case Study 3)

Gender: Female; Age: 22+; Nationality: Thai

P: Yes the environment does affected if the physical environment is fit to live in. It is effective.

(Pause). For example in bedrooms…if it is disorder or the objects is not in order, or not livable right…then we work hardly. When we go to change diapers, then…it takes so much time to find and pick up stuff. So, it has an impact.

For bathrooms, they are quite convenient because each bedroom is an en suite and has a bathroom inside. So, when we take them to take shower, we take them into wheelchairs. Take patients on wheelchairs and can push wheelchairs to take shower.

R: Any design limitations?

P: I don't think I have one yet…

R: Have you use this space (common area) before?

P: Yes. Previously. But now, I usually stay in the 3rd floor. Previously, I took the patients downstairs to do activities or events such as in Loy Krathong day. So, we bring the patients here to do Krathong. But because recently we relocate all patients to upstairs…3rd floor due to renovation. So, we relocate them upstairs. As we are in different floors, it is quite hard to bring them down here

R: How can the design of outdoor environment support dementia care?

P: Yes, I have used the spaces. Sometimes, we take the patients to walk or do physical exercise upstairs. Or, to look at scenery. Or, sit, chill and relax up there.

R: Have you experience taking care of residents with dementia?

P: Yes I have. Here, it is not 1:1 personal care. We help each other out mostly.

R: For the spaces upstairs or at the ground floor next to the canal…what are the main limitations?

P: (Pause). I think there should have more flowers. But…. there are already many flowers at the moment. (Pause). I like to plant flowers. It is beautiful…

R: What kind of activities happening there?

P: Walking and they might sit some times. They sit leisurely to get some breeze/wind.

R: How often do you go up there?

P: Quite frequently. But, sometimes, a physical therapist is the one who take them up. It depends on each case. Also, we also do physical exercise on beds as well. So, we take them up or do physical exercise in their rooms everyday. So, about 10am, we (care staff) move to different places to do physical therapy or exercise. So, most of the time, it is us who do physical exercise for them. Some people if we can take them walk; we might go downstairs at about 4pm. Or if not, we also take them to take along the corridor…continuously back and forth. Actually, it depends on the physical conditions of each patient for example if they can get up or walk. Most cases upstairs, I always take them to do physical exercise on their beds. They are almost unable to walk.

R: How do you know that which resident can walk or not?

P: So, we usually observe. Previously, they can walk. But recently they refuse to walk. So, that's the reason why we do physical exercise for them on beds.

R: They told you or what?

P: (Pause). She barely communicates now. She knows nothing now. So, the care staff is the ones who have to observe if they are capable or not.

R: So, how do you talk to her?

P: She does not understand us anymore. When we tell her to take out her dress, she does not understand now. So, she does not help us. We have to do everything for her.

We have to take care of everything. When eating, we have to feed her. She just opens her month, and we feed her to eat, eat, and eat. I don't know if she is full or not. But her husband or her relatives tell us to feed her for the whole bowl (Laughter).

R: To what extent the concept of home-like environment can support dementia care?

P: Yes. Because they used to live at their homes before. So, if they are living in the places that are similar to their homes. They might be…more familiar with the place.

I think it is good because it can support…it can generate activities for the patients to do. More activities for them to do. So, the patients then are not lonely.

R: What kind of activities do you have here?

P: There are activities only in festival seasons such as Loy Krathong. Or, during new year, we take them to downstairs to get together

R: To what extent do you think healing environment can support dementia care?

P: No. Not really. It is good if there are gardens. We don't really have chances to go upstairs during the day…If there are these kinds of environment, I think we will not get bored (we in this context means both care staff and residents) as there are more choices for us to do or to see. (Care staff don't have experience or opinions in terms of lighting or sound).

R: Have you used technologies here before and how do you think about them?

P: It is good to have but for here, we don't usually use them because we usually help each other out for taking care. If the patients are walking, if we see, we then tell them straight away to come back. So, we usually see them first as the counter is at the front.

There is no application of technologies…here (Pause).

R: What about in safety aspects…are there any application of technologies to support this aspect?

P: (Pause). We have buzzers when the patients press buttons. When there is a noise, we know which room is calling us. Then we walk to that room to look what they want from us. So, it also helps us but as we work as a team, we partially require technologies…We can use people instead.

R: Have you seen this kind of tools before? How do you think about it?

P: I think it is good because it can make the facilities to have a certain standard for this everyday life. (Pause)

Like when we go into the bathrooms…the sliding doors, the base and the circulation…the floor is not smooth. So, when we lift up the patients…it is hard to lift them up.

R: Have you been visit the communities with the guests before? How do you think about the concept?

P: I think it is good to have because especially the toilets, which should allow wheelchairs of older people to access into public toilets. The wheelchairs should access the toilets easily. Sometimes, elderly go out with their relatives right and their relatives don't know how to do. Like, they don't know if they have to lift up elderly from wheelchairs. Some people do not know how or methods to do. They don't know the procedures to lift elderly down. So, it is quite difficult and hard. For here, we only go out with the patients and their relatives when they go to see doctors. But for hospitals, it is quite easy for us because we can lift them down easily (from cars) as there are more helpers at hospitals.

R: From your experience, how important is familiar environment?

P: Yes it is important (Long pause). It can make them feel like they are at home. It can make them not feel like they are in other places…the places, which are not their homes.

They have to adjust because they are not familiar and habituate with the environment. It is like they never live here before and they have to live in a new place…strange to a place from the place where they used to be.

So, we have to talk to them…for a while…to feel intimate. At first, they are scared of the new place. They are dull and drowsiness. However, it depends on each room or their conditions too…how they adjust.

R: To what extent do you think the design of physical environment can enhance independent living for people with dementia?

P: It is partly affected for example in bathrooms, there are handrails to prevent from falling or slip. Something like that. So, they are just enough for them to support and take care of themselves. Most of the time that I notice, they spend time inside their rooms. They come out only when they walk or do physical exercise. If not, we have to persuade them to come out.

Participant 13: Caregiver (Carer) (Case Study 3)

Gender: Female; Age: 22+; Nationality: Thai

P: For bedrooms, they are en-suite type of rooms. Bathrooms have sliding doors, which we can take the patients by using wheelchairs to go into bathrooms, which is quite difficult. The floor has different levels. When we do it alone, we have to lift the patient up and put them down. I am worried that I might pain them. But if they are shared rooms, the rooms are very small. It is very hard to walk through.

R: Shared rooms? I heard it is still constructing?

P: I mean the shared rooms for 2 patients. The rooms are very small. So, it is quite difficult when the patients have much personal objects. And, they do not organise them into order. Or, when we want to use them, they can be conveniently found and picked.

When we walk and change diapers for them. It is very difficult. The shared rooms with double beds are quite small.

There are handrails inside bathrooms if the patients want to be more independent or to stand up by themselves. But we still have to support them.

I kind of support first like to what extent they can take care of themselves. But most cases here, they are late stage or bedridden.

R: Can you explain more about bedridden?

P: So, we usually wipe their bodies instead of taking shower. They take shower once in 5 days. Some cannot walk when they arrive here. Some can still walk when they are first here. And, some of them progressively become bedridden. There are some cases that can still walk but less.

R: I saw two people at the front on their wheelchairs…

P: Oh…these two can still walk and take care of themselves. One of the patients cannot hear. His ears are not good. He can remember just some people and is forgettable sometimes. But some patients can still walk and can remember most things.

R: How can the design of outdoor environment support people with dementia and staff?

P: The open spaces downstairs are used sometimes especially in Loy Krathong festival when we bring Krathongs to float in the canal. For upstairs, we take patients to walk and do physical exercise there. Also, we take them to take a look at flowers. Some patients who still understand will use their phones to take picture of flowers. So, we can see scenery of Chaopraya river. It depends on whom we can take upstairs. If they cannot walk, we take them into wheelchairs and the physical therapists will take them up to take a look at views. The atmosphere is also a part of it that supports the patients and us.

R: Can you explain more about what do you mean by atmosphere?

P: For atmosphere, I mean the views, which are quite beautiful to go there.

R: What kind of activities do you and the residents usually do?

P: We did not go to have meals upstairs…We usually go there for physical exercise and relax. We used to use this room for having meals mostly. But since we relocate every patient to upstairs, the patients eat inside their rooms.

But if we organise some activities or events such as making merits, we use spaces downstairs at the ground floor. We do activities downstairs. Quite frequently. It is a making merits event for this facility. So, there are monks to do spiritual ceremonies such as praying here. Also, for late stage patients or bedridden patients, they can participate in activities as well. We take them downstairs by wheelchairs. The staff helps each other to lift them down. We have to support them. They can touch and eat by themselves. But they cannot walk by themselves. They can still eat by themselves. Some of them can still communicate and understand. But, they just cannot walk.

R: Are there any design limitations for the outdoor spaces?

P: (Pause). I have some suggestions. There should be some umbrellas…The spaces upstairs, there are not many umbrellas for sun shading. Or, shelters to block out sunlight. Previously there were umbrellas but at that period of them, it is quite windy. So, they are broken. Consequently, we don't have any. Weather is also our limitations as if the sunlight is too bright or it is too hot. We don't usually take patients upstairs when the weather is too hot. It depends on days if at 4pm, the patients want to go up, some days they are hot at 4 pm. It is still hot. So, if there are umbrellas, it will be great.

R: To what extent the concept of home-like environment can support dementia care?

P: Mostly, the patients are not…I don't know how to explain. But here, it is look like home already. It looks like home already.

Also, these can provide activities, so that we can talk to them more. They will not be lonely. Because here, there are not many things to do. We normally talk to them quite frequently like how are you today? How is your mood? Are you in the good mood. Talk to them to reassure if they are sad or not. But we don't have activities to do with them personally. They sometimes have activities with their relatives. We are more taking care of their daily activities including taking shower, eating something like that.

R: To what extent do you think healing environment can support dementia care?

P: Yes. It could help in terms of condition of the mind/mental status….or their feeling of the patients. Because it might help them feel better and feel relaxed. Such as music…most of the patients have mobile phones and they turn on music more. They are personally own the devices.

R: Have you used technologies here before and how do you think about them?

P: I think it is good if we have them because if the patients get lost, we can recognise where they are. It is good but here we don't have. Here, we have alarms. Only for the patients who are understandable.

The ones who are not understandable, they are lying down. But sometimes, they are trying to get up. Then, we started searching for them and we found out that they tend to walk to bathrooms by themselves. But, when we take them to go for a walk, they just don't want to walk. So, I think it might be because they talk in their sleep or they are delirious that they can walk by themselves (!!!).

R: As you have mentioned, they cannot walk by themselves?

P: Some days they can walk by themselves. Something like that…(Laughter). Once he/she walk from the room to the other end of the corridor. Then he/she entered another room to find bathrooms. So, we have to find him/her. Surprisingly, he/she can walk by himself/herself. The patient has dementia but can understand a little bit. Also, the patient cannot hear much. We have to talk loudly.

R: Have you seen this kind of tools before? How do you think about it?

P: Yes…there should be because some places are not convenient for the patients and for us as well. So, there should be. It can make our work easier. To support us to work more easily…

R: Can you explain more about convenience?

P: The floor level is not the same. I mean the bathroom's entrance and the doors are not in the same level. So, when we have to lift up…which is heavy.

R: Have you been visit the communities with the guests before? How do you think about the concept?

P: If the patients are going out of the facility…to have meals outside once a month. Some people can walk. There is one patient who often goes out to have meals outside, but the patient has already left. The relatives request us to take the patient out for meals once a week. So, we take a taxi to go out. To go to shopping malls, have meals, then come back.

R: So, did you go out with the patient?

P: No. The male caregiver went with the patient. For example, patients cannot take escalators in shopping malls, which are quite dangerous.

R: When you go out to hospitals?

P: No. We use lelevators which have no problems. The staff at hospitals also helps us lifting the patients too. The ones with wheelchair, they can stand and sit by themselves.

R: From your experience, how important is familiar environment?

P: The care staff is the one who makes the patients more familiar. The physical environment…the room…the room…is just like the normal bedroom. But when they come outside, they see trees and natural environment. So, it is similar to home a little bit. But, inside rooms…is still inside bedrooms, when we take them for a walk, they are okay. So, it depends more on the care staff to make them feel familiar.

R: How did you interact with them?

P: Asking like what is your name, where are you from, or what is your disease. So, it takes them about 2-3 days for them to adapt or to be better. Start smiling. When they came here first day, they are scared and not let us touch.

R: To what extent do you think the design of physical environment can enhance independent living for people with dementia?

P: No. I don't think so…I think it is us who help everything. They cannot do anything. We have to help them. They cannot eat by themselves. They cannot do anything by themselves. They contract all the time. Their bodies contract all the time…Depending on cases. But from my

experiences, we have to help them with everything. Taking shower, feeding, help with everything.

R: As you have mentioned about a case that can suddenly walk.

P: Yes. He is sleepwalking (Laughter)

R: For this facility, do you have to assess their capabilities first?

P: I don't know.

Participant 14: Caregiver (Head of Carer – Telephone interview) (Case Study 4)

Gender: Female; Age: 30+; Nationality: Thai

P: (Pause) To take care of patients with dementia…physical environment has to be suitable. Also, they have to be able to do their daily activities at ease. It has to be flexible enough also.

Because…even though their ability or their memory is decreasing. Basically, the design should have enough lighting, and not so much noise.

Also, floor has to be safe…colour of the floor to guide them.

For here, there is some signage of at drawers, wardrobes, or doors, which display what are inside for the patients to see clearly.

R: What about the bathrooms?

P: (Pause)…for the bathrooms, there is an installation of normal appliances so that the patients remember how to use them…for example taps, toilets or showers, so sometimes they can do these activities by themselves.

R: What are main limitations?

P: I think the main limitation of this facility is that…for the patients with dementia, it cannot be 'that' personalised or can be designed for each individual or each patient's requirement.

Both shared rooms and private rooms…they cannot be designed or to be suitable to have the whole structure of home.

R: What about the design of outdoor environment? How do you think it support people with dementia and care staff?

P: (Pause). I think the patients may have benefits from going outside for getting some clean air…

Also, they go there to do some physical exercises or go outside to do activities that they can relax. But still, it depends on their physical and mental conditions.

For here, the main limitations are spaces, which are limited. There is only a space on the 3rd floor. Also, the buildings are quite tall (5 floors) so it is dangerous if they go out there without the staff. We cannot have gardens like the ones like our homes or some public parks.

R: To what extent the concept of home-like environment can support dementia care?

P: (Pause). There is nothing similar to here. (Pause) Because the patients here are the patients who cannot take care of themselves or bedridden. So, here, it looks more like a hospital.

However, it should have a suitable arrangement in order to do their daily activities easily. Also, it should be flexible enough for us…and convenient enough for the patients and us.

R: How do you think the physical environment can support social interaction between residents and care staff?

P: (Pause). I think objects…objects in everyday life can support the interaction or talking between patients with dementia and care staff because the care staff is the one who guide them to hold or pick up the objects

Also, the care staff also takes them to do various activities, which they can interact between. Or the patients sometimes tell their stories or their past experiences when they see some environment that is similar or they can remember from the past. Like here, there are certain objects that one of the patients have on their bed sides.

R: To what extent do you think healing environment can support dementia care?

P: We have not applied here. I think it is necessary because the symptoms of dementia cause the patients to lose their memories, feel confused, and it is difficult for them to learn new things.

As a result, it is hard for the patients with dementia because they often forget where they are or where are objects that they want to use, how the surroundings work?

So, if the patients live in the place where they are familiar…they can be more confident.

Efficient lighting can reduce confusion and reduce fall risk. Also, the food smell can stimulate their memories to know what is that smell or what colours.

R: Have you used technologies here before and how do you think about them?

P: I agree about the use of technologies with the patients but it should be suitable for them too.

Here, there is sometimes that we show some video clips about physical exercise for the patients to follow. So that they can listen to music and move their bodies in a physical therapy room.

R: Have you seen this kind of tools before?

P: I have heard about it a little bit. I think it is good to have this kind of tool because it can help to assess the design or the environment, which delay, or slow down the rate of dementia…I mean to slow the progress of dementia…

R: Have you been visit the communities with the guests before? How do you think about the concept?

P: (Pause). I kind of heard the concept before and I think it is a good thing to support the policy. However, from my experience, some places outside are not enabling for us to take care of them.

(Pause) This is mainly because they cannot do their daily activities by themselves and this can cause harm to themselves.

R: To what extent do you think the design of physical environment can enhance independent living for people with dementia?

P: Yes because the design of the care facilities should have arranged the environment that is safe and suitable for the patients. Also, they can do their daily activities quite easily and flexibly if they are in the suitable environment.

(Pause) I think it is quite convenient if there is a functional usage for the patients to use themselves such as handrails.

IV. Interview transcriptions of designers (Group 4)

Participant 1: Occupational Therapist

Gender: Female; Age: 29+; Nationality: Thai

P: For the hospital, doctors are the one who assess for us first if OTs or PTs. So, they come to make appointments like how many hours they have to do per week for example 1-3 days per week. One hour per day. Usually 1:1 because our OTs is not enough, so we have to train OT assistants. So, that OTs per one hour might have 1-3 cases. But if the case requires high function, the OTs are the one who to need to follow the patients closely. For in-patients, 2 therapists per 1 patient (…)

R: What kind of activities do you usually do?

P: The activities that we have organised, it depends upon the objectives. If they want to practice hands to be able to use them actively. So, we know what they are going to do. Firstly, they have to hold glasses of water, they have to hold toothbrushes, they have to hold spoons for eating. So, we have to observe which function they are related to that function, which muscles they are less active, or which gestures are leading to those functions. So, we have training. For example, when holding a glass, this is the method to hold a glass. So, we know to what extent they can hold. Is their energy to hold the glass enough? Is their energy to lift up the glass enough? If they are not enough, we need to use a plastic cup at first for a movement. If they can move or not. So, we are training them with repeated activities towards that part of goal.

If they achieve the goal, we continue to grade. Like, they can hold the light one, try a heavier one. Try a higher gesture. Or try a smaller one.

R: So, it is more about practicing muscles?

P: We divide each session to have smaller sessions. About 10-15 minutes each. Also, we have a session to practice how to swallow. If in foreign countries, a speech therapy is the one who is in charge. But in the context of Thailand, there are few speech therapists. I'm not sure if it is Japan and Korea that OTs are the one who train about this aspect as well.

Many stroke patients are affected in aspects of swallow. So, we have to train how to swallow. Or patients with Alzheimer's or dementia, muscles are deteriorating based on ageing. They are deteriorating so we have to train them how to swallow.

R: What about the cases of severe dementia?

P: For the patients with dementia, most of them are getting worse indeed. So, our objectives are to maintain their conditions as long as possible. But for severe dementia patients who are really bedridden, we require to emphasise on caregivers.

Like, how to save them. But how to save them but at the same time the patients need to be safe as well. This is because whenever they help patients to turn, to get them up or to wipe their bodies, their backs can be painful. Because they have to do everything, because the patients don't know anything already. So they automatically do these tasks by helping them sit up right. But for severe dementia patients who are bedridden, most of them are dying from complication diseases. Not dementia. Mostly from bedsore.

So, our main tasks are emphasised on oral care because most patients are connected to tubes because they forget how to swallow. Something in their mouths when they forget to swallow is risky for food or water can cause choking. This can cause infection in lungs.

R: For moderate dementia, can they still swallow?

P: There are some cases…but depends on how moderate are they. Some people use autopilot…we feed them in not too big amount and they can swallow. If the portion is bigger or smaller than normal, they cannot swallow. This depends on each person which the OTs have to assess first. At the hospital, doctors assess for us primarily and we have to assess again if it is true or not and with more details and what to train.

R: How do you think the design of the physical environment can support people with dementia?

P: For patients with dementia, we emphasise to arrange the environment in any kind of ways to be similar to the place they used to be. Because this group of people has a memory problem and what they call…familiarity or their familiarity. So, at any point which they have to move to care facilities, this is a big issue for them because it is the environment which they are not familiar with. They have to adapt. But as they have to adapt in this condition, patient with dementia cannot adapt. So, we usually recommend them to attach some photographs, some family photos, something like that. Or, arranging the environment to be similar to their homes as much as possible.

But if it is at home, we emphasise in the aspects of safety. Both safety for patients if they can still walk and safety of caregivers and their families as their mood are quite fluctuating.

The number of people with dementia is not that high so that we don't have to separate. Most of them are in the group of older people.

R: What about the design of outdoor environment?

P: If their previous routines are related to green spaces, or like planting trees, it can help a lot. But in theory based on psychology, natural environment or colour of nature or its smell can stimulate for them to calm down. But it should not be the smell that is too strong.

R: Does it stimulate their memory as well?

P: If they like flowers such as jasmine. If they already like it, it can support them.

R: So, if we are foreigners and we don't like jasmine before?

P: It will stimulate senses more; senses of smell but not their memory.

R: How do you think about the concept of homeliness?

P: I think I totally agree with this. In theory, it requires decorating like this. But in the context of Thailand, it is impossible. Because they are not concerning if these factors are stimulating or something like that. They only think that for dementia, the patients only getting worse. But how to take care of them to be happiest or comfortable as much as possible. So, we don't really emphasise them to do activities. In fact, I think this kind of decoration because it can really stimulate them.

It can stimulate them in terms of daily activities as well as all senses. Because here, they can get visual and memory. Also, their mental status, this kind of environment can make them feel warm and secure which are the basic of human needs.

R: As an occupational therapist, how do you support mental status of the patients?

P: So, we ask what are their needs or what are their interest? Then, the question is how we can adapt these needs and interest to their capabilities. So, we have to ask patients. But if they cannot answer, we will ask relatives instead. But for cases in moderate and severe, they can rarely do activities.

R: Can physical environment affect them?

P: Yes still. For our automation, like if we are at home or if we are at hospitals, we can sleep comfortably but our feelings are not the same indeed. Even you go to resorts, eventually you want to come back to sleep at home…still.

R: To what extent do you think healing environment can support people with dementia and care staff?

P: I think it can…but not so much. It can be only temporary. As I have mentioned, as it is not the environment that they are familiar with. For example kitchens, to let them cook and stimulate them to eat. That is okay. But if they are not the one who previously cook, but take them to cook. They are not capable. Or, if to let them to participate in the activities to prepare for or sit and watch cooking, or wash dishes. I mean to do other parts…that would be okay.

R: But if they have no experience in preparing food…

P: For this, you should observe because they might not be happy when doing them. So, it is like forcing them.

Because to let people with dementia or older people to learn new things, it is difficult. Some people they are accept to change. But for Thai people, they are not.

R: How do you think the design of physical environment can support social interaction?

P: I think it can support because in the area where people have the same interest, it can reinforce social interaction for sure.

In my workplace, the OTs usually does 1:1 activities. There are group activities also but it is separated in the part of recreational therapy. For this part of therapy, their roles are to find leisure or recreational activities for the patients for example chess, sing songs, but they will ask the patients first. There are these group activities every 2nd Friday of the month and 4th Friday of the month. So, they would ask the patients if today there is a concert from volunteers, do you want to participate. Some people want to participate and to relax. They like to sing songs and get together. Some people just want to try but if they don't like they would go back. For people who like, they tend to stay longer and enjoy. So, it depends on the interest and preference of each person.

R: Can I ask…for people who go back to their rooms, to what extent do we need to persuade them out from their rooms?

P: If we persuade them, bother them and they try to come out and join activities. But they don't like, and then we have to allow them. Because this might mean that they want to have a rest. So, they will not be happy.

Sometimes, they have a cooking group, which include both female and male. For males, some people don't know how to do, but they want to. So, they get involved by helping chopping meats and vegetables, which at the end, it might not be beautiful. But they are okay as they want to do. They are happy. Females who can cook and have a good taste, so we allow them to do tasting.

The recreational therapy and occupational therapy are overlapping. But it depends on each hospital, how they separate us. For my workplace, it is completely separated. For OTs in my workplace, our responsibilities are to train how to swallow, and how to use equipment.

For occupational therapy, it is actually how we do daily activities. Since we wake up in the morning, what we have to do. Turn their bodies, get up, take shower, brush their teeth, and eating or dressing up. So, it is like routines since we wake up…what we have to do. This is the basic daily activity. After that, there is an intermediate daily activity, which require using additional equipment for example using telephones, shopping, using public transports, or how to use money…shopping, preparing meals, washing clothes. So, these are intermediate daily activities. So, we are responsible to do these 2 main parts.

So, swallowing relates to how we eat because we have to eat. But, for occupational therapists, we use activities as the main medium to heal. And, each activity needs to be analysed already that it can be used for particular objectives and for each particular person.

For some people, one person might have the same symptoms but different healing approaches. It depends upon how we choose procedures to heal them to persuade them for cooperation with us as much as possible.

R: For their cooperation…

P: It is very affected. Like, some people used to do everything by themselves. Then, one day they cannot do anything by themselves. They have to wait for people to help. So, their self-esteem goes down. Then, they become stressful if they can be back to normal and do everything by themselves. Or, they have to be in conditions of disabled people or patients to the rest of their lives. So, this is a problem.

In this case, we collaborate with psychiatric department which has psychologists for the patients to discuss or to express or to persuade the patients for participating in activities or further rehabilitation.

However, if there are patients who psychologists cannot deal with such as depression. Then, we send them to psychiatrists to use medicines to help or involve in assessments. There are multi-disciplinary which involve in this.

R: Have you heard about dementia-friendly communities? And how do you think about the concept?

P: If they are in-patients, that will be very difficult for us to take them out of the hospital. Because if they are in-patients, it means that they are not yet stable. Their medical condition is unstable. So, they cannot go outside or if they go out, it is very risky. But if the are out-patients, there is a problem that our staff is not enough. This means that we have to waste our time…the whole day to take one patient out. Or, if we take them in groups, we still need staff to support monitoring. So, it means that it will waste staff's effort. So, our majority is still here (in the hospital).

But in my workplace, in the hospital, there are some supermarkets or some shops. So, there is a project, which plans to take patients out. But it is not every day. Only sometimes.

So, it is the real…spending. They use their own money. So they buy…sometimes they buy something to eat upstairs in their in-patients buildings. Or, sometimes, they buy stuff for staff. They want to buy to show their sincerity. So, they will be happy to go out.

Or, sometimes, Thai people are religious. So, they go out to pray in 'Laan Pra Bida' (in Thai). To pray. So, when we ask where do you want to go? Most of them want to go there.

Actually, my cases of dementia or Alzheimer's, they are more like underlying diseases. They are underlying diseases with other main diseases. There are not much. Most of them are in mild stages. Most of our patients are strokes. Most of them. Also, others are decondition, or kinds of deteriorating diseases. Like, ageing diseases, which means that dementia, is underlying within these diseases. Alzheimer's in these diseases.

So, most patients are kind of broke their hips, and they have to be bedridden. So, in this case, they are not stimulated because they don't do anything. So, dementia will follow.

Like, normal people, if our brains are not stimulate, it will stay there and deteriorating. They don't do anything.

R: For cases of bedridden…how can OTs do occupational therapy with them?

P: Most of the time, we don't allow them to only sleep or lay down. But it must be things that they are interested in. Some people we suggested them to plant trees. We brought soils, plant pots, or small cacti for them. Or, take them by using wheelchairs to water plants or look at trees. Something like that. They can both either sit on wheelchairs or cannot. It depends on their levels. If they cannot, we adjust their beds to sit up right and talk or watch TVs.

There are two groups that are bedridden. The first group…relatives want them to sit on wheelchairs. Some can sit but some cannot because they are not in stable conditions. Another group is relatives don't have capabilities to take them to sit on wheelchairs. So, the patients who actually used to be able to sit on wheelchairs. Their capabilities are dropping. Eventually, they become bedridden. But some people in this group, they actually can perceive, so they can still be taken on wheelchairs. But the term 'bedridden' it sounds like they have to lay down like that.

It depends on how we fight for that. There is one case, which is home care. It is a dementia case. And the patient is bedridden because he/she cannot take care of themselves. During

daytime, he/she is alone. Children are working. During lunchtime, the children come back to feed. In the afternoon, they go back to work. So, during the day, it means that he/she is not stimulated. So, the patient is getting worse that he/she stops interacting. So, I was called to do some trainings. Then I took the patient to sit up right. When I ask if he/she want to sit up, the patient knot face. Even though the patient is sitting on the bed.

R: How do you assess?

P: We have standard assessments and non-standard assessment. So, usually there are assessments before and after they meet us. Most of them are progressive or maintaining. Some people choose to maintain.

I think it depends on each person. I mean different OTs have different thinking. It depends on their approach and their expertness. It is like doctors who want to use rehabilitation instead of surgery, but another doctor want to do surgery. So, it depends on their styles. OTs can be a routine job or you can be creative with innovative solutions. Even working in the same workplace, we are still different. (…)

R: Have you corporate with architects before in terms of design?

P: There is one project with SCG to come to the department. But for that case, I think it is for rich people or entrepreneurs. But what we have seen commonly as we are a public hospital is patients who are poor. So, things that we give them advice to adapt…is how they can adapt within their budget. How to save their cost as much as possible.

Most of them are handrails or ramps because most of them require wheelchairs. But some people cannot build because there are too many people living in a house. So we give them advice to use wood board instead. We have to be adaptive (…)

We cannot destroy and reconstruct because it is waste of budget for only one patient. There is no one can do this.

But for rich people, we directly ask us the dimension and they immediately build a new room. So, they immediately adapt for us. But very small amount.

R: Have you seen these kinds of design and assessment tools?

P: I am an OT in physical department. But there is an OT for older people…

If you ask mostly it is mostly from my own experiences to encounter with patients or relatives.

For the design and assessment tools for especially dementia…I have not seen. But what I have seen is more like a general one. Such as toilets, if they have standard or not. If they have handrails, how high are toilets. How high are handrails etc. But this one goes into more detail.

It does not come like this. Most of the time, it is in general like public toilets. There should be disabled toilets, disabled parking, alarms, or toilet floors…how steep. Something like that. Safety comes as the first priority.

This is because we did not study in details as architects. When the SCG came to present, they present the concept they were going to design and construct.

R: Have you heard about dementia-friendly technologies? And how do you think about the concept?

P: In the hospital, it also used to have robots. But, if you ask it is good, it is great. But because of budget or other reasons, it is broken very easily. The one that they brought for trial. In this case, it is a robot when patients are trying to get up from beds…it will help to alarm if the patients are getting up. Something like that.

Also, now there are lights at the bedside. So, when they get up. It makes them to visualise more clearly. It can remind them to have medicines. But sadly it is broken. I think salemen wants to sell this robot so they gave us a trail one. Thai company manufactures it. It is called 'Dinsor' robot. It also helps them to interact. The patients also talk to them. So, I think it is good. I think it helps us in another aspect because our human resources are not enough.

For iPads or phones, they are quite difficult for them to use. Not only smart phones, some cannot even recognise buttons. They can only pick up phone calls.

R: To what extent the design of physical environment can support independent living?

P: I think it supports a lot. Because if the environment is enabling them, so it drives them to another levels for them to live independently. The rest of them, they might need some little support from caregivers.

Actually, the environment needs to mutually support caregivers. In fact, we don't only support the patients, but we also support the caregivers. Because they have to take care. They have stress to live like this. They often tell us that we understand that you are with them all day, it is stressful. The patients trust doctors or other medical disciplines, but when they go back home, they are another way round.

Or, if they do like this at home, they will act madly. Sometimes, they are beaten or act violently. So, caregivers mutter with us and when we told them to do, they refused.

But if there are enabling environment for them to enable them to do these activities, the quality of life of caregivers will be much better. Also, the quality of care as a whole will be better as well.

Because sometimes, they are only do them to just finish them quickly. They are rushed. We emphases relatives because our hospital is not long-term care.

(…) OT is what is surrounding us. It depends upon what are around us or what we pick and choose to use them in therapy. For example, if we are in the rural areas, tree leaves can be used for training. So, it depends upon us how we are going to create or how creative we are. So, everything can be our tool. As I have told you that different OTs depend on personal beliefs.

Participant 2: Occupational Therapist (Telephone Interview)

Gender: Female; Age: 29+; Nationality: Thai

P: I have experiences as an occupational therapist for almost 7 years. At my workplace, the one that I work mostly they are group activities. Our group activities don't only have people with dementia. There are other types of patients such as chronic sakis (?), or other diseases that participate in the same group activities. Primarily, dementias are still the majority of the group. For the group activities, most work of the OTs are art and craft activities, games, and training.

R: So, the people with dementia can join the same activities with other people right?

P: Yes. But we have to assess if this group of patients are suitable to do activities together or not. It depends on the function of the patients as well.

Primarily, we are the one who assess the patients. But doctors are the one to send the patients to the department. When they send to us, we have to assess which day they are suitable with. Everyday we have group activities for older people. We have group activities everyday except for Sunday. So, we assign this activity is suitable for the patients today.

R: How many people participated in one group?

P: 3-4 people approximately. There are 3 groups per day. 1 hour each. But for the therapeutic session in hospitals, there are other therapists involved such as OTs, psychiatrists, art therapists, and psychotherapists. So, we are responsible for each day together as a team.

R: For you workplace, how do you think design of physical environment can support people with dementia and care staff?

P: It is a room, which has a table and chairs for the patients. But if we have cooking therapy, we go to a cooking room, which has a dining room as well.

So, they are separated. The room for cooking is only for cooking therapy. The room for art therapy is only for art therapy. A physical therapist room is only for physical therapy. The rooms are separated based on their functions and what kinds of activities are inside the rooms.

R: Are there any design limitations?

P: Yes. Apart from the sinks which wheelchairs cannot access. The circulation towards other department is quite narrow. So, the mobility is quite hard to do. To lift them up from wheelchairs. But the good things are toilets. Previously, wheelchairs cannot access the toilets and they cannot turn around. But now, they can. Nurses are already fixed.

R: What about outdoor environment?

P: Yes sometimes but minority. It depends on the function of the patients. Sometimes, it depends on the weather. Like some days, they are extremely hot, or some days rain. So, we did not go down. But some days with good weather, we sometimes go to outdoor spaces such as gardens.

R: For advanced stage of dementia

P: Yes they can. But this requires stimulation. When they go into group, we have assistance to follow them closely. So, they have 1:1 assistance who follow them and stimulate them individually. Like 1:1…

R: To what extent do you think healing environment can support people with dementia and care staff?

P: From my personal experience, I think it helps a lot in terms of smell, lighting and colours. But, for hydro and pet, I am not sure because I don't have experience. In the perspective of an occupational therapist, I think they might help. But you have to think and analyse how the patients can use and does each of them get something from them.

R: How do you think about the concept of homeliness?

P: Personally, I think it should be based on what they like. I mean it has to concern how each patient's personality can reflect. What kind of bed they like. What kind of cupboard they like. Or what kind of utility they like to use. As you have mentioned, photos might be a source of meaningfulness for them to attach on walls. But it might be ones that they like or impress. I think it has to look by concerning their liking more and they can feel comfortable and feel like home. Not to feel like hospitals and feel dull like that.

R: From your experience, to what extent the feeling of non-hospital like can enhance their wellbeing?

P: Yes, I think it affects a lot. As I have talked to the patients who come to stay in the hospital, even though the hospital is not designed to look like hospital, it has emphasised design as the main consideration too. So, the patients feel comfortable and feel relaxed more than coming here to be healed or cured.

R: How do you think design can support social interaction between users?

P: I think it is only part of. But the most important factor is how the staff can approach or create interactions first. It also depends on the patients like this person is talkative; this person does not like to talk.

Primarily, we are the one who facilitates the conversation to make them feel familiar. Then, they will talk to each other by themselves. We are kinds of mediator…

Patients who are not in advanced stage don't have 1:1 staff.

R: Have you used any kinds of Technologies before? How do you think about the concept?

P: I personally think that technologies will support the dementia care. However, in the context of Thailand, some technologies are not yet accessible. For example GPS wristbands, in case of our hospitals, we are only engraving their names on rings, or bracelets, or necklaces (jewelry). Only just that. But if for technologies, I foresee that technologies can support in terms of rehabilitation…

R: Can you explain more about rehabilitation?

P: Like for robots, if there is equipment to help supporting, they might be able to do something more by themselves. So, in this case, they may not have to wait for caregivers. They may be able to command works by themselves.

Or, like games that are technologies so that they don't need people to play with them. The games like 'Osmo', or other games to stimulate their brains, or from iPads. Something like that. So, it is more supportive for themselves because they don't have to wait for others to help (independent enough). So I think it does help when care staff is not enough.

R: Have you seen these kinds of design and assessment tools? How do you think about them?

P: Yes definitely. But, sometimes there are some limitations in terms of structures or craftsmen that we coordinate with. So, there is something that might be omitted throughout the process. Because we are the one who knows theory. But when craftsmen do, we might not get every objectives that we have specified…that much.

R: As you have mentioned that at Manarom hospital, they will ask the opinions from interdisciplinary to participate in the design process. Could I ask if the government or university provides this kind of tools, to what extent do you think it can be applied?

P: The Ministry of Public Health? Yeah, the owner might use this to apply. But it also depends on the budget for their consideration.

R: Have you heard about dementia-friendly communities? And how do you think about the concept?

P: Yes I agree. If we are sick, the patients also want to go out to other places. They also don't want to stay only in their houses. But, most places outside don't really support anything for them for example toilets are hard to use, circulation is hard to use.

In my perspective, I see that their mental status, at some point if they have chances to go out, they will be better for sure.

R: Have you experienced to go out into communities with people with dementia before?

P: No. This is because of the hospital's regulation which not allow any visit, or going out into the outside communities. It is more like a closed-system.

R: To what extent the design of physical environment can support independent living?

P: I think the design can contribute. I think it can enable…if we arrange the physical environment that enables them, and then they are able to do activities…to do activities by themselves. By not having people to help them…may be. Or, it can be safer like reduce fall risks. Something like that. I think that it is quite contributed.

R: Safety aspects, are there any factors to assess?

P: Yes. For the cooking therapy group, they might not be participated because they are not safe enough. But, if the patients really want to participate indeed, we might have some activities such as picking vegetables. Something that not involving knives or fire.

I think that safety is very important but the arrangement of the environment. If there is environment that supports them, I think it can enhance their capabilities as well as enhance safety as well.

R: How can design of physical environment support social interaction?

P: To create social interaction is the first thing that we have to approach them…to talk to them. This is because most of the group, it is a day care group who come in the morning and back home in the evening. They do not stay overnight. Some older people, they are afraid that they are abandoned. So, some people never participate at the beginning. So, we have to talk and to build relationship to let them know that when they finish the activities, they will go back home soon. So, their families will come to pick them up. And, they know that families will not abandon them. For this reason, they will be more familiar with us. Also, I think that it might be the ease of use for that particular activity. So, that it can enhance their confidence in the activities they do with us too.

We told and talked about our requirements through the owners. Then the owners will inform contractors or architects later for the design.

Participant 3: Occupational Therapist (Telephone Interview)

Gender: Female; Age: 26+; Nationality: Thai

P: So, when I work I chose based on the field I have studied. So, for myself, it is more focusing mostly on kids.

So, if your question asks if the place or my workplace has supported or not. I don't think it has fully supported. But there are some parts that are supportive including equipment.

But for the supportive environment such as ramps for wheelchairs, there are some improvement but not in every building as I have practiced. There are only some positions or some areas. To ask if there are some, there are bit not enable for everyone. It does not every kinds of disability.

So, there are simple such as ramps and handrails only. Like in my workplace, it is an institution that there are people come to practice their daily activities such as multi-handicapped or kids that have brain injury, or people that have Attention Deficit Disorder (ADD), or. They are very diverse. So, if you ask if the environment is enabling, it does not enable 100%

For my department, there are both group activities and individual activities. So, there are both patients to practice ADLs in groups and individually. Firstly they will be sent by doctors and to us to assess if they have to practice in groups or practice individually.

To practice in groups, it means for them to practice being in social groups. So, we have to assess them first. Then we divided them into groups again. Something like that.

P: There is the time when I go to adjust the environment in communities too. But we have to assess…in terms of occupational therapists, we have to survey safety as the first priority. Also, it is the procedures of adaptation, adjustment of the environment or equipment to support them. Something like that.

It is like an adaptation of how they do daily activities. Yes, it is…so we firstly observed how they use spaces or what they usually do each day, and what are their main activities. Especially in the field of older people with dementia, we have to assess each stage of dementia…the stages of dementia to see what we have to adapt or to adjust the procedures of their daily activities to be both hard and easy…to enable the older people with dementia. So, the practice is more as a personal approach.

R: How can the design of outdoor environment support people with dementia?

P: If there are open spaces for the patients with dementia. It might be good for them but there must be a boundary or must be secured in certain levels.

Not very often that we usually use outdoor spaces. There are some activities that we go to gardens but not frequently. Most of the time, we use 'practice rooms' more because if we use the gardens then sometimes the environment is hard to control a little bit. Like, open spaces something like that. Because sometimes, the patients are quite hard to deviate their attention. Something like that.

But if we suggest relatives to do them at home or to do these activities in outdoor spaces at home. It might be more suitable. For example, activities to use their energy or ground with grass. They can enhance the sensory or get senses more.

But in the field of clinic, we are not really going to outdoor spaces or gardens much.

R: To do these activities at home, does it mean it is more familiar for them?

P: (Pause). It is more like to give 'homework' for families or relatives to do with the patients at home. (Pause). It is more like the main objectives are for the families or relatives to disintegrate the patients' energy. Then we integrated more sensory to what they have lacked to be compensated. Something like that.

In particular for older people, they are not that hard to deviate their attention. The gardens should not be too hot and sunny. It should be more about activities in the gardens such as planting vegetables, watering plants.

So, the main factors are mostly for older people must concentrate on light (sunlight) and spaces that have good ventilation also.

R: How do you think about the concept of homeliness?

P: I think for the people with dementia, the environment should be familiar as well. Like to do in here or in gardens. I think it can support the patients as well.

Or, in another aspect, they should also do with the family members because they will be more familiar with them more. So, not only with caregivers or the OTs, but family members to engage with everyday activities.

We also have to ask if they do the same activities before they were sick or not. What kind of activities they like to do. Something like that.

R: Healing environment

P: I think it is suitable because in aspects of colours, or guides for the patients with dementia might be suitable.

For example, if we are going to adapt the home environment. They might be able to remember the way they can go to bathrooms or the way they walk to certain rooms. So, it might be some guidelines on the floor for them. Such as colours or something like that for them. Or, I think pets might be useful as well.

In case of my workplace, inside the practice room, there is a room for occupational therapists, which we call it, Snoezelen which has sensory elements such as lighting, coours and sounds and aroma. So, the room has these multi-sensory integrated into. This is because in the field of occupational therapists, the factors such as lighting and colours help to calm down patients or to stimulate in terms of their visual motor. So, we usually use it. But we have to observe each case primarily to assess which case can go into the room.

R: Have you heard about dementia-friendly technologies? And how do you think about the concept?

P: I think it will help a lot. I think it is good. But for the care robots, sometimes, I feel that if we use humans or caregivers…the real ones, we can get in aspects of relationships or something like that more than using care robots. But, I agree for having GPS wristbands, which I think it is quite efficient.

For my workplace, we have been using robots for practicing speech (speech therapy) as well. Also, there are some applications like games, which help them to practice their brains. It is the games which corporate with Rachanukul Institute that I work. They collaborated with Faculty of Engineering, Mahidol University. So, they are games to stimulate the patients' self-control

(especially in children) through skateboards at hands and other games such as sliding hands to get balls. So, we are using technologies for this kind of purpose.

R: Can I ask about the robots, can most patients recognise or interact with these robots?

P: (Pause). Just for some cases. Not 100%. But it is quite attractive for the patients. Yeah…it is very attractive as positive outcomes. This is because the robots teach the patients to follow how to move their mouths. I can notice that it looks more attractive. So, the patients like them. But only some people and case by case.

R: Have you heard about dementia-friendly communities? And how do you think about the concept?

P: I think it is great because in the context of Thailand. There are not many concepts like this. So, if this can happen, it will be great.

I have heard about the concept before but I don't know exactly how it can be applied in the context. It might be quite difficult to be feasible. But if there is this kind of communities, it will be great.

This is because sometimes there are issues about public transportation systems or something like that which sometimes, they may not enable to adapt or adjust for the older people for example buses. So, there are issues with budget or how to adapt buses or when to start this policy. So, that becomes issues. The main issues are budget or policy from the government that may affect.

R: As you have mentioned about familiar environment, how do you think it can support?

P: Yes. It has affected a lot because if the patients are familiar or can adapt themselves, they developed more aspects of trust that has been involved for OTs and other staff.

Like some patients are hard to adapt to the new environment. That will affect as well. So, we have to make them to be familiar or to adapt the environment to make them feel familiar first. For example, having their families or relatives in the sessions. Something like that.

R: How to adapt environment to be familiar?

P: To have their families or relatives in the sessions. Or, we can give them opportunities to choose objects or toys in the rooms. To try with them first.

R: To what extent the design of physical environment can support independent living?

P: I think that it can. (Pause). Because I think that if…for example the environment is enable for them…for patients with dementia. It can support them to spend their lives more conveniently. Or, they have available choices for them to dependent upon the caregivers as less as possible.

For other age range, it is quite supportive too because if in terms of children, it has to be concerned in terms of the capabilities of the users. Something like that. Other than an enabling environment, it should concern the capabilities of the patients or adjust the procedures or methods for each person too. So, it depends largely on each person e.g. their capabilities in order to adapt the environment by following each of them.

R: As they are more individualised, how can we group them together?

P: We can group them if their capabilities are similar or patients who have the same diagnosis. But mostly we certainly concentrate on their capabilities. So, they can be grouped together if we have assessed and their capabilities are similar.

Participant 4: Occupational Therapist

Gender: Male; Age: 40+; Nationality: Thai

P: It might be like in Japan…like materials come and you pack for spreading these kits to as many areas as possible.

R: How design of the physical environment can support people with dementia and care staff?

P: As an OT, I still use the principal of client-centred needs. But for people with dementia, they cannot make decisions. For their relatives, even though they take care of them, they are going to burn out soon…before coming to adjust the environment. So, actually we have to prepare. In the set of promotion, which we call…health promotion that requires environmental mindset into them too (Laughter).

For the environmental mindset, it involves three aspects, which are:

Firstly, social interactive which we really emphasise the environment. This one we have to give knowledge on…when they are still active. Or, active ageing. They have to know this at first. Then when they know…planning for your life immediately. This is a long-term approach for long-term care which we are promoting.

Secondly, we call psychosocial environment. This is the one, which I am focusing on…in terms of pre- and post-. The one that I am studying has three pre- which includes pre-personality to know their pre-personality. What is their interest. What are their satisfactions. Personality and environment is very important. The second one we use positive psychology or PERMA means positive, engagement, relationship, meaningful and achievement. This kind of environment, I am really interested. I am gradually learning about them. Active ageing needs to be prepared. Actually, for active ageing, we need to plan since we are 40 years old.

The term ageing that I am interested in is brain ageing. Our brain maturity is when we are 25 years old. So, our dementia should not focus when we are 60s. But shoud be concern when we are 25-40 years old. Then, when we are from 40-60, then it becomes intermediate. So, the promotion should be concentrated since then.

Now we use an application to measure if you have happiness. So, now we are researching about this at the moment. So now when we look at the patients, we observe their memory…to analyse their recall memory and happiness. For these two aspects in the mobile application. People who are in high risks, they should come to us. We call it self-management education. Something like that.

If your happiness is in the low level and not so active. So, they have tendency not to have active ageing.

Also, the third one is virtual. Virtual technology environment, so now we are working on by measuring brains. Upstairs, we have a multi-sensory room which also work. But we have to organise group activities in there. About 1 OT to take care about 6-8 people.

R: Only older people?

P: No. Everyone is the same age…If they are interested, they can come.

Also, we have a project as we have got funding to do kitchens. We are doing kitchen therapy. But we are just starting.

R: So, everyone can participate in this therapy?

P: Yes. If you are 25 or above. But there is another part for children. That is another part because they might have to prepare for social and emotional learning. But for 25 and above, it is mainly for how do you achieve a successful ageing, productive ageing, and positive ageing. With these three main approaches.

What we lack…the knowledge that we are lacked of. Especially the age under 25 years old, at university age…we have called empathy or caring skills…caring your mom, caring your dad. This afternoon, I have a class called transformative self–transformation. We will put empathy skills into, caring your mom, pro attitude…We know but we don't interest in because we interest in marks or grades and forgot about parents. (…)

We cannot wait for that incident…so we have to role-play for that incident before they happen. For example, for OTs, we have to teach that they have to role-play so that they will have resilience. Resilience is a very important concept.

I am working in three groups e.g. emotional distress, depression, and dementia. It is a kind of design right?

I think the difficult part is…Thai people. For Thai people, they always have a fixed mindset. And, they tend to do everything in their safe zone. So, if they have to learn something like this. The learning zone is difficult. They feel like…because I am working on fatigue as well. So, as we keep…late….they cannot transform anymore. They cannot change. So, they burn out. We call that compassion burnout. When you reach the levels of compassion burn out, you don't want to fill in anything. Your learning zone is losing. Then it became risks zone. If your learning zone is still there, we will feel challenging.

As cognitive impairment starts when you are 40s, from 40-45 if early depression, is still have learning zone. But after 45-50 years old, their learning zones are reducing to half. For 50-60 years old, for this 10 years gap, we have to input something into them. So, when we give inputs through activities and through environment is every important.

R: If they are in moderate or in severe stage…can their learning zone still have input?

P: Yes. Because dementia will be with them for about 10-15 years. For 10-15 years, if we are in the environment which is not lively. Let's think if it is you…right?

R: There are respite care and hospice care, which are transitional…In terms of OT, we call transitional environment. But when they have choices, if they can choose…if they want it to be homey. It is very interesting because now psychologists like to think that…homey…like dopharmine. It is a happy hormone. Happiness hormones which can explain into DOSE.

D is Dopamine
O is Oxytocin
S is Serotonin
E is Endorphin.

People interest in these four environments like Dopamine for productivity. When you go to this room and you can choose what you want to do. For Oxytocin is family attachment or family engagement or love. S is for Serotonin that is activity which requires oxygen like physical exercise, sport science. But for OT, it does not mean only physical exercise (15:39).

Teepa Snow. She is the best OT for dementia care in terms of Serotonin. Like sitting on chairs, you can dance or something like that. This includes in Serotonin. Endorphin is very interesting as it is a kind of mindfulness…like laughing, massage, relaxation and multisensory are included.

R: Snoezelen?

P: Yes. But the idea is people don't know how to use it. You have to look at the history of Snoezelen. It comes from toilets. It comes from a white room. It comes from the idea of Su-ka or happiness. Something like that. Also, it comes from sense of smell. It does not come from lighting, colours or sounds. Snoezelen comes from the word Sneeze to smell things…to be fresh. If the toilets which are fresh, we call Snoezelen. Which rooms…which toilets we can smell and feel clear as we can sleep. It is called Snoezelen. This is its root. The real root.

R: Yes it is very interesting.

P: Extremely interesting. It is the transitional environment…for dementia, at the end, end of life, or the end of human life. We call olfactory. Olfactory is here (point at his face)…near hythymus and it is one of the vitality. It is very important. The aspects of smell and taste. I am also working on swallowing; I am interested in these aspects.

There are many people doing about these aspects but they are neuroscientists…like neuro-psychology. But in that case, they are more theory-based.

Also, I think that it is also in parallel with Buddhism. I did one video-clip about chewing called chewing for healthy living. As Buddhism has mentioned, it is deep learning mindfulness. To get smell and taste, you have to chew 20 times. First bite…20 chews. In dementia care, they also use this for healing. OTs also use for healing. It is ways of relaxation and mindfulness.

They cannot do meditation. That is impossible. But patients can do cooking and then they can taste…and 20 chews. Their brains are alert.

R: To what extent do you think healing environment can support people with dementia and care staff?

P: In this sense, for DOSE that I have mentioned, their hormones are released. It is an easy activity but not many people have used it.

R: So, it is kind of how to integrate these into your daily activities, is that right?

P: Yes, correct. We call it self-environment….which you can tailor-made by yourself.

Also, I have met two people who are not doctors, and they know nothing about healing. They are planting vegetables that can control the environment such as mushrooms. Mushrooms can affect their brains. They just know that their mushrooms are large. Once they see mushrooms, their brains are activated. So, if this kind of environment can heal patients, they welcome us to use their spaces. So, they divide into sections. They are interior designers. So, if they can plant vegetables, harvesting or feeding animals such as worms. This kind of mood, for OTs, we call horticulture. For horticulture, may be farmers or gardeners, they come to train

OTs a little bit. So, the OTs will get 2 degrees and 2 professional degrees. This is a syllabus that OTs in the US are alert at the moment.

(…)

P: It must not be structured. Our countries like to be structured. What is interesting is that we have to be nature nurturing. It has to be nature has to nurse which are us. But when we use terms or words…like our countries, when we use terms for example therapy. Recovering, it does not mean like that. (…)

Thai language, I mean the terms are more like skin. Even the term 'occupational therapy' (in Thai), I have promoted all of my life…The term 'occupying'…it does not come. But people concentrate on the term occupation which can lead to vocational which is very old (he means vocational therapy).

It means when "anything or any mind is occupying purposefully or meaningfully". It can be traced since World War I.

(He then showed his book about learning disability (for kids)…and we discussed about the universality of the book).

P: When we talk about kids, we imagine about liveliness or fun. That kind of mood. So, if OTs pick up this book and they don't make every age range feel lively and fun. They are not OTs. They will become a teacher instead. In this mood, we don't want to be a teacher in dementia care. This kind of thing.

R: So, for OTs, how do you treat yourself as?

P: We have to be them. For the OTs, we call it match and mirror. We have to be them. The procedures are we have to approach them called rappor. Rappor is very important for OTs and their environment.

(Then he showed how he is approaching by using rappor. We have a role play as an OTs and a grandma)

So, basically I will let the grandma as a leader. Once they come, I have to observe and I have to act following her. To let her to lead my acting. This will stimulate mirror neuron which is imitation or empathy.

R: This is very interesting because this can be related to my observation in case studies (…).

P: Do you know why people with dementia can sense if the caregivers were in bad mood. They can sense from smell. When you are upset, it is like you have toxicity and lactic acid. So, your smell is acidic, they can sense that. Olfactory is not Snoezelen.

Not their visual senses, because in people with dementia, their visual sense is fatigue and impair. So, for this activity, it is visual-based because they are our teachers and leaders. So, visual aspects can recover.

For OTs, we always have a mirror to imitate the patients. So, in the multisensory room, there is a mirror as well. We have a mirror therapy, but we eliminate the term therapy out.

Also, our staff does not wear gowns because it causes stigma and discriminations. But some OTs are still wearing it. So we use therapeutic use of self-conscious. So it means that we and others have to match our self-conscious. So, it is more humanised.

(…)

R: Have you seen these kinds of design and assessment tools? How do you think about them?

P: So they have a system of care managers right? I think in terms of universal design, we can still use it. But currently, WHO has released a new framework for positive environment and positive ageing. So, they are interested in DEATH, but they are environment that involves activities such as D for dress…

They have to be concerned as basic needs. DEATH. For environment, we are interested in D = dressing, E = eating, A = ambulating (actually occupying as OTs are policy makers), T = toileting (Snoezelen), H for housekeeping. I also use knowledge translation and resilience environment, which are very important. I think it is very suitable for Thai culture because Thai people are afraid of death. It might be quite spiritual and it can become physical. This model can be used as multi-culture. But our culture is passive and over-protected ourselves. Like we work and we don't open learning zone after 25 years old. Then, dementia comes accidentally…then DEATH…internally. Most of them have active brains but caregivers are burning out like my mom…she becomes depressed. They are overthought and perfectionists. When you take care, you have to change your personality type.

R: Have you heard about dementia-friendly technologies? And how do you think about the concept?

P: I think it is beneficial but I think that it needs to promote their learning zones. I am working on cooking and kitchen therapy. But it is a virtual reality. Augmented and VAK exercise and measured with QEG. What we have found in patients with dementia are fear, eating phobia, and anxiety…how can we control lighting and air when they breathe. Control many things because we are interested in Sun Downing, as it is a biological clock. But let's say that breakfast is not from 7-9 am. This is also in terms of malnutrition. It is not exactly. So, sun downing can be later about 3.30pm to 4pm. But if the time between, if there is no diversion or VAK (Visial, Audiotory and Kineaesthetics), these are 3 senses that have to be stimulated all the time which these will be matched with personality.

R: How do you think about familiar environment?

P: We have to check…STATE, state management if they are visual learner or not. We have to check their brains as the priority. So, adaptality of brains means that self-adaptability is high in that environment. So, there should be an assessment first before as you can assess yourself from the multi-sensory room.

Someone uses Snoezelen and doesn't know how to use. There should be pre and post, like immediate effect can come of Snoezelen and something that we can integrate technologies into the process.

Participant 5: Occupational Therapist

Gender: Female; Age: 30+; Nationality: Thai

P: Not only older people, but I also take part in stroke patients and paralysed patients. But for my thesis, I am working on older people.

Older people in Thailand…they are not aware of dementia. So, we usually don't know that they currently have dementia. They are mostly having this condition when they have more advanced stages…not in early stages. Assessment for screening/diagnosing people with dementia are not widespread. So, if there are some urgent problems, they then come to hospitals and diagnosed that they have dementia.

Or they are ageing and they have conditions of forgetting, so they become more aware of it. As assessments are not widespread, they are using only in hospitals only. Not any clubs for older people that use them.

For home environment adjustment, there are procedures that we have to clear the circulation, lighting that is suitable for older people inside homes, arrange circulation or arrange home environment to be suitable for older people. If they have to use walkers or wheelchairs to push into homes, so it starts from ramps to go into their houses. Also, circulation must be suitable for them to use either walker or wheelchairs. If the walkway is not clear, there are more risk of falling. These are things that we have to observe together how to arrange their environment. Are tables high enough if older people have to use wheelchairs inside their homes for mobility.

We usually have assessment tools in Bangkok but in rural communities, we don't use, but based on our experiences that we have arrange. Also, houses in rural areas and in urban areas are not the same too. Most houses in rural area, they have concrete flooring and raised up (vernacular type). So, wheelchairs cannot be used. So, they have to walk and hold railings first. So, we have to install railings all over the place. So, this is when we have to agree that we have to adjust homes and install handrails. So, that they can practice by supporting themselves while walking. Also, we train caregivers.

R: train caregivers for activities?

P: Yeah…this we have to emphasise to have activities as well as safety to be able to live in their homes.

R: How can the design of outdoor environment support people with dementia?

P: For us, we not usually do any adjustment for outdoor spaces. We usually do house's surroundings and in the houses' area. If go to the outside spaces, we are not often do anything with it.

R: As you have mentioned about lighting, how?

P: If you have observed if some areas are dark or not enough lighting, there are more risks if they have to walk. So, that this point, we have to inform houses' owner, relatives or caregivers that lighting is not enough…might need to turn on more light. We might install more lamps in certain areas and positions. Like doorsills in most Thai houses, so we need to use tape for them to see that it is a doorsill so that they have to lift up their legs. Or steps, so we have to use tapes to emphasise. Older people are deteriorating in their visual function so tapes are very useful.

R: How do you think about the concept of homeliness?

P: I think it is good because for people with dementia can recognise daily activities or activities that they used to do or activities that they can do. And, they think that they want to try to do to stimulate their memory.

I have one case that is my patient, currently she does not do anything but she still wants to do in her homes. She wants to go to kitchens but she cannot go. As she uses a walker to walk…If

we imitate or model a kitchen for her to do. She may think that this she can do and she may begin to pick and touch stuff. I think it is a good thing.

But in Thailand, there are nothing like this. Something like this it has to be private nursing homes. If it is a private nursing home, it must be quite a large private nursing home and expenses will be high. This is because public nursing homes by the governments or private nursing homes that have not been renovated or have adapted systems from foreign countries. It will not have something like this. They are still beds, beds, and beds. But there are group activities in the morning once or twice a week. But it does not have something like this. But actually, in terms of occupational therapy, it should be everyday. If there are activities everyday, patients will have good mood and they will have good behaviours.

In the context of Thailand, it can be explained that incomes are not that high. In Bangkok, we can observed that there are rarely this type of nursing homes. Except for that, there are beds and nurse and PTs to look after. There are no activities and group activities are only once a week. Very few. So, people who live in this type of nursing homes (in photos) are having a higher quality of life because they are living in nursing homes which have a good care.

The main factors are expenses and also the quality of care from each nursing home…like visions of owners, which are affected. If there are like this, everyone will be good.

Yeah…if OTs has rooms like this for training, it can support them to stimulate their memory and they can think by themselves. The patients when they see this kind of environment, they can recall their memory by recognising how to use this things, or what are procedures to do, but still cannot do. But can tell how to do. So, if there is this environment, the patient will feel that she wants to do.

(…We are talking about one case – the case also has a memory issue. But as we communicate in different language, if we can speak Chinese or the case can speak Thai, I think we can possibly talk. If we said some words in Chinese as I know, the case can still answer in Chinese…)

Dementia is not only a memory issue. But there is an issue about mood and behaviours. Like activities, some days they don't want to do, so they are moody. But most of the time, they are good. Also, the main factors for older people involve emotion.

R: For the case as they are in personal homes or places that they are familiar with, to what extent physical environment can enhance the case to do their daily activities?

P: Yes it can. But you have to ask relatives first what kind of activities he likes to do previously. So, we have to adjust activities to the ones that the case likes first to attract or persuade. For example, if he likes to read newspaper. Then, we provide an area for reading newspapers. But, it has to be outside his room because the room is where he stays everyday indeed. Sometimes, I observe that he comes out of his room to read newspaper in a garden. If we take him out, he can stay there quite long. So, when he comes back from the garden, he is in a good mood. So, he agrees to corporate in activities. It is very affected.

Also, there should be other activities. Not only sitting and reading newspapers. But there should be walking or do some other physical exercises. Like, doing Tai-chi (Chinese exercise). Or going to a public park for Chinese tea club. So, once a week, there should be a trip to go to the outside communities. So, he is in a good mood. After that, he agrees to do activities or physical exercises or walk. It is good because there is some kind of motivations. As the relatives mentioned, if he can walk, they will take him outside again. So, he constantly does activities. This is one of motivations.

R: Have you heard about dementia-friendly communities? And how do you think about the concept?

P: If it can happen it will be great. Some parts are constantly adapting. For example Lumphini Park (Public park in Bangkok). They are adjusting spaces to be wider. Also, we are able to use wheelchairs around the park. Our context, they also see the importance of adjusting the environment. In the case of department stores, there are ramps or some lifts/elevators for wheelchairs. So, Thai people are also aware about this. But, it is not widespread towards public transportation that we can do. This is because both public and private companies own buses. Also, bus drivers are only certifies by their driving license but after that they have not assessed by their mood or attitude. So, they are not assessed their friendliness. So, if elderly takes buses, they have more risk of falling. So, we have a campaign for providing seats to elderly. But Thais don't provide seats for them. As a result, there are high risks of falling. So, there are something that can be adapted to our context, but some that cannot especially buses. Public toilets are divided into toilets for older people and toilets for normal people. But there are not many like one place, has only one of this kind. The ones who use wheelchairs sometimes have to wait because normal people use them instead. I think it needs to adjust the people as well…I mean their subconscious. We needs to be generous or gives support to this group of people.

Like in the context of the UK, I heard that they are entering the ageing society. So, they have to nurture or educate their population pyramids for kids in this generation to support the previous generation in order to sustain their countries.

Thailand is also entering the ageing society but policy has not yet developed and completed. The group of older people gets some pension, but there are no infrastructure to support. So, after retirement at 60 years old, they think that after 60s they have to stay at home. They don't have something else to support. So, they don't do anything. This kind of culture imports from the western will be lost. They are abandoned. So, the next generation seems to perceive older people as someone with no efficiency/capabilities. This large group of people is not very interesting because they have nothing. This is Thai culture. I think they are separated too clearly. They are too structured. For Thailand, we don't have this generation to support that generation. We don't have that.

(…) Most of it is about the Minister of Public Health's policy to support older people. However, it cannot be access by all population. Especially in rural areas, it takes too long for them to access. There is no accessibility or networking like a spider web in foreign countries that people are able to support each other. Something like that. We have to wait from the centralised system to be accessible. So, people who get access to these communities are people from hospitals or multidisciplinary groups. But, these people often go when there is sickness already. There is no support or promotion before sickness happens. So, there is no prevention. Only curing when there are any symptoms. As older people have risk factors like 1,2,3,4. Instead of reducing risks, we tend to allow them to happen and solve from that. So, it usually happens like this,

R: Have you seen these kinds of design and assessment tools? How do you think about them?

P: I am not sure if I have seen it or not. We have only an assessment for daily activities. The one that I use mostly are assessment for daily activities or an assessment for quality of life instead. It is called SF36. This one is quite widespread. (31:22)

R: To what extent do you think healing environment can support people with dementia and care staff?

P: I think it is good because…Colours can create relaxation. Like warm colour tone when at home, it can help for homey feeling. It is homey even though they are in nursing home. Or gardens, like Thai people believe that in the morning we should walk in grass lawn with bare feet. So, it can stimulate their energy that circulates inside their bodies. So, if they are living with green colours (she means living nearby green spaces) or being in natural environment can stimulate their emotions and can enhance their motivations to live longer…it helps to circulate following their energies.

Like, in the morning, they need to wake up to absorb sun energy and to walk with bare feet on grass which can enhance energy in bodies to circulate. Even though it is a belief, but when we do it with patients, it works. Have you heard about nursing homes taking their patients to walk in the morning? To walk in groups and do activities in the morning. For this I think it helps to stimulate. It enhances their good mood all day. So, it can prolong their lives. Similar to the term Naturopathy…yeah this term. So, it is better.

For hydrotherapy, it is more as a bathtub. But in Thailand, it is more like a pool or a swimming pool. So, there are group activities inside the pool. There are many places that have this kind of pool because they have spaces. They are more like gymnasiums. Another institution near Bangkok also has this for older people or patients to join activities once a week. To do physical exercise in water as group activities. Walk around or with equipment for exercise for them to enjoy. Yeah…it is more like a pool.

Most research papers, colours are one subject or another factor is another subject to support this room. For nature and energy are another research area. But as a whole, there is not yet about the research about nursing homes. Those papers specify about these rooms when they are together. As a whole. There is no research about that. It is difficult because if there is…it is in nursing disciplines, which are not what I need. There are mostly in medical aspects or mention only how colours help and assess only in neutral results. There are no research paper for best practice for what I require to do or how this best practice can give positive results. It is very few. Most of time is like…colours or naturopathy for healing. Something like that. What are the results? But not how they can be practiced or applied. Or, papers about combined healing aspects, there are very few.

For OTs, we don't have authority for giving medicines to patients. Doctors are the only ones who can order medicines. So, if patients have medicines such as Psychic. They might have side effects of being dull or anxiety. So, we should know when we have to train or practice them. For patients with Alzheimer's and Parkinson's diseases, they will have time to on and off medicines. We have to know when exactly, we have to train them. During not taking medicines period, we might have some activities, so that they will not sit still.

R: Can they join group activities?

P: Yes by bringing a big group of people to stimulate a smaller group of people. So in nursing homes, if there is a special case which staff may monitor them as their supervisors to have these people to participate in groups. People in different stages or conditions, they can participate in daily activities. We believe that if we bring this group of people together, it can pull their capabilities. Or, increase their liveliness or fun. If they are in the same stages, they will be very dulled. That person cannot do, that person also cannot do. So, they can look after each other. If they are in same stages, the activities will be limited. Yes, it can be easier to monitor. But attractions such as fun or motivations will be lost. This person can get up and stand.

Do you understand competitions? When there are competitions, they are challenging. So, activities that are challenging. Like this person can stand up. Have you seen Game W, like an

interaction game like this person can do a lot, but this person cannot do. But the next time, I should do better. Something like that. So they are arrogant.

This is like how the environment can stimulate their memories or construct their behaviours that they have to do these everyday. Like, this morning, they wake up, but they can kind of remember that they have to go there. They don't know what they are going to do there, but they know that they have to go there first. It can happen. Or one of my patients has Anomia. Like when she saw these objects, but she cannot recall the names. She cannot remember names. She can remember only names of the one who she is close to. Only her relatives, she can remember. But she cannot remember objects in everyday life. She only knows that in the morning, she has to go to her office. Like I asked her, did you go to your office? She said yes or did not go…Then she looked at her dress and knew that she went. So, as she went to her office, it is kind of like stimulating her memories. She has a duty to go there everyday, but she does not know why she goes there. But she just knows that she has to go. It is her duty.

So, this is also dementia case. They have to do everything like the same. But they know that they have to do something like this. So, she has to go to the office every day. The day that she goes to office, she has to dress up beautifully. Like, she comes home to train, then she looked at a clock and she knows that it is a mealtime. She has been trained to do everything based on time. This kind of routine, we have to adjust their timetables if not they will completely forget what they have to do in one day. But what we do is for them to have routines and still do these routines. If not, they stay inactively at home. If they have chances to go outside, they can meet people. Even though they can or cannot remember people, but they can still meet others. Something like that.

R: In terms of technologies, how do you think about the concept or these kinds of technologies to support dementia care?

P: I think it is good. Previously, in the context of Thailand, we use W game in nursing homes or elderly clubs. The intention is to bring older people to have activities, to organise for competitions that I have mentioned. This can build motivations and competitions for them to compete with each other. In elderly clubs, it is a new thing that they don't have it at home. Even though it is not expensive, but older people are not interested. And, their families are not interested as well. They just take them out for physical exercise. But this game is a kind of a new thing which they really like.

Also, for this wristband, in this context, we have not got one yet. But we have a sign or a metal label, which states only their names. But sometimes we can use phones to track GPS from their mobile phones instead. But if their phones lose…game over.

But you cannot measure their vital signs there because the results are unstable. So, technologies are quite convenient for tracking them or measuring their heart rate. Also, the newest technologies from Apple, they can recognise if they are fall or not fall. Like if you fall and you press buttons, then it can send signals to the contact numbers. So, it is like an emergency alarm. Previously, in foreign countries, it is more like telemedicine. But Apple has developed into watches instead. Most nursing homes have only telemedicine that send to hospitals. But the radius is not that far. So, it has to be adjusted.

In Thai society, technologies and older people are not integrated. Mobile phones are the most accessible for tracking. In case of myself, I paid a lot of money to buy mobile phones for my parents so I can track them by using Find my iPhone and Find my friends Applications. So, we can follow them where they are. So, I hide them to use these applications.

R: Can I ask in the case of rural areas?

P: Yes but we have to educate them first. But it should not be a high-end one. May be only phones. This is because they still use smart phones but in lower range and they are not very stable. But they can still us them. But they depends if they use or not use. They are 20% of older people who use mobile phones in Thailand and they are addicted to games mostly in Bangkok and other large provinces. For more rural areas, they usually use them for communication instead.

R: How do you think about familiar environment?

P: Yes. They can recall their memories from this environment. As our cities are developing very fast. I have one case who is 80 years old. So, these groups have seen since the city is old until it becomes a new city until now. But their old memories are still there and a lot. If we can adjust them to be the same, they seem to be happier with their lifestyle. So, I think that it is good if we can adjust. What I mean here is to adjust the environment to the generation where they are belonged. However, there are less convenience or facilities at that time. So, I think just to recall memories.

Have you taken any older people to museums or old shops before? Yeah, it can generate conversation or them to talk. Like, this one I have seen it before, or that one I have seen. They are excited by seeing particular things. So, they have seen all things such as cola bottles or powders that now they are not existed. So, these objects can recall their memories because they have used them before. Then, they can tell stories. They are happy. But another day when they have not seen them, they forget. It can stimulate their memories temporarily. Something like that which I think it is good.

R: To what extent the design of physical environment can support independent living?

P: Yes, they have to be active by themselves. They have to do by themselves too…(Pause). They have to do them mutually. It depends on their stages but if things that they can still do by themselves, you have to let them do by themselves. Do not do everything for them. Do not limit them from doing their activities. For example eating, if they can still hold cutlery by themselves, you should let them do. If they can, but they don't do it because they have someone feeding, it becomes their habits. Then, they feel that they don't have to do, they are comfortable. Something that they can still do, let them do them first. Stimulate them to do. Really…if they don't do, they are kind of like shrinking, shrinking, and shrinking their working conditions. We have to stimulate them to do. If they are lazy to do, we still have to stimulate them. If not…they can still train for their self-esteem that they still can do. This is an important issue. If some people feel that they are staying still and do nothing, their self-esteem will be losing. Then, they will do nothing and they don't want to live anymore because they do nothing. If they want to do something, they are burdens because they need others to help 100%. They can feel that they are burden. But if they are still eating by themselves or picking up objects, they can feel that they still have values. Or, they still have people to consult or visit. They still have sentimental value. So, it is actually connected from physical to mental indeed.

For example one of my case, she has strokes and dementia…at first she violently hurt herself because she does not want to live anymore. But after I went to train her getting up and eating and standing. So, from cleaning herself on beds…relatives have to adjust toilets to be more convenient. They bought a mobile toilet. So, she can move from her bed to a mobile toilet. Something like that. So, her mood is better. The, she starts to fight with her conditions again. Now she can eat by herself, she can comb, and can do something basic such as dressing. She can recognise her self-value, have energy, and start to tease others. Her mood is better. So, this case can show that she is unable and relatives are almost let her go. But it becomes that the relatives highlighted this emphasis. So they take her outside more. She is livelier than before. So, this is important that if they can still do, we have to stimulate them to do. If they don't do, their self-esteem and self-respect are decreasing.

Participant 6: Occupational Therapist

Gender: Female; Age: 25+; Nationality: Thai

P: I think that when we enter the pavilion, then the ceiling is quite high. Then, natural light can come in. It can make the older people or other people to feel fresh. It is good…especially for the case of depression. Like when you come in, there is light. And, it is natural sunlight. So, you will feel fresh and it is so good. And, as the ceiling is high, it can be felt that there is air. There are some gaps, which make us feel more comfortable.

I have been visit other places…the ceiling is very low. It is not high to reach ceiling. The light/brightness is not enough, so they have to turn on light during the day…all the time. In that case, it will make us feel cramped and frustrate. It makes us feel…smelly. And it does not make them feel fresh.

For here, it makes me and also the guest to feel…when they come in…it is bright already.

The light is the main concern if you talk about zoning or this kind of thing. It is involving lighting, high ceiling…(Pause). So, for the first thing in my opinion is more about high ceiling.

The second thing is railings/handrails, when I first work here…there are railings along the way and during nighttime there is lighting underneath them. And, when we hold them, it is not a light bulb. It is kind of hidden underneath it. Surprisingly, there is no an electric shock. It is not dangerous because there is a circuit underneath. Sometimes, we hold it and it is not hot….only warm. It is not hot and causes electric shock. So, I think it is very good for older people with dementia. Because they always touch and hold, and they always leisurely touch everything. Sometimes, they pick up everything. So, it is safe and can see during the nighttime too. This is mainly about the main common area.

My main point is about brightness. But, inside bedrooms, here, we emphasise the use of glass…windows. The glass is high and there are a lot of windows. If we open the curtains it will be bright. When it is bright, same…the older people will feel fresher and animated/crisp.

As I have been here for a while, I think that the older people are vigorous and energetic. Fresh…And, they are in the rooms where they are open and can see many things because they have environment/surroundings. Every room allows seeing the outside views.

R: Are there any limitations of the design here?

P: (Pause). Ramps are fine here. I think the main limitations are doors. The bathrooms' doors are sliding doors which…myself as an occupational therapist, it is correct. Because doors for wheelchairs and other things…it has to be sliding doors because it is easy as well as older people with dementia too. But here, I think sometimes, it is a bit too narrow. When wheelchairs go into…and then when rotate. If it is in the shower area, it can rotate but the zone where toilets locate. It is a little bit too narrow. Also, the doors are not too wide. If it is wider, it will be fit nicely.

R: Are you working full-time here?

P: Yes I work here full-time, from 8am to 5pm. So, the main focus is on doing group activities, 1:1 activities. Activities…they are including doing activities in daily life, leisure activities, or activities during work. But, we use activities as media for curing/healing. It is different from physical therapy because for physical therapy, they emphasise on the physical aspects, but for occupational therapy we mainly look for the overall image…we can work with the guests

in 4 areas including physical, mental, older people and kids. This means if the physical aspects…for example, broken arms, we will know which part of muscle, after that we will know that this part of muscle…we will then try to practice this part of muscle. Then we will observe how it can affect their daily routines. For example, eating, if they cannot eat, then we practice the full programme and the muscle does not come back. Then we will question if equipment will help. How can we use equipment to assist them eating. Any plates…So, it is daily routines which they can be independent. So, we also include physical exercise and connecting to other daily activities such as wearing clothes etc. For kids, the occupational therapists also use playing as a medium in healing e.g. throwing balls, picking up colours (…). Also, the mental aspects, we work from what kind of occupation they have done before which is similar to older people area. So, for older people, we work from daily activities and their hobbies, or what occupation they have done before.

Like here, when I come to work, I have both group activities and 1:1 activities. For the 1:1 activities, we have to ask relatives first, what have they done before then we will talk to the guests like what do you like to do. Then, we use these activities to motivate during the activities. Then, I have to analyse the activities by expanding out…like success. Then, when the first time, they are successful, the next time then they want to come. Then, that will lead to group activities.

R: For 1:1 activities, is it everyday?

P: Yes. It depends on individual basis such as this person plays table tennis, Frisbee, or sings songs or some person has painting as an activity.

P: And because here, they are guests with dementia…so most activities are simple and they have done before. Sometimes, they like to talk…we will just be there and listen to them. But we need to use our body language exaggeratedly. Like…even though I talked continuously and aimlessly…this person believes in me.

R: As I have observed in the morning activity, most of care staff was involving in the activity…even though most guests were speaking German (…).

P: As most guests are people with dementia. They cannot remember. I work here for three years. No one can remember me. Their short-term memories are fading away. As we are approaching them, they might not know who we are. So, before care staff starts their work, we have training to tell them that they are older people with dementia. This is the concept of vivo bene…most guests are like this…If we have to follow guests the whole day, this is vivo bene…for them to understand. Because if they are shocked, then they will not stay and work with us. So, we have to tune in with them first. Especially, the body language.(…) Like sometimes they said "I want to go home, where is my children". Sometimes, we might think that they really want to go home. But in fact, if they are at their home, they still said that. So, if they want to go, and if we said…the car will come, they will keep waiting and get upset. So, we have to tell our care staff that if they say they want to go home, our facial expression needs to exaggerate and say…you want to go home right…I don't know how to help you but I will do my best. So, they will think that this person understands me.

R: And then, they will calm down by themselves?

P: Sometimes, we will take them to go for a walk. But mostly, if they have symptoms of confusion, we will let the care staff to prevent. To prevent means not letting them to stay alone for too long. If they stay alone, they will start thinking. So we have to have 1:1 activities and train the caregivers to do them too.

R: Are the activities happening inside the pavilions?

P: Yes. We tell the care staff to do with them too. For example, here it is 1:1 caregiver right, so from the morning until evening they will stay with 1 guest. Then, we will let them to do activities with the guests too. So, the guests will not think (muddle). In the morning, they will take the guests to group activities which I set up, then in the afternoon, after lunch, take a nap, and after that they will have nail painting. So, they will stop thinking about themselves.

R: Concept of homeliness in here?

P: (Pause). This is for older people with dementia right? I think some of the settings are effective. Like, sometimes we told them to take shower, older people with dementia are very afraid of taking shower. They feel anxious about it, try to escape and fight during shower time. So, we use the term 'spa' instead…like are you going to the spa? Then, we are trying to decorate the bathrooms to look like a spa as much as possible with the use of odour, lighting, and sound. To be like a spa.

So, we are planning it right now for people who are difficult for taking shower. We incorporate odour/smell, turn on music in the bathrooms, or arrange objects to be spa-like. When they enter, they will feel. But in fact, it is taking shower. I think that if we have a spa setting in the house or something like that. I think it is good.

But for kitchen, if for people with dementia, I think it should be emphasised to be as clear as possible. For home-like environment for kitchens, I think it is fine for mild stage dementia…like it is the same setting as our home…like they have used it before. So, they may feel happy with that.

However, if they don't recognise…this is never…they are a group of people who have low self-esteem, which means if they know things that they surely cannot do. They will not do it. Then, they will hide the symptoms. The guests here as well. Especially the mild stage ones, they will not join over activities because they don't want to show that they cannot do it. So, they end up with complaining instead. But in fact, they refuse to do it. Complaining to show that they are like normal people. This is not good…because they are normal people. So, if the kitchens look like the one that they are familiar or used to. Thy may be bold to use it. But, if it is too different, they will refuse to do anything.

R: What do you mean by the kitchen should be clearer?

P: I think it should not be too much. As they have many stages, older people mostly…in aspects of perception. If something is too much, it might cause confusion. Also, it may be hard to pick or hold or cannot choose. But I think if there is one background colour. Then, there is a contrast colour and clear. They will be able to choose or pick objects easily. If there are too many, they will get confused and don't know what to pick.

R: But here, are there any guests who can pick objects in the kitchen?

P: They are in another building. The one who can take care of themselves. They will go to the restaurant. In the morning, there is a buffet, so they will pick and choose by themselves.

So, it depends on their stages, if they need high level of care. They stay in building 6, which have more care staff. Also, building 5 and 4. But, the ones who can still take care of themselves (independent), they will live by themselves and will go to eat at the restaurant. They will have their own activities. But, if they want to join, they can. If they don't want to come, they often go for sunbathing at the swimming pool.

We may think that they are like normal. But they have issues of money management. Like, they really like to go shopping. If we gave them money, they will spend all. They then ask…I want money…I want to go…or they want go back home. So, we ask do you have money. So, it is something about money, or complicated thinking that they cannot understand. But, daily routines such as eating etc., they can do.

R: Are you going out with them to the communities?

P: Yes. For all activities outside, I am the one who organise them. Most of the time, before we go, we will have to do surveys first, to see if there are ramps, toilets, sofas or seating that can relieve the older people. Sometimes, they are beautiful, but they are hard to sit on. Sometimes, they are made from metal and support teenagers. So, we have to do surveys. The space should be clear and enough for them to walk when they are nervous. We have to book for cars, and identify their seating for example who can get up to the car easily or they have dementia so they need to get up the car last. So, we have to try.

When we arrive, we have to set up how they sit and who sit together because they might fight with each other…sometimes.

R: They talk to each other right?

P: Yes. But they cannot remember each other. Only some in early stage can remember. Some also like to go with the group because when they go they feel like they are the best. I am not sick. Or, some do not want to go because they feel they are not sick. But, importantly, the one in early stage does not know that the rest are sick. They usually ask why they do that.

R: So, do you think design of physical environment support you and care staff?

P: Yes. There are ramps in every pavilion that we feel comfortable to take the guests up. They are all accessible. At first, for the stairs, the colour looks the same. So, we decide to paint the nosing. Only building 6 is painted. Previously, we have care guests only in building 6 so we painted white on the nosing. When they walk by themselves, so they know that they are steps. We feel relieved when they go out to walk by themselves.

(…)

There are handles in the shower area, but in the toilet area, there are not. So, we have to observe them again, like these guests need assistance in getting up. We will change to chairs (designed) for toilets. But if the guest with dementia doesn't have problems with movement, we will not have it.

 Also, the design helps us a lot when taking shower. Because taking shower is a private activity right…so our guests with dementia they cannot take shower by themselves. But when there is care staff to assist, they will be ashamed/embarrassed. Or, they may be worried about dignity or respect. So, we approach them softly. There are chairs for sitting during taking shower. Everything is safe, so they will not worry/anxious about taking shower because they are worried that this person will help me taking shower. When they feel safe, sitting down when taking shower, and the care staff is quite sensitive. We will tell them every step, then they will feel relieved. So, I think design can reduce their anxiety.

Design is a part to reduce their anxiety. The care staff also has knowledge or techniques when doing this, which can reduce anxiety. For example, for here, if the care staff uses hands to take shower for them, they will feel a little bit. So, here, we use towels with bubbles and rub them. They feel more comfortable. If we use showers to pour on them, they will be frightened.

To make them familiar with the texture of the cloth. If they feel familiar, they will start to do it themselves. So, if they feel safe, they will be calm.

R: In dining area or other places…do you think design support social interaction?

P: (Pause). Mostly, during dining, there are only tables to sit down. I think the table arrangement in the common area. That person can see that person. There are tables that they sit and talk together. Some care staff will join them. They are not separated.

Or sala (pavilion), when we arranged our activities in circle, it is the only place that we do activities together. Also, we have a Petanque ground. Or some days we have afternoon tea session in the building. We also have parties or birthday parties. They are also set at the Sala. Or if it is raining, we will arrange tables in the pavilion and set together. At the centre…I think if there is no common area in the middle, it is hard for us to meet each other. For the common spaces, whoever come out off their rooms, they will certainly have to be here. Or, at 3-4 pm, when everything is calm/become silent, they will come out to sit in the front of the building to look at people walking by. They also like to look at raining and observe weather. They talk a bit but staff is the one who build the situation for them to talk or do something. I think design helps because it creates a communal area that makes the guests to meet each other.

R: Therapeutic environment support and promote wellbeing

P: I think the outdoor environment…For here, I like the outdoor area more. But I think they have area…they have area, which allows the guests to walk, and do many things. That's I really like. Also, it is multi-sensory…as an occupational therapist, we emphasised on this. The outdoor space is a kind of multi-sensory. Older people can walk up and down, along with birds chirping and the sound of waterfall. Also, odour/smell...when we found flowers…look at them and we can pick them up. They can even pick flowers for flower arranging. Because the garden, they keep gardening all the time. They will get smell/odour and sound. In aspects of light, visual, and vision, flowers have so many colours…and sky is also including. They can also touch and everything. They are all multi-sensory. Sometimes, for occupational therapists, we have Snoezelen, which is a multi-sensory room. But, here, we do not require Snoezelen room. Here, it is like when we walk outside, it is multi-sensory already.

Also, I heard that multi-sensory environment could make people with dementia feel relaxed. So, we have emphasised the staff to take the guests outside as much as possible.

And, it is directed by Khun Doris who emphasised them to go out of their rooms because if they keep staying inside, the environment is the same as before. Even though there is bird chirping sound or TV sound. They are not multi-sensory and they are the same. But when they go out, they have more chances to meet/find…to talk, to do…For here, we encouraged to stay outside as much as possible.

R: Any kind of limitation?

P: Here right? If they are wheelchairs can be accessible to everywhere. But there is somewhere in the garden where there are rocks so we need to use our capability to push wheelchairs. But if they are older people with dementia who do not have 1:1 care staff. There are various care packages. If they don't have so we have to help each other look after. So, there are sometimes that…fences are too low. So, we are afraid that they will climb up. Also, there is a lake at the back, which is quite dangerous. But if there is a care staff with them, it is quite safe. But if they walk alone or older people who came here for holiday, I think it is quite dangerous. Also, as you might notice, there are steps/blocks at the lakeside…But if we have something to protect, it will be good. But if not…it is for aesthetics.

But mostly, we don't bring the guests near the water. We usually walk around.

R: So, do you think weather is limitation?

P: Not really. Because in Thailand we can go out everyday, even raining, foreigners are not afraid of rain. Sometimes, if the rain is not heavy, they still walk. So, we just use umbrellas and follow them.

Especially, people with dementia, our concept of care is they always the right side. If we don't allow them to go out, if we don't follow them. If we lock doors, they will smash doors. They cannot perceive what is not to do, good or bad, they lose it all. So if they want to walk. We have to…okay walk!. They will feel free/release and happier. Here, we emphasise to follow the guests.

It is like…in the morning, if they refused to take shower, then next 2 hours we will try again, if it is not that dirty. We will later try every hour. So, for the nursing concept, it is palliative care…for people with dementia. So, we don't emphasise on improving, so we…the occupational therapists, don't have equipment for improving, but it is about how can they live in their own world as happy as possible.

So, even if they like to move stuff, we allow them to do. Or, they like to walk and we follow. It is to make them happiest and the relatives are happy too.

For the concept of palliative care, not only people with dementia, but also it has to be the whole system including the relatives.

R: What do they actually mean by going home?

P: It is like their brains think about something. Like the brains think about the past. They don't know where they are because they lost their orientation about people, time, and space.

R: How do you answer or respond to them?

P: Going back home, they mean…at that point…they are feeling anxious about something. If you said, you cannot go back. They will be more upset.

(…) This person believes me, helps me, and have more confident.

R: Familiar environment…do you think there are any affect?

P: I think because the architecture here is modern. It is in the neutral state between Europe and Thai. And, most of our guests here, I think that they are at Switzerland. They don't know that they are in Thailand. So, I think that if it is modern and neutral. It will help. But if it is in Thai style, they will wonder. If you ask are they confused if they are in Thailand, they are not.

Home-like might be a good idea, especially the ones in mild stage, which can still recognise. The ones in mild stage also recognise that they are in Thailand, but they cannot figure out how to buy tickets or about money.

R: Do you think technologies can help assisted?

P: Yes definitely. For example, in terms of carrying…it can support the care staff and enhance work to be easier. It makes the two stakeholders work together happily (46:23). Or, technologies for alarms or censors we have also used them.

R: Do you apply them here?

P: Yes, but we rarely use them because during holidays we still have staff in their position. But there are some guests who like to wake up at night and walk stealthily. Sometimes, we use because we don't have enough staff. Or, the staff during night shift went into one room, but other guests woke up at all 4 corners. All staff are in the rooms. So, one of the staff needs to bring a censor to the entrance doors. Then we can run in time. We have to priorities the one and take care of another one first.

R: For aspects of design tool and assessment tool, do you incorporate it in your care tasks as well?

P: It is like when we study, when we go out into the communities and assessed their homes which parts are risky. For here, we mostly searched for universal design. From our capabilities, they are colour, handrails, and other equipment. Things that are not too expensive. We are trying to design and make them. As we are occupational therapists, whatever we want to create, we will create for them.

(…) but for the buildings, such as steps, at first we think about using reflective colours such as yellow. But there is a limitation because they have only white. Or steps, we used tape instead to see colours.

R: To what extent do you think the design can support their capabilities as they are in various levels?

P: I think…the design should try to support their capabilities at first. But, then we will see which parts need additional supports. In an aspect of an occupational therapist, ADLs can improve their confidence and their self-esteem by making them feel like they are partly can take care of themselves. If the environment is too risky, they are fear to do and feel low self-esteem. They will eventually have a higher quality of life.

But, ones with more advanced stage, so…we should take care of them mostly. Or, we might use another procedure in another level for assistance…by not being too complicated.

At the early stage, they can still use or do complicated activities for their daily living. But, for the late stage, there is a need to use human support.

For guests in building 3, they are still independent. But, there are risk of falling and having wrong medication. But in building 5-6, nurses arranged for them. We are afraid of falling, wandering at night and poisonous animals. Another limitation in here…as it is a forest. There are snakes, and insects

Here, there are many enablers such as there are lights everywhere. Or if there are censors to light up lights. They don't need people to support. People who are independent makes them higher quality of life.

I think if they are more advanced, we also need to encourage the quality of life of care staff because the staff is very stressful. If they don't know techniques, like us…so we need to support them about characteristics of dementia. For caring, it does not have to be straight forward. It has to be abit tricky. They are stress out because they don't understand but if they understand about their circumstances.

But if somehow the guests are aggressive, and scold, so we change them first. The guests cannot remember faces. Then, they need to calm down. So, here we encouraged supporting caregivers. Because they are the ones who stay with them almost 24 hours.

Also, for this group of guests, there is a matter of aggressive mood, which we might think that because they have dementia, so they are aggressive. But actually there are causes which caregivers can be one of the causes.

So, from my study, it mentions, caregivers are mirror of the older people with dementia. If we are in any kind of mood, they will absorb our mood.

Because they stay together for the whole day, if they are in the bad mood, they will be upset. If we are frustrated, they will be frustrated.

So, we always tell our care staff that before you go into the building, we need to breath first, if you are worry about any other things, get rid of it. So, that's why their body language needs to be good and be positive.

R: So, are they effect the care staff?

P: Yes. Sometimes, I just sit at the Sala (pavilion) and look at trees. Or the common area, it is bright and fresh. So, I think, for here, as it is beautiful and it looks good, I think they feel relaxed too. Sometimes, they pick up flowers, somehow becomes activity of caregivers…so it is like they are living together. So, when we tuned in with caregivers.

Someday when the light is beautiful, I often feel like I am on holiday to stay in a beautiful resort…so, it is another good day.

(…)

We are the environments for people with dementia. It includes buildings and us. For here, I personally like to take the guests outdoor, not only in therapy rooms. I think it is boring and not fresher. For private one, it is more beautiful. It is also affected as well based on my opinion. It does not like you come to hospital. I think it has affected.

Participant 6: Occupational Therapist

Gender: Female; Age: 25+; Nationality: Thai

R: How can the design of physical environment support people with dementia for their daily activities as well as the care staff?

P: For myself, I think that when we enter the pavilion, then the ceiling is quite high. Then, natural light can come in. It can make the older people or other people to feel fresh. It is good…especially for the case of depression. Like when you come in, there is light. And, it is natural sunlight. So, you will feel fresh and it is so good. And, as the ceiling is high, it can be felt that there is air. There are some gaps, which make us feel more comfortable.

I have been visit other places…the ceiling is very low. It is not high to reach ceiling. The light/brightness is not enough, so they have to turn on light during the day…all the time. In that case, it will make us feel cramped and frustrate. It makes us feel…smelly. And it does not make them feel fresh.

For here, it makes me and also the guest to feel…when they come in…it is bright already.

The light is the main concern if you talk about zoning or this kind of thing. It is involving lighting, high ceiling…(Pause). So, for the first thing in my opinion is more about high ceiling.

The second thing is handrails, when I first work here…there are railings along the way and during nighttime there is lighting underneath them. And, when we hold them, it is not a light bulb. It is kind of hidden underneath it. Surprisingly, there is no an electric shock. It is not dangerous because there is a circuit underneath. Sometimes, we hold it and it is not hot….only warm. It is not hot and causes electric shock. So, I think it is very good for older people with dementia. Because they always touch and hold, and they always leisurely touch everything. Sometimes, they pick up everything. So, it is safe and can see during the nighttime too. This is mainly about the main common area.

My main point is about brightness. But, inside bedrooms, here, we emphasise the use of glass…windows. The glass is high and there are a lot of windows. If we open the curtains it will be bright. When it is bright, same…the older people will feel fresher and animated.

As I have been here for a while, I think that the older people are vigorous and energetic. Fresh…And, we they are in the rooms where they are open and can see many things because they have environment. Every room allows seeing the outside views.

R: Are there any limitations of the design here?

P: (Pause). Ramps are fine here. I think the main limitations are doors. The bathrooms' doors are sliding doors which…myself as an occupational therapist, it is correct. Because doors for wheelchairs and other things…it has to be sliding doors because it is easy as well as older people with dementia too. But here, I think sometimes, it is a bit too narrow. When wheelchairs go into…and then when rotate. If it is in the shower area, it can rotate but not the zone where toilets locate. It is a little bit too narrow. Also, the doors are not too wide. If it is wider, it will be fit nicely.

R: Are you working full-time here?

P: Yes I work here full-time, from 8am to 5pm. So, the main focus is on doing group activities, 1:1 activities. Activities…they are including doing activities in daily life/everyday life, leisure activities, or activities during work. But, we use activities as media for curing/healing. It is different from physical therapy because for physical therapy, they emphasise on the physical aspects, but for occupational therapy we mainly look for the overall image…we can work with the guests in 4 areas including physical, mental, older people and kids. This means if the physical aspects…for example, broken arms, we will know which part of muscle, after that we will know that this part of muscle…we will then try to practice this part of muscle. Then we will observe how it can affect their daily routines. For example, eating, if they cannot eat, then we practice the full programme and the muscle does not come back. Then we will question if equipment will help. How can we use equipment to assist them eating. Any plates…So, it is daily routines which they can be independent. So, we also include physical exercise and connecting to other daily activities such as wearing clothes etc. For kids, the occupational therapists also use playing as a medium in healing e.g. throwing balls, picking up colours (…). Also, the mental aspects, we work from what kind of occupation they have done before which is similar to older people area. So, for older people, we work from daily activities and their hobbies, or what occupation they have done before.

Like here, when I come to work, I have both group activities and 1:1 activities. For the 1:1 activities, we have to ask relatives first, what have they done before then we will talk to the guests like what do you like to do. Then, we use these activities to motivate during the activities. Then, I have to analyse the activities by expanding out…like success. Then, when

the first time, they are successful, the next time then they want to come. Then, that will lead to group activities.

R: For 1:1 activities, is it everyday?

P: Yes. It depends on individual basis such as this person plays table tennis, Frisbee, or sings songs or some person has painting as an activity.

P: And because here, they are guests with dementia…so most activities are simple and they have done before. Sometimes, they like to talk…we will just be there and listen to them. But we need to use our body language exaggeratedly. Like…even though I talked continuously and aimlessly…this person believes in me.

R: As I have observed in the morning activity, most of care staff was involving in the activity…even though most guests were speaking German (…).

P: As most guests are people with dementia. They cannot remember. I work here for three years. No one can remember me. Their short-term memories are fading away. As we are approaching them, they might not know who we are. So, before care staff starts their work, we have training to tell them that they are older people with dementia. This is the concept of vivo bene…most guests are like this…If we have to follow guests the whole day, this is vivo bene…for them to understand. Because if they are shocked, then they will not stay and work with us. So, we have to tune in with them first. Especially, the body language.(…) Like sometimes they said "I want to go home, where is my children". Sometimes, we might think that they really want to go home. But in fact, if they are at their home, they still said that. So, if they want to go, and if we said…the car will come, they will keep waiting and get upset. So, we have to tell our care staff that if they say they want to go home, our facial expression needs to exaggerate and say…you want to go home right…I don't know how to help you but I will do my best. So, they will think that this person understands me.

R: And then, they will calm down by themselves?

P: Sometimes, we will take them to go for a walk. But mostly, if they have symptoms of confusion, we will let the care staff to prevent. To prevent means not letting them to stay alone for too long. If they stay alone, they will start thinking. So we have to have 1:1 activities and train the caregivers to do them too.

R: Are the activities happening inside the pavilions?

P: Yes. We tell the care staff to do with them too. For example, here it is 1:1 caregiver right, so from the morning until evening they will stay with 1 guest. Then, we will let them to do activities with the guests too. So, the guests will not think (muddle). In the morning, they will take the guests to group activities which I set up, then in the afternoon, after lunch, take a nap, and after that they will have nail painting. So, they will stop thinking about themselves.

R: Concept of homeliness in here?

P: (Pause). This is for older people with dementia right? I think some of the settings are effective. Like, sometimes we told them to take shower, older people with dementia are very afraid of taking shower. They feel anxious about it, try to escape and fight during shower time. So, we use the term 'spa' instead…like are you going to the spa? Then, we are trying to decorate the bathrooms to look like a spa as much as possible with the use of odour, lighting, and sound. To be like a spa.

So, we are planning it right now for people who are difficult for taking shower. We incorporate smell, turn on music in the bathrooms, or arrange things to be spa-like. When they enter, they will feel. But in fact, it is taking shower. I think that if we have a spa setting in the house or something like that. I think it is good.

But for kitchen, if for people with dementia, I think it should be emphasised to be as clear as possible. For home-like environment for kitchens, I think it is fine for mild stage dementia…like it is the same setting as our home…like they have used it before. So, they may feel happy with that.

However, if they don't recognise…this is never…they are a group of people who have low self-esteem, which means if they know things that they surely cannot do. They will not do it. The, they will hide the symptoms. The guests here as well. Especially the mild stage ones, they will not join over activities because they don't want to show that they cannot do it. So, they end up with complaining instead. But in fact, they refuse to do it. Complaining to show that they are like normal people. This is not good…because they are normal people. So, if the kitchens look like the one that they are familiar or used to. Thy may be bold to use it. But, if it is too different, they will refuse to do anything.

R: What do you mean by the kitchen should be clearer?

P: I think it should not be too much. As they have many stages, older people mostly…in aspects of perception. If something is too much, it might cause confusion. Also, it may be hard to pick or hold or cannot choose. But I think if there is one background colour. Then, there is a contrast colour and clear. They will be able to choose or pick objects easily. If there are too many, they will get confused and don't know what to pick.

R: But here, are there any guests who can pick objects in the kitchen?

P: They are in another building. The one who can take care of themselves. They will go to the restaurant. In the morning, there is a buffet, so they will pick and choose by themselves.

So, it depends on their stages, if they need high level of care. They stay in building 6, which have more care staff. Also, building 5 and 4. But, the ones who can still take care of themselves (independent), they will live by themselves and will go to eat at the restaurant. They will have their own activities. But, if they want to join, they can. If they don't want to come, they often go for sunbathing at the swimming pool.

We may think that they are like normal. But they have issues of money management. Like, they really like to go shopping. If we gave them money, they will spend all. They then ask…I want money…I want to go…or they want go back home. So, we ask do you have money. So, it is something about money, or complicated thinking that they cannot understand. But, daily routines such as eating etc., they can do.

R: Are you going out with them to the communities?

P: Yes. For all activities outside, I am the one who organise them. Most of the time, before we go, we will have to do surveys first, to see if there are ramps, toilets, sofas or seating that can relieve the older people. Sometimes, they are beautiful, but they are hard to sit on. Sometimes, they are made from metal and support teenagers. So, we have to do surveys. The space should be clear and enough for them to walk they are nervous. We have to book for cars, and identify their seating for example who can get up to the car easily or they have dementia so they need to get up the car last. So, we have to try.

When we arrive, we have to set up how they sit and who sit together because they might fight with each other…sometimes.

R: They talk to each other right?

P: Yes. But they cannot remember each other. Only some in early stage can remember. Some also like to go with the group because when they go they feel like they are the best. I am not sick. Or, some do not want to go because they feel they are not sick. But, importantly, the one in early stage does not know that the rest are sick. They usually ask why they do that.

R: So, do you think design of physical environment support you and care staff?

P: Yes. There are ramps in every pavilion that we feel comfortable to take the guests up. They are all accessible. At first, for the stairs, the colour look the same. So, we decide to paint the nosing. Only building 6 is painted. Previously, we have care guests only in building 6 so we painted white on the nosing. When they walk by themselves, so they know that they are steps. We feel relieved when they go out to walk by themselves.

(…)

There are handrails in the shower area, but in the toilet area, there are not. So, we have to observe them again, like this guests need assistance in getting up. We will change to chairs (designed) for toilets. But if the guest with dementia doesn't have problems with movement, we will not have it.

Also, the design helps us a lot when taking shower. Because taking shower is a private activity right…so our guests with dementia they cannot take shower by themselves. But when there is care staff to assist, they will be embarrassed. Or, they may be worried about dignity or respect. So, we approach them softly. There are chairs for sitting during taking shower. Everything is safe, so they will not be anxious about taking shower because they are worried that this person will help me taking shower. When they feel safe, sitting down when taking shower, and the care staff is quite sensitive. We will tell them every step, then they will feel relieved. So, I think design can reduce their anxiety.

Design is a part to reduce their anxiety. The care staff also has knowledge or techniques when doing this, which can reduce anxiety. For example, for here, if the care staff uses hands to take shower for them, they will feel a little bit. So, here, we use towels with bubbles and rub them. They feel more comfortable. If we use showers to pour on them, they will be frightened. To make them familiar with the texture of the cloth. If they feel familiar, they will start to do it themselves. So, if they feel safe, they will be calm.

R: In dining area or other places…do you think design and support social interaction?

P: (Pause). Mostly, during dining, there are only tables to sit down. I think the table arrangement in the common area. That person can see that person. There are tables that they sit and talk together. Some care staff will join them. They are not separated

Or sala (pavilion), when we arranged our activities in circle, it is the only place that we do activities together. Also, we have a Petanque ground. Or some days we have afternoon tea session in the building. We also have parties or birthday parties. They are also set at the Sala. Or if it is raining, we will arrange tables in the pavilion and set together. At the centre…I think if there is no common area I the middle, it is hard for us to meet each other. For the common area, whoever comes out off their rooms, they will certainly have to be here. Or, at 3-4 pm, when everything is calm/become silent, they will come out to sit in the front of the building to

look at people walking by. They also like to took at raining and observe weather. They talk a bit but staff is the one who build the situation for them to talk or do something. I think design helps because it creates a communal area that makes the guests to meet each other.

R: Therapeutic environment support and promote wellbeing

P: I think the outdoor environment…For here, I like the outdoor area more. But I think they have area…they have area, which allows the guests to walk, and do many things. That's I really like. Also, it is multi-sensory…as an occupational therapist, we emphasised on this. The outdoor space is a kind of multi-sensory. Older people can walk up and down, along with birds chirping and the sound of waterfall. Also, smell...when we found flowers…look at them and we can pick them up. They can even pick flowers for flower arranging. Because the garden, they keep gardening all the time. They will get smell and sound. In aspects of light, visual, and vision, flowers have so many colours…and sky is also including. They can also touch and everything. They are all multi-sensory. Sometimes, for occupational therapists, we have Snoezelen, which is a multi-sensory room. But, here, we does not require Snoezelen room. Here, it is like when we walk outside, it is multi-sensory already.

Also, I heard that multi-sensory environment could make people with dementia feel relaxed. So, we have emphasised the staff to take the guests outside as much as possible.

And, it is directed by Khun Doris who emphasised them to go out of their rooms because if they keep staying inside, the environment is the same as before. Even though there is bird chirping sound or TV sound. They are not multi-sensory and they are the same. But when they go out, they have more chances to meet…to talk, to do…For here, we encouraged to stay outside as much as possible.

R: Any kind of limitation?

P: Here right? If they are wheelchairs can be accessible to everywhere. But there is somewhere in the garden where there are rocks so we need to use our capability to push wheelchairs. But if they are older people with dementia who do not have 1:1 care staff. There are various care packages. If they don't have so we have to help each other look after. So, there are sometimes that…fences are too low. So, we are afraid that they will climb up. Also, there is a lake at the back, which is quite dangerous. But if there is a care staff with them, it is quite safe. But if they walk alone or older people who came here for holiday, I think it is quite dangerous. Also, as you might notice, there are steps/blocks at the lakeside…But if we have something to protect, it will be good. But if not…it is for aesthetics.

But mostly, we don't bring the guests near the water. We usually walk around.

R: So, do you think weather is limitation?

P: Not really. Because in Thailand we can go out everyday, even raining, foreigners are not afraid of rain. Sometimes, if the rain is not heavy, they still walk. So, we just use umbrellas and follow them.

Especially, people with dementia, our concept of care is they always the right side. If we don't allow them to go out, if we don't follow them. If we lock doors, they will smash doors. They cannot perceive what is not to do, good or bad, they lose it all. So if they want to walk. We have to…okay walk!. They will feel free/release and happier. Here, we emphasise to follow the guests.

It is like…in the morning, if they refused to take shower, then next 2 hours we will try again, if it is not that dirty. We will later try every hour. So, for the nursing concept, it is palliative

care…for people with dementia. So, we don't emphasise on improving, so we…the occupational therapists, don't have equipment for improving, but it is about how can they live in their own world as happy as possible.

So, even if they like to move staff, we allow them to do. Or, they like to walk and we follow. It is to make them happiest and the relatives are happy too.

For the concept of palliative care, not only people with dementia, but also it has to be the whole system including the relatives.

R: What do they actually mean by going home?

P: It is like their brains think about something. Like the brains think about the past. They don't know where they are because they lost their orientation about people, time, and space.

R: How do you answer or respond to them?

P: Going back home, they mean…at that point…they are feeling anxious about something. If you said, you cannot go back. They will be more upset.

(…) This person believes me, helps me, and have more confident.

R: Familiar environment…do you think there are any affect?

P: I think because the architecture here is modern. It is in the neutral state between Europe and Thai. And, most of our guests here, I think that they are at Switzerland. They don't know that they are in Thailand. So, I think that if it is modern and neutral. It will help. But if it is in Thai style, they will wonder. If you ask are they confused if they are in Thailand, they are not.

Home-like might be a good idea, especially the ones in mild stage, which can still recognise. The ones in mild stage also recognise that they are in Thailand, but they cannot figure out how to buy tickets or about money.

R: Do you think technologies can help assisted?

P: Yes definitely. For example, in terms of carrying…it can support the care staff and enhance work/tasks to be easier. It makes the two stakeholders work together happily (46:23). Or, technologies for alarms or censors we have also used them.

R: Do you apply them here?

P: Yes, but we rarely use them because during holidays we still have staff in their position. But there are some guests who like to wake up at night and walk stealthily. Sometimes, we use because we have enough staff. Or, the staff during night shift went into one room, but other guests woke up at all 4 corners. All staff are in the rooms. So, one of the staff needs to bring a censor to the entrance doors. Then we can run in time. We have to priorities the one and take care of another one first.

R: For aspects of design tool and assessment tool, do you incorporate it in your care tasks as well?

P: It is like when we study, when we go out into the communities and assessed their homes which parts are risky. For here, we mostly searched for universal design. From our capabilities, they are colour, handrails, and other equipment. Things that are not too expensive. We are

trying to design and make them. As we are occupational therapists, whatever we want to create, we will create for them.

(…) but for the buildings, such as steps, at first we think about using reflective colours such as yellow. But there is a limitation because they have only white. Or steps, we used tape instead to see colours.

R: To what extent do you think the design can support their capabilities as they are in various levels?

P: I think…the design should try to support their capabilities at first. But, then we will see which parts need additional supports. In an aspect of an occupational therapist, ADLs can improve their confidence and their self-esteem by making them feel like they are partly can take care of themselves. If the environment is too risky, they are fear to do and feel low self-esteem. They will eventually have a higher quality of life.

But, ones with more advanced stage, so…we should take care of them mostly. Or, we might use another procedure in another level for assistance…by not being complicated.

At the early stage, they can still use or do complicated activities for their daily living. But, for the late stage, there is a need to use human support.

For guests in building 3, they are still independent. But, there are risk of falling and having wrong medication. But in building 5-6, nurses arranged for them. We are afraid of falling, wandering at night and poisonous animals. Another limitation in here…as it is a forest, there are snakes, and insects

Here, there are many enablers such as there are lights everywhere. Or if there are censors to light up lights. They don't need people to support. People who are independent makes them higher quality of life.

I think if they are more advanced, we also need to encourage the quality of life of care staff because the staff is very stressful. If they don't know techniques, like us…so we need to support them about characteristics of dementia. For caring, it does not have to be straight forward. It has to be abit tricky. They are stress out because they don't understand but if they understand about their circumstances.

But if somehow the guests are aggressive, and scold, so we change them first. The guests cannot remember faces. Then, they need to calm down. So, here we encouraged supporting caregivers. Because they are the ones who stay with them almost 24 hours.

Also, for this group of guests, there is a matter of aggressive mood which we might think that because they have dementia, so they are aggressive. But actually there are causes which care staff can be one of the causes.

So, from my study, it mentions, care staff are mirror of the older people with dementia. If we are in any kind of mood, they will absorb our mood.

Because they stay together for the whole day, if they are in the bad mood, they will be upset. If we are frustrated, they will be frustrated.

So, we always tell our care staff that before you go into the building, we need to breath first, if you are worry about any other things, get rid of it. So, that's why their body language needs to be good and be positive.

R: So, are they effect the care staff?

P: Yes. Sometimes, I just sit at the Sala (pavilion) and look at trees. Or the common area, it is bright and fresh. So, I think, for here, as it is beautiful and it looks good, I think they feel relaxed too. Sometimes, they pick up flowers, somehow becomes activity of care staff…so it is like they are living together. So, when we tuned in with care staff.

Someday when the light is beautiful, I often feel like I am on holiday to stay in a beautiful resort…so, it is another good day.

(…)

We are the environments for people with dementia. It includes buildings and us. For here, I personally like to take the guests outdoor, not only in therapy rooms. I think it is boring and not fresher. For private one, it is more beautiful. It is also affected as well based on my opinion. It does not like you come to hospital. I think it has affected.

Participant 4: Occupational Therapist

Gender: Female; Age: 25+; Nationality: Thai

R: How can the design of physical environment support people with dementia for their daily activities as well as the care staff?

P: The interior…everything right…If it is for the patients or the clients, I think it is about the brightness inside the building. It is mainly the brightness inside the buildings. Also, the hall is high (ceiling). Moreover, the light from outside is natural sunlight, which helps a lot. Because older people like brightness, and they feel like...it has the natural manner. Some people, if being in general lighting, they will not become depressed. The symptoms of this would be less.

Also, the high ceiling hall makes us think of comfortableness and serenity. Also, windows are large. The frames are big with mosquito wire screen which allows good air flow (ventilation) from three sides.

Moreover, for care staff, brightness also affects because our care staff works in shifts from morning, afternoon to night. So, they are sleepy and not feel energetic. They will not feel energetic when they do overtime (OT). So here, I think brightness makes them be active. Yes, they will be active. As it is natural sunlight, they feel free more than artificial lighting in buildings.

As I am an occupational therapist, lighting has really affected because we require to emphasise the activeness, and to stimulate the use of natural environment. Like, when it is raining or sunshine, their behaviours change. Or, our activities depend upon weather. It is also affected.

R: Are there any limitation of the usage?

P: If I want to adjust, I think it is the bedrooms. The rooms of clients. This is because the doors…even though wheelchairs can get in, but it is not flow all the way round. Sometimes, we need to move a bit for them to be straight. Because, there are corners. So, the area around doors are effecting both the bedrooms' and bathrooms' doors.

However, the bathrooms' doors are sliding which are okay. But still, in some rooms, the doors cannot be pushed towards the end because they leave spaces for handles, which causes the gap between doors become narrower. Also, it causes risks of scrape (skin).

So, in pavilion 6 which have 24 hours care, we tend to take them out….some rooms only. So, Khun Doris will be the one who assess which rooms should have adjustment. This makes the doors to be wider.

Some rooms, at first the bathroom floor is slippery. At first, they will apply anti-slip sheet. But, because our guests have dementia and are older people, they always don't lift up their legs. So, they kick the anti-slip sheet. So, there are issues in some rooms now. But some rooms, we repair it by applying non-slip floor tiles on top instead.

R: So, most cases will be assessed by Khun Doris first right?

P: Yes. It also depends on the clients as well. If they stay with us for a long period of time. Also, their families have to support to pay because of course there are expenses. So, if they are okay and we can support. We will do it for them. So, there is this matter as well.

P: But some cases who are very dangerous. We recommend having 24 hours care or 1:1 care, because this can decrease the risk of falling in bathrooms for sure. But if the clients do not pay for 1:1, but want convenience in going into bathrooms, we will then adjust for them.

R: Do you think the design of the physical environment can support social interaction?

P: In general spaces, at Vivo, they have various communual spaces…many spots. For example the restaurant, or the organic garden at the front, then there is a big pavilion and also a spa which everyone can use them. Also, there are chairs or small pavilions spreading out in the gardens. For this, it is easy to appoint or have a chat or do activities together. For example, the restaurant, it is a place for eating or organising parties. So, we do activities. Such as birthday, we will come to meet and talk. Sometimes, for afternoon tea, we might organise it at the pavilion (lakeside). We organise at the restaurant and at the pavilion as well. I think the place supports both the guests and the care staff to take them for a walk or to rest. So, it is like…to change atmosphere from their rooms….from the buildings.

Also, this includes trees and flowers, this helps a lot. It looks…natural. The older people…when we talk about vegetables or trees, they seems to be interested in more than when we talk about other things. For example, at the vegetable garden, now we have chickens. At first, we did go to the vegetable garden to collect vegetables. When they arrives, they sang songs. So, now there are chickens, so they went there to observe chickens…to keep an eye on eggs. So, these are another activities. So, when the chickens make some noises like cock-a- doodle-doo, they will laugh.

R: Yeah. There are some care homes in the UK as well that have chickens as their therapeutic animals.

P: Oh. I have not heard about it before. Yeah, so when they go to observe chickens, they imitated the sound, cock-a-doodle-doo and they will laugh (Laugh)

R: In many European countries, care homes are designed under the concept of homeliness unlike here, as it is a resort-style. How do you think about it?

P: Yeah. Sometimes the guests say…I want to go back to see my mom. So, we have to create the place here to be a completely new place for them. But, someone also require this…for

example someone who is lonely. So, if they can accept that they come here to live by not lie to them. So, they feel good that there are family photos in the rooms or objects in the rooms.

There is one Aunty. She just came. She brought everything here when she came…such as miniatures, her knitting works…displaying in her room. So, she displays all of them in her room to make her feel good. So, it depends on each individual case and their stages.

R: What about more advanced ones? As you have mentioned that it is too much.

P: This is because as an occupational therapist…I am focusing on sensory implication. So, as there are too many, it can cause them confusion. Sometimes, the room should be clear and emphasises safety. Also, when we stay with the clients, we know their requirements such as music or odour. Just that might be enough.

There is one case, previously, there is lots of stuff in his/her room. He likes to watch movie…a large screen TV and a large sofa…like a home. Closing curtains to watch movie and lots of equipment e.g. photographs, food, and many more. It is like, he does not need to go out, he can stay there. But now, as he is getting worst into another stage. Nothing can stop him. Like, lifting up TVs, and use equipment wrongly…like pouring water into electrical devices. So, we have to take them out. Since we took stuff out, he feels comfortable. But, someone will think, where is my stuff. So, we need to gently take out, piece by piece.

So, for the more advanced stage, we are more concerned about safety and emphasise brightness.

R: Are there many advanced stage at Vivo?

P: Yes. All are at advanced stage. In general, people may think about dementia as their symptoms of forgetting, but actually this also includes mental symptoms including upset, mood changing, and bipolar. They are underlying. That's why we deal different with every case. So, they are advanced different ways.

But for some cases that we call advance, it means that we cannot control as they may walk non stop and refuse to sit down. When we touch, they will scream. Because we don't have bedridden cases. Here, Khun Doris always say that bedridden cases are not difficult because they will not go anywhere, but the time can be fixed. But, these type of cases, these cases are very hard because they still have their independent mind. If someone, we point at right hand side, they follow, but someone we point right side, they walk left. This is hard for us then. Moreover, we also have end of life cases, which we also take care.

R: Does it mean that they are bedridden?

P: Yes, bedridden... But actually, it is because they are getting down (worst), it does not like bedridden where they have to put on tubes, they can still eat. But they refuse to socialise. So, this is the last stage.

So, when we have this last stage, we have to talk to their relatives how they want to be…if they have conditions of dangerous or in pain, so we will send them to hospitals.

R: So it depends on the relatives

P: Yes, sometimes the relatives do not want them to suffering. So, they tend just to live and pass away.

R: How can the design of the outdoor environment support the guests?

P: I think for the guests…we tell them all the time that they are at the resort. They come here to relax. So, it is to feel like you come to resorts and the place especially outdoor, it fits to be a resort for relaxation (setting?). So, they think…this is the truth. You don't tell a lie to me. Then, they will follow us. So, they will relax for a period of time.

For our staff, they come to work…and face pressure and stress. But, when they are in this kind of environment, they are okay. They can feel like they also come for relaxation. It is relaxed. Because from home to…like I am living in a dormitory, it is a square room. But when we come here, even though a work environment, but our working environment is open environment with forest, mountains and water…that kind of thing. They seem to be more relaxed. Also, I think the sound of nature. I think it makes us more relaxed.

R: Any limitations?

P: From my experience, I think some of the pathway. I have encountered the hole or the connection of street. So, when we push wheelchairs, they are obstructed some parts. But some parts are developed. But, there are still some points. Also, the area for water drainage with grills. Sometimes, the wheels of wheelchairs are stuck. And, the clients…with dementia, if they feel it is not safe for the first time. Next time, they will refuse immediately the same care staff. Even though they have dementia, but they remember by their senses that they don't want this particular care staff. But sometimes, blue shirt right? No..There are a period of time which the clients spot on the staff's shirt colours. The shirt colours. Previously, we don't wear uniform. We can wear anything to work. So, they cannot remember who is who. To forget all the images. To forget all. So, when we push wheelchairs and stumble or stop immediently. Or, sometimes even leaves that fall down. So, they start yelling.

So, for the new staff, we have a session, which let the staff to try sit on wheelchairs and another staff push them through and around Vivo to spot on certain points which seem to be dangerous. Then, we will know that we have to be special careful with that point.

It has to be like this. If we continue push and we forget…game over.

R: So you let the care staff to try first.

P: Yes. So at the garden for example…we let them to try first…to try what weight or how much energy they have to use, that we will feel safe. If they feel unsafe, even though they like garden, but they don't want to go. So, we have to build trust and reliance first. So, they face pressure and stress. But as they are in this kind of environment…

R: Do you think weather effect the activities?

P: I don't think so. Some of our guests still think that they are in Switzerland. So, when they wake up, they know it is cold. Even though it is hot, last summer it is 30-40 degree celcius, they still wear winter clothes. They told us…it is hot (in German). But still, they don't take out the clothes.

R: Any effect on their body temperature?

P: As I have observed, as they wear them and go for a walk, they will get tired more easily. Then, they require regular rest. Or, we might arrange outdoor activities less when the temperature outside is extremely hot.

For rainy season, it is good that…they are quite afraid of rain. If it is a light rain, they still go out and walk. But if they start to realise that it is rain, then they will not go out. They do not use umbrella. I think they forget how to use it.

R: Yeah, as I have observed, there is no shelter for outdoor area.

P: If raining, we regularly organise activities inside. We tend to attract them to stay in here first.

Oh also, there are some points on ramps. Some buildings, I can feel that it is a bit too steep or not equal. For pavilion 6, it is okay. But for pavilion 4, I feel that it is too high, so I need to send out more energy/force. Use more energy…and because our clients are…their body size are huge. So, we usually have problems of back pain. Sometimes, we cannot and slide because we need to use our energy to push. Also, stairs, we require steps' corner with colours. Previously, there are not colours on step, then we ask for it because it is dangerous.

Also, another limitation is that…here during the nighttime is very dark. But, because here, it is resort, so they require dim lighting…like that. But there are already add on in some points and locations. But it is dangerous because of snakes, insects because it is close to forest and it is also damp. So, we have to be careful with this.

R: As you have mentioned about lighting and colours, how do you think these kinds of healing environment can support the building users.

P: I think it is very essential for them…the environment, it is important. For example, lighting…warm light can enhance the feeling of warmth. I think it helps a lot. Like, during nighttime, our building is mostly warm light which for them to recognise that it is nighttime. Eating or other activities, even though it is the same activities, but with different kinds of lighting that we receive are different, and create different feeling. Even though during at night, we sing songs or dance, but they will recognise that it is before bedtime. Not like…being active in the morning.

Also, smell…food smell, when it is 11:30 am or 12 pm, food arrives, when they served and smell comes. Then, they will come and wait at tables. This increases their hunger and appetite. The bedrooms' light here is quite dim.

R: What about cultural aspects?

P: I think in pavilion 6, it does not affect. But for early stage, for example in the restaurant area, they can feel-like home…like eat this one. Like, chandelier can create that feeling as well. To eat there can enhance their self-esteem. I mean…there is one guest…where she always eats at the pavilion. The food here is the one that nutritionists prepare for to smell their local food. As they don't have same local food as us. There is menus…but they cannot scoop for themselves. But this guest, she/he tries everything to eat at the restaurant. So, when she is there, she will be proud of herself…as a Madam…pride and get a chance to meet her friends as well. To prove that I am not sick.

Pets or animals also have advantages as they can concentrate/focus on them for a period of time. If they are agitated…then we talk to them about pets or animals, they are quite interested in.

R: How can technologies support the guests and for care staff as well?

P: I think for technologies for care staff should be a form of media…in terms of equipment. We have got turners. This can reduce our risks of back pain or other disease. Also, it is good for

our clients because it is convenient and don't make them feel that they are not burden…like that heavy to use 2-3 people. So, they are more relieved.

Also, electric beds also help…but it depends on which clients will intend to use it. If they also have inserted tubes or hard to move. Electric beds help a lot and reduce chronic fatigue.

Including sofas which can adjust levels…because sometimes the guests, if the staff don't go in to look at them frequently, it can cause pressure sore….also musical instruments.

Censors as well…during night shift when staff are not enough for every room. So, we take turns, but if there is sound/noise, we will run to see. Previously, we use bells… but as we close every thing, it creates resonance. So, everyone wake up and scare of the sound.

We only use it only when our staff is not enough. So, if some days which there is enough staff and they can handle situations, we will not use it.

Usually, during nighttime…I don't know why, but every Buddhist holy days…like full moon nights, they all wake up and wander. Some people wake up and refuse to sleep all night.

We also use nurse alarms…they will import from Germany to connect the front office and nurse office as well.

R: What about trips to the local communities?

(53:06) we emphasise our clients to walk. I usually take them to open space such as forests, or gardens. They need to be vast and open and not crowded. Even though they can concentrate on for 3 hours because of medication, but if they are encounter too much noise, they will get confused. So, I emphasise to go to natural environment settings and places where we can control mostly. Places that we already talked or dealed that our clients are this group…that we can negotiate with them. For coffee shops, we are usually go there first…but we are finding new places. This is because our clients are different groups but we cannot separate. We have to go together. So, we have to brief staff to take care of different groups differently. Some people, they said this café again…they are bored. So, we try to find other new places. We did a lot of research but there are scarce. That's the reason why we decide to build our own arcade.

I think it is the whole system…such as drivers…our clients are quick in sensing. They will be dizzy especially clients with vestibular. We asked him to slow down. He said we will not be there on time. So, we need to see even like…who is a driver today and which cars. We must make sure. We have to identify cars and drivers. We call cafes and if there are other customers, we will change destination immediately. Sometimes, we (guests and care staff), walk/wander all over the place. So, we usually go to the place where it has friendly design and not crowded. The cost is alright, we can spend. But the place should support us.

Toilets outside are very dangerous. (…) So we need to prepare everything from here. There are twice a week for free and a trip such as picnic (1:11).

R: In summary, to what extent do you the design of the physical environment can support capabilities and independent living of people with dementia?

P: I think it helps a lot. Especially the ones in mild stage or moderate stage…they can still take care of themselves. Sometimes, they just forget and sometimes it is not enabling such as colour of sofa or size of it. They are all affected. Sometimes, they are just forgetting that, they leave their stuff there. But if it is colour, they tend to remember colours more…like I live it there at the yellow part. Or equipment such as sticks, cane, or wheelchairs…or writing their names

or other forms of identity. Or spoons, from my study, there is an adaptation of equipment of paralysed patients. Becuase we want them to have more confident.

R: But stages of 3,4,5, might require care staff to follow closely. for example…brush their teeth. If they can take care of themselves. So, we don't have to waste care staff right. So we have a guide for them to hold and it fits and it is convenience. They will continuously do it. It is daily routine which they remember. Like if open taps and gove toothbrush means brushing. Or, sometimes soap, at first refuse to take shower. If we make bubbles and touch on them, they will recognise and use it by themselves. I think it helps them to be independent at one level and build up self-esteem.

Smell also helps…smell…in bathrooms for example the smell of hot water, they can feel that. The smell of hot water. Like Grandpa, he doesn't touch but he smells instead to know that it is warm. Or citus frangrance/smell also makes them fresh. Even end of life cases, there is a care who already pass away, Khun Doris used infuser to diffuse change air to the one he likes. It makes him to feel relaxed and if he is in pain, it does not ask…mention about that pain.

Aroma is used in personal rooms because different people don't like the same odour/fragrance. Also, the staff, we have aroma candles and we used only one, but it diffuses to the whole building. However, our staff feels dizzy, but our guests like it. So, the outside…communal area, we don't encourage to use it. Or we might use it in some special occasion to make it special indeed.

Participant 1: Architect (Telephone Interview)

Gender: Female; Age: 30+; Nationality: Thai

P: For healthcare design, I am currently working as a part of product development designers for hospitals. So, I am involving with both users, board of managers, and marketing team by briefing them to talk to designers in order to develop and come out with design.

So, my main roles are to communicate with user groups. Each department of hospitals, we have to discuss different user groups because they have different approaches in curing. If today I have chances to talk to department of…so I go and talk to doctors. So, I went to the department with architectural plans and designs to talk to doctors to explain and visualise what we have designed. After that, they will give us feedback and how they think about the design.

R: What about patients or other users, do you have opportunities to interact with them as well?

P: Not really. For patients, we are collecting data by surveying from the marketing department. For this part, it is more like roles of marketing department to do survey and give us this part of information.

R: Have you experienced using any guidelines or regulations in your design?

P: I used both laws and regulations and various standards. For example some hospitals use JCI or some hospitals use HA. But, the one that I am using now is JCI. Except for laws that we have to pass, we also have to pass certain standards for hospitals too.

R: Is it originated from Thailand?

P: I think the standard is from the US. So, this standard is from the US, but HA is originally from Thailand.

R: What about design aspects that support wellbeing of building users?

P: There are many aspects, like the current hospital that I am designing, I am concerning both staff and patients. Also, the atmosphere inside…since the first concept, we want the hospitals to be familiar or home-like. It should be more homey…more than a normal hospital. Like, not all walls are white.

Also, the outdoor spaces or landscapes…in some parts of patient wards, there are windows that can see through these outdoor spaces or to see rooftop gardens which can connect patients to the natural environment.

Or, a rehabilitation space, which locates on the rooftop area. So, patients can come to practice walking on ground that is more natural which can make them to feel more relaxed.

R: As you have mentioned about homey environment, in what aspects that design of the physical environment can support that?

P: Materials. We often use materials, which are in earth tone or use wood as the main material. Also, in front of each patient ward which I am working on right now, we also design them to look like house doors with signage that look like the real door. So, it does not look like a normal hospital. But the dimension of doors is still in the correct standard. Wheelchairs can go through normally. Decoration is the one that make them feel more homey.

Also, this includes lighting on the bedside. In patient wards, there is lighting for reading books. So, the lighting looks and feel like home more than using fluorescent light tubes kind of lighting which often use in normal hospitals.

R: What do you think about the concept of hotel or resort-like hospitals?

P: I think both concepts have the same objectives, which are for healing. Even though it looks either like homes or hotels, the main objectives are how to design them not to look like hospitals. For people who have to be cured for long-term, to be in the environment that make them feel sick. They can feel that they are sick more. But, if the place can be a place that can relieve in many aspects including their mental well-being, I think it can support them spiritually…to live or stay for longer.

R: How do you think the design of the physical environment can support social interaction between patients and staff?

P: I think it might support because there are some groups of patients who are not open-minded for healing. I have been to a conference about psychiatry. And, they have this issue that some patients completely refuse for curing. But if they are being in a place that is more comfortable and convenient or talk to people who can make them feel happy or peace in mind. Then, it can make them more accept to the cure. For example cancer patients. Something like that.

R: So, you mean that the design of physical environment can make them listen to staff more?

P: Yes. As the place can make them more happy and familiar, it might reduce them to feel anxious, confused or stress. Yeah…I think the environment can reduce that.

R: From you experiences, what is the main design limitation when design healthcare architecture?

P: I think it is the function of hospitals, which is quite complex compared to other residential projects. Also, users are very diverse such as doctors, nurses, pharmacists or patients. And, each user has different concerns in their workflows. Also, some of their concerns are in

conflict. So, we have to compromise all requirements for them to work. But sometimes they cannot be compromised because their importance or priorities are equal. Then, the workflow will not work well if any. This is what is difficult in hospital projects compared to residential projects.

So, sometimes we have to convince that we have to follow only one-user group, as we cannot compromise every group. So, some people need to accept for others to be able to work.

In this case, I am the one who summarise for most design solutions that the design should be like this for the best solutions. If during the meeting, there is no disagreement. Then, the design follows that.

R: Can I ask for examples of limitations or issues that cannot be compromised?

P: Most of the issues are about safety aspects of the flow for conveying medicines, which it needs to be like that and there is their own standard of working.

Basically, we have standard that we use, and then we adjust based on user needs but depending on which one is more important. So, I am based on JCI as the basic foundation. Then, I ask users again if we can compromise or adjust their needs.

R: To what extent patients can be involved in design process of hospitals?

P: Actually, it is good if we can involve them into the design process. But it is important to choose the particular segments, which are the same as we are targeting too.

So, we will know that what our focused groups are required. This is because if we are only based on ourselves, then we have not included the segment, which the hospital requires.

R: Could you please clarify a bit more about segments that you have mentioned? Is it about their conditions or symptoms?

P: (Pause). It is also included expenses and budgets. As well as locations. There are many other factors.

R: To what extent healing environment can support people with dementia and care staff?

P: I think it can support. From researches, environment such as healing gardens…. different leaves or different textures of natural environment might help to heal children with Autism. There are some details in this but I will not go into details. There is a study that states that healing environment can help. Or, the sound of flowing water from natural environment can help them to relax. A part of it is to make them…to 'hide' from their daily lives or the repetitive atmosphere in hospitals. Natural sunlight also helps supporting.

R: For these factors, have you applied in your design and how?

P: As I have mentioned at first that I have applied in parts of rehabilitation, there are both indoor and outdoor sections. For example the natural ground (e.g. rocks and gravels). However, there must be safety concerns or other infection control. Not only in JCI and HA standards. Standards for normal hospitals have mentioned about safety and infection control.

R: For safety and infection control, how users…

P: Staff is taking infection control the most serious factors when planning hospitals. Every flow of circulation has to divide into dirty and clean. We have to separate by not letting them to

overlap. And, when I discuss with users, they mostly concern about this factor. This is one of the most essential of hospitals.

R: What do you think about Dementia-Friendly Technologies?

P: Currently for our design for healthcare or hospitals, we are planning to use technologies for patients to be as independent as possible. But, we have not imported these kinds of technologies to use. What we use is the architecture itself. For example people who use wheelchairs, the spaces are wider, without steps and provide ramps. Also the ramps are in the angle which they can go by themselves (not too steep). For corridor, we have handrails. Also, inside of the patient wards, there are handrails along the way to bathrooms. This is because Thai people, they are…so sometimes, they don't want to wake up their relatives (who are in the room) and it can reduce risks of falling. So there are these helpers to support. This also includes seats for taking shower for people who cannot stand and take shower.

Also, there is a system of wayfinding. We also concern for colour-blinded people as well. So, that we intend for everyone can be inclusively use wayfinding system.

For technologies, there are some lighting which patients step on floors and light can suddenly turn on.

But, for care robots or something like that, we have not yet applied.

R: You also have mentioned about people with colour blinded. Which part of design that you have applied?

P: For signage, usually they are only in colours. But for people with colour blinded that they cannot see some colours. They usually see everything in grey. So, when we do fonts in front of background with same intensity. But for people with colour blindness, they can see everything in the same plane. And cannot see fonts pop up. So this is also what to concern.

R: Is it hospital for specific user groups or general hospitals?

P: General hospitals…

R: How do you think about these design tools?

P: If it is specific for dementia, I don't think I have seen any. But for general older people, there is something similar to what you have mentioned. For example, for outdoor spaces, they recommend to not too reflective as it can be too bright and they cannot see levels. Or, at steps, there should be different colours at the corner. So, that they can recognise that they are in different levels (different levels of floor).

I think it is beneficial because most people don't have the knowledge about dementia. Also, if you don't know or don't understand…something that we design and have an easy way of living. It might not be additional from the normal design. But it can support another group of people to be able to live independently.

R: Can I ask about your past experience…what leads you to work in this field?

P: My past experience is about real estate design, which in this sector, they are also trying to come into healthcare sectors such as home for older people. With bedrooms on ground floors and many innovative equipment. Or floors without steps. Some parts are related. But if in aspects of hospital, I don't have any experiences before I came to work here. I just started to

learn about it during I am working here. I usually research by myself but some advice will be given by consultants or doctors of the company e.g. where can I get those resources.

R: Have you heard about dementia-friendly communities? How do you think about the concept?

P: I think it is beneficial. I think if they come out to meet many people. It might make them to delay the deterioration of their brains more than staying home lonely. And, they don't have any chance to talk and interact with others.

I think it can happen but it might take time. (Pause) I think that it may start with objectives of educating people that there are this group of people who has conditions like this. If we encounter something like this, how can we help or support them.

Or as you have mentioned that it might be a wristband for monitoring them. If they encounter or meet people who are getting lost, how can they help this group of people? Something like that.

Or, if they meet this group of people, how can they interact with this group of people. Can they talk to them and so on. But, I think the most important part is budget. If the budget is being used in public purpose, it depends on the government service to plan and spend this budget. However, they have to think that this is important too, so they agree to do.

R: How do you think about familiar environment for people with dementia and care staff?

P: If they live in…First of all, most people are in old age. They are kind of place attachment and they don't want to relocate to other places. If they accept or agree to relocate to new places, it should be resemble to the old places or they have to feel comfortable and happy.

Like, if they have to relocate, and they 'see' unfamiliar spaces or encounter all new technologies that they don't know how to use, might cause them pressure or more stress.

So, the environment, which resembles places that they used to live or objects in that generations that they used to use. It may help supporting.

If the physical environment is enabling, it is better than the physical environment causes them to make a living more difficult.

R: To what extent do you think the design of physical environment can support independent living?

P: From my experience, when we design hospitals, we don't interact with any patients. Most of the cases are discussed through doctors or nurses…mostly. But I think that interacting with patients is beneficial. But, we have to interact with many people as the whole picture because some of them might be too subjective. So, we actually need large amount of survey. We have to survey different places and different groups of people. So, the data has to be as neutral as possible. Not only some people's opinions.

Participant 2: Interior Designer (Telephone Interview)

Gender: Female; Age: 35+; Nationality: Thai

R: For the design of Mahidol Hospice, as an interior designer, how the design can support people with dementia and care staff?

P: So, architects already design the main structure of architecture. Then, they tell us the concept...like what are their main concepts of it is a place for recuperation and also maintaining health. Something like that. Also, they also tell us the main objectives of Ramathibodi (the hospital) that doctors require them to heal in terms of palliative care. But also they would like the places for supporting health for older people. To make them relax and relieve…like their homes. So, we follow those concepts.

R: So, what is the main concept?

P: Okay, so we got some information from doctors. So when we did architectural plans and space planning. So, the doctors have to check if the design follows requirement or not. So, we use those requirements to adapt and apply in our design.

But also, we have to think about how to choose furniture or how to choose colours or various finishing which dementia wards are not the same as other wards. There is some concerns as well if these furniture can be used or not. If it is too heavy or too light…in case if they climb up. So, the doctors and designers have to corporate in the design.

So, it is a doctor team, which doctor is free (if they do not have to teach or diagnose patients), they will come to participate and give their opinions.

For us, we are happy and comfortable because from our experiences, we never do any hospice project or dementia projects. So, when we have some advice from doctors, we have more ideas about colours. Something like that. But as we have handed in the current design, the colour can be changed again when there is a construction. So, we just note if in the future, there are other upcoming research…newer which have added. Then, we can adapt these into the design at that time. But for finishing, we chose quite neutral and safe choices for patients.

R: So, you use research-based?

P: Previously, when we design hospitals. It can be anything…just neutral. But when we have data, we want the new ones to be purpose-built and are the best (quality) as much as possible. So, we are trying to incorporate different aspects to use.

For the colours that we use currently, the general guidelines are natural wood colour, warm white, warm grey and other light colours. But in patient wards, we also choose to use some colours for furniture upholstery. We have to decide again after it is constructed. If they choose in term of which colours and so on. But doctors also give us some advice that for dementia wards, the colour that can make them feel relax the most is pale pink. So, we took notes that it is interesting and we can use.

R: For colours…are they the same for every room?

P: (Pause). If they are the same in every room, we can control budget. Also, it is a governmental project. So, the budget is limited.

I think it might be one of the obstacles…not obstacles but limitations to design for people with dementia. This is because different patients with dementia, each person has their own symptoms, in their own ways. But as it is designed and constructed as public spaces for a group of patients to live and another group of patients to live. So, we have to be neutral initially or not customized for everyone.

So, we have to design for keeping as an alternate when they come to heal or live, they can bring their personal objects, they can unpack their stuff and put them in rooms. So, for space planning in dementia unit, we kind of fix the position of beds, which can directly see bathrooms. Also, there are memory boxes. The rest is they can move their stuff around and customised themselves.

The design should be flexible and adaptive as the doctors say that the design has to be used in every ward. This is because it is initially started from the concept of home. So, the initial idea is for them to bring their own furniture or can adjust by themselves…some of them.

R: How do you think design can support caregivers and other staff?

P: (Pause). How to explain…for this I think we emphasise on functions…to be convenient as much as possible for caregivers. So, for skin or colour tones, we have to decide again when the structure is finished. So, we still keep natural tone colour for them to feel like home and resorts.

R: What about common areas?

P: For the common areas such as dining area, my responsibility is to design in parts of furniture because the characteristics of the building are an open space with a garden and a balcony. So, we have to follow architects and landscape designers that we want patients and their relatives to use these spaces…how they use these spaces. Something like that. So, it is designed in terms of furniture.

R: How can design support social interaction between people with dementia and care staff?

P: I think it supports. But because the characteristics of the building that I have briefed, the architects are already guided before that there will be nurses sitting at the beacon to observe patients. Then, I was kind of looking for design solutions…how to explain…how to put furniture in for the patients to be able to sit still and the nurses can still see and monitor them.

And, because the characteristics of the physical spaces are open spaces, so the main concern is how to make them sit comfortably.

(Pause)…how to explain…because if you look from the plan, you can see that it is very open. So, we have arranged groups that they can come to talk to each other. But I am not so sure if for each case, to what extent they will turn to talk or interact with their caregivers.

This is because if you see from the groupings of the seat. They have characteristics of cluster, which they are able to form group activities. Something like that.

R: Are there any kinds of any activities?

P: Inside the building, there is an area in common areas in outdoor spaces and there are gardens which is nearby for patients with dementia.

So, for therapies, as this project is about supporting health for older people. So, there is another building for these healing activities.

But in terms of operations, I am not sure if doctors will take patients from one building to other buildings or not. Or, if they are completely constructed, there might be another parts that add on only for people with dementia.

R: Do they apply to other parts of the hospice also?

P: More with spaces for napping in the afternoon, or libraries inside, but we use the main concept of home to drive the design.

R: How do you think familiar environment can support people with dementia?

P: There might be two points.

The first point is the concept of familiarity…for atmosphere of home and resort first…I think it really has a positive affect on patients. This is because people seem to think that hospitals are hospitals. When they see buildings, they don't want to come in. Like children if they have to see doctors, they don't like. It is a psychology. So, when it looks like hotels or resorts or home, they are more relaxed. I am not sure if there is research in terms of psychology. But as I have observed, it does help in terms of making them feel more relax. And they feel better to participate in curing procedures.

But for parts that they are familiar…the doctors used to give us a brief that they want them to bring their own furniture, their own chairs, their favourite chairs or their favourite cushions. The familiarity does not begin…personally I don't think familiarity means that we are trying to limit one object to the things that they are familiar. But it is the real objects that they are familiar and we open the spaces for them, which allow things that they are authentically familiar with…like their own objects to place them down. It is something like this.

R: To what extent do you think healing environment can support dementia care?

P: I personally have heard about some of this idea. But for the project that we had finished. We did not get a descriptive brief for the programmes to be healing or something like that. But in general, we got a brief that patients and their relatives are limited to stay here for two weeks. So, people who have dementia and especially as they are progressive. They are not reversible. So, it is more like a place for relatives to train and practice with the patients more than a long-term one. So, as the brief is limited for only two weeks. As a result, the programmes come to this way that the programmes are quite neutral. Okay…being here for two weeks to train their lifestyles, how to live together, and to monitor the patients' relatives. Something like that.

So, some other details if they require other healing programmes or not. I think…for this detail in the future, when they are constructed in reality, there will be more additional programmes for these.

R: For the two weeks limitation, is it for all wards or only dementia wards?

P: Only dementia wards…It is more like for relatives to come to learn how to live with patients.

R: Have you heard about the concept of dementia-friendly technologies? Have you applied this in your design?

P: I am not so sure in terms of operations if the doctors are using these technologies or the hospital will use them for service provider…But if it is started to operate, I think they will have an additional equipment to support because Ramathibodi hospital is an organisation which is alerting in terms of technologies. Because they always corporate the most current research. So, I don't think they will miss them to give technologies to the patients (Laughter).

R: When you do the interior design do you use any design tools and regulations?

P: I think for my parts, I think I follow mostly on the architects. This is because our countries' regulations or laws for disability, it is not that strict like in other foreign countries. They are more like lists of what you 'should' do. So, when we get some knowledge, we are trying to design the spaces that are suitable for patients' usability and their relatives as much as possible.

Also, we usually use guidelines from doctors…

R: So, it is more like a design recommendation. How do you think about design and assessment tools for dementia care?

P: I think I want to have them. I think this is because design for patients with dementia,   is very specific. But not every designer or every design firms or consultants…not everyone are proficient in this parts. Or, if there are planned books or ADA or building codes…something like that. Our lives will be easier. So, we can respond better in the design. There are some guidelines from Chulalongkorn University and we use that together with ADA (American Disabled Act).

R: Have you heard about dementia-friendly communities? How do you think about the concept?

P: Personally, I like this concept because…even though for patients with dementia, their brains are not reversible, they are still humans. And humans are still 'social animals'.

So, when they are healed in the institution is another story. But for them to go out into communities, or to meet something new. I think it is another healing procedures.

But the main problems that we have now are that many Thai people cannot separate dementia from psychiatry. There is an issue of knowledge of people in the communities, which I think it is very important.

It is important equally to when Thailand starts the promotion about depression. So, they are not losers. So, it is an issue about knowledge or education, which we have to support normal people to recognise and acknowledge more. So, when the patients come out to the society that is friendly for them that have other people involved. Yes, they are obviously getting involved. Because we cannot do sterilized communities. So, if there are some supportive education or knowledge for normal people to understand. I think it will help a lot. Also, burdens when they cure, it will not only pressure on most institutions. But it should be society that is more inclusive.

R: How do you think physical environment can support people with dementia?

P: They might not be unable as much as people with dementia. It starts from the inclusivity that facilities should provide for them that you have mentioned about toilets, ramps etc. So, it certainly comes back that we might meet them quite more often and the project owner might feel they are not essential or organisation feels that they are not important and sometimes they are eliminated.

But for Rama Hospital, I am happy to work with them because they don't have limitations on budget. They are willing to pay if they are fully prepared and completed. They hope only if this place is designed for this particular function. But what we have seen quite often, is the project owners say, "Actually this thing you don't have to do." (Laughter). And, the things related to universal design are the first things, which the project owner eliminate to reduce their budgets (Laughter). So, if they are not restricted by laws…So, investors and us always have conflict.

R: To what extent do you think the design of physical environment can support independent living?

P: I think it can…how to explain…For example, bathrooms are an example which can be shown quite clearly. If the patients with dementia cannot remember where is their bathrooms. But if we design got them to be able to remember and they can go to bathrooms in time. They will feel better. It is the basic dignity, which everyone should have. And, I think it is important. Only for going to toilets…they might be damaged their self-esteem because they just cannot go to toilets in time. So, they are fundamental that they should not. So, I think if the various facilities can support, it will be great.

Participant 3: Interior Designer (Telephone Interview)

Gender: Male; Age: 45+; Nationality: Thai

P: From my experience, I am graduated as an interior designer (from KMITL, Bangkok). So, I studied interior design but I continuously work related to wellness. Firstly, I worked on holistic and beauty centres. Then, the trend is developing into wellness and environment…in terms of environment. So, I kind of combine interior design and environment into work of medical wellness and later to the methods of mix-used development. Something like that.

R: As you have mentioned that you have integrated design and wellness together. Could you please give some examples on this?

P: So, starting from mix-used projects, when we get the methods, what is the location of this building. Also, in different cultures, in different countries, for their lifestyles, we have to do feasibility studies first to know the demands of people in other countries e.g. what they want, how do they live…so we emphasise lifestyles as the main priority. This is because the way they have diseases. Mostly, it is related to their behaviours. Also, if their behaviours are wrong, they have to go to see doctors right. Then, if they see doctors, they have some medicines or they may be getting surgery. So, for us, AJT, we emphasise on prevention mostly. Instead of going to see doctors, we observe their lifestyles firstly. We use various equipment to investigate different organs from food that they eat, to how they do physical exercises, and also how they sleep.

When you know all of this, we can personalise for each individual. So, after we got this feasibility, we will get master plans to specify zoning…like how each zone has wellness, how many consulting rooms, how many treatment rooms, restaurants or kitchens which are in the part of back of house.

For medical facilities, there are maid rooms and cleaning rooms especially for infected trash. So, we follow regulations of Ministry of Public Health for each particular country. So, when we got this, we will have this model that is called 'Sleep Lab', which enhance the quality of sleeping. So, there is a checking of sleep patterns of each person if they are enough or not. If they are not enough, we will have to arrange programmes and time for them.

Once they got enough sleep for their bodies, so we start to observe how they eat. So, we have the programme called 'Fixed-food'…not only in terms of calories intake. But it can initially increase levels of cells. This is because there are lots of toxicity in the environment such as PM2.5 or other pollution from water and air. So, we have to detoxify with food as well. This food has to be very fresh or which you can easily called like chicken range…. Or chickens in good mood which we don't use chemicals in the process. It is very natural. When we eat them, we get best cells from food that we eat syncronising with cells in our bodies.

Also, we also have in terms of fitness, not in terms of gym, but in terms of functional by emphasising cardio and strength. Not only for muscles. We emphasise on balance and stability. When we get something about sleep, physical exercise, and food and body check-up. Then we bring these things and integrate them to fit in active living for senior.

In some projects, as trend is coming, in terms of dementia, or for people with Alzheimer's together with active living. In one building, not only wellness centre, there are separated into 20-40 rooms depending on the scale of the project, to create an active living zone.

Then, when we got these active living as the main marketing strategies for most properties, we use these to design. The environment involves interior design or materials such as water, air, or brightness. They influence zoning and also various dimension. For dementia to do activities more conveniently as social well being and with improvement. This input…to make them live in the society by themselves.

R: Do people with dementia are integrated or zoned in terms of active living?

P: Zoned. Like in one building. It can possibly take up one floor. All zoned. Or, more than one building, we might separate them into another building. Also, we integrate additional natural environment. Like, we bring natural environment from the outside into the inside as much as possible. Into the interior such as sunlight, or trees or air. To make them feel like they are not alone. They are living more with nature.

R: As you have mentioned at you are using Biophilia, for the outdoor environment how do you think they can support?

P: We really support them to go outdoor spaces. This is because we have the main parts as the building. If they are green field and have not constructed yet. We will talk to architects and consults that we would like to construct balconies…to be wider. So, they can use the living room, which is located in the outdoor area. Not only staying in rooms. If they come out of their rooms, they are related to the landscape for the concept of 'forest bath', which is borrowed from the forest bath in Shinjuku, Japan that they built a building which is trees to allow people to access in gardens and they can smell oxygen or more air with negative ions. So, they can absorb natural environment by themselves. For example, they can hug trees or touch. Something like that. They can get this feeling by themselves.

R: So as you have mentioned that you have used concept of lifestyle mostly in the design, how does it support people with dementia?

P: Yes, we use this concept for people with dementia as well because they have different experiences and histories…Also, they are living in different families and different levels, what stages they are in. So we have to arrange programmes as individualised for each of them. After that, we allow each of them to synchronise…to socialise. So, they can….at least…when they know how to live independently at certain levels and they have to know how to socialise.

R: Is it a project in Thailand?

P: We are doing this project in Malaysia.

R: Can I ask for the name of the project?

P: For this project, I cannot tell you now because the project is at an implementation stage. For the site, as of now, there are almost 50 floors. But it is constructed on 40%. But all the

concept is implemented gradually the work of architects, interior designers, and energy and system work.

R: To what extent do you think healing environment can support people with dementia and care staff?

P: We have to go back to review about this first. It is called the 'original of life'. In fact, nature comes first. If we observe from the people in the history, they tend to observe the environment then they acknowledge how they can live their lives. With a basic example, in the past, there is no Google map, or if they want to navigate their boats to find lands, they have to write out wind direction and stars, waves in order to find. So, nature is powerful for people in every generation.

The current technologies are just coming, quite quickly. So, we lost this connection with nature. So, we can use the past knowhow for nature to heal us, by using lighting…natural lighting plus technology, which is circadian lighting. If we have already arranged zones, which sun to be orientated. So, we can use a bigger window. But it means that the lighting has to be in the correct orientation like in the morning, it should be this side and in the late morning, it can come in another direction. If not, it will be hot all the time.

In the evening, there is less lighting. So, we use circadian lighting in the suitable positions for example in their bedrooms might use LUX which is quite low for them to feel sleepy and fall asleep naturally…in the time simultaneously with the body clock for each individual.

For air, we have opened…we have opened the side for balconies which they can chill out in outside spaces and they can breathe in some fresh air in the morning or in the evening. But when they come into their rooms, they are using some kind of 'Teppa', which has screen…screen in terms of air pollution especially smaller particles into a suitable size.

So, we usually combine nature and technologies together. However, the main problem is climate because in each season, it might be too hot and we cannot go outside every time. We have to apply technologies for that as well…for different climate.

R: What about safety aspects?

P: Yes. This is very important indeed. When we bring technologies to apply, we have to choose branding, which has research and support objectives and reasons. Then, we used them to discuss with engineering consultants for M&E systems on how we can organise and design safety.

For safety, we mean equipment. Also, safety can mean users. We mean the users who are sick to use too. So, positions or distance of each equipment have to be suitable for usability and prevention from accidents. Yeah…this is the main issue too.

R: What about technologies for people with dementia and Alzheimer's? Have you applied in your design?

P: This is very supportive indeed. There is a standard to specify boundaries / term of reference also from the Ministry of Public Health. But in foreign countries, there are lists. There are so many. But, we have to group and fit them. It is about accessibility or procedure to come into their places including their rooms or for them to go to do treatments. The circulation needs to be the same as the one the Ministry of Public Health specified…like more than 1.50 m. Steps are not too high which the levels are not too high like 15 cm. They are too high for them to step up. There should be too much of different levels.

Also, for these, we have corporate with some suppliers which they have developed all these materials for example non-slip floors, or floors that can absorb shocks. When they are working, they are not really compress and reduce risks of falling. Also, safety rails are the standard indeed.

Moreover, showers are automatic, which they can adjust water temperature into a normal temperature. Not too hot or not too cold. And, the position is in a suitable height.

Also, we also have… technology that we have used to integrate in order to measure vital signs or if it is time for medications. We also have telemedicine to call family members and doctors at the same time. So, they know that they are not alone (or feel lonely).

R: As you have mentioned about guidelines or regulations, do you mean in the context of Thailand or other?

P: Yes. But for Malaysia, we have to use Malaysia MOS and to clarify what they have. If in the context of Thailand, we use the ones in Thailand. Most of the time, the foreign ones are more intense (Laughter). Thai people may be not quite aware. They are just starting.

Like, if we ask for permission for establishing long-term care facilities or nursing homes. So, they have to pass each Ministry of Public Health. They are coming to assess. And, owners or entrepreneurs, they have to be qualifies as nurses. Or therapists, they have to work for how many hours. They have to be practiced and have these laws to certify everything.

R: So, they have to have standard for each context?

P: It is a must because if not they cannot open indeed. If they do but it is wrong…Because we are doing with patients, so we cannot make mistakes.

R: I have been in the lecture that Khun Antony presented; I have a question about the concept of home-like environment, how did AJT integrate with design?

P: For home-like environment, it is like daily activities, that we do these activities everyday. So we do that activities and collect that objects, in characteristics of home-like right. So, we bring these things that humans are familiar with these activities from the morning to the end of the day in terms of various activities, arrangement and zoning to allow them to have comfortable seating during meal times. This is a kind of their memory reminder. It is also a stimulation…to stimulate their brains to practice thinking or using them again. This is because people with this characteristic are sometimes beginning to forget, and think and do repeatedly. Also, they are also introspective. So, we bring daily activities that they used to do. So, before we implement the equipment, we have to learn about their profiles. We talk to their family members. Something like that. Such as what are their behaviours in their daily routines? So we bring that to imitate in the various equipment.

R: So, for each design and equipment…

P: Mostly, I think most behaviours are similar. I mean mostly the feasibility that I have mentioned at the beginning of the project, so we have observed behaviours in that particular country. If they are Malaysians, they are like that. But if they are Europeans, they are another style. Malaysians are quite similar to Thai. Their behaviours are similar. So, we have to arrange them to fit in. In a bigger picture, they are the same. We all have three time frames: morning, afternoon, and evening. And, sleeping, it is obvious because…this is kind of like force them too. Like, must not be later than 10 pm. If not, Serotonin (Hormone) will not release in time. So, this requires education…we still have to train by open videos or do some experiment with them.

R: For home-like environment, do you think it can support social interaction?

P: For users…I think it is absolutely, home-like environment…it is absolutely. We are not only take people with dementia, but home-like environment can sometimes also be used in other wellness projects as well. This is because…to explain simply…if they are wellness tourism...when people from one country come to travel or relax, they are still familiar with things that they used to live. Especially in bedrooms that they are familiar that they have to sleep like this. That's why…hotels have additional cushions for choosing. So, people cannot abandon the concept of home-like environment. It is required when we require for thinking as a concept.

Also, another point which we think that we are different when we do this. If they are clinics or medical centres, we usually add hospitality concepts. So, we usually have services and hotel-like like that. So when they are entered, they will feel that they are not in hospitals. They don't smell any medicines or chemicals. Or, like doctors or staff dressing needs to be casual. It makes them feel like we are friendly or in the same 'type'. Not coming to see doctors. Something like that. So, it is more about look and feel.

Especially in dementia cases, communication is very important. Staff has to be very patient. As we have to train staff in every aspect. Communication and psychology are very important, especially patience of the staff.

R: So, it means that you have staff training as well?

P: So, we have SLP with training manual for different positions. So, it has something like this. For example, we open in Malaysia. Then, directors are mostly from Thai companies. And, general staff is recruited from locals or neighbor countries, which can speak certain languages. Then they come for training for certain skills. Our skill levels. So, they get the same formality.

R: How do design support people with more advanced stages?

P: (Pause) So, we usually use nurses who are certified with nursing degrees. So, there are seniors, assistance, something like that.

R: What about in the design aspects that support people with more advanced stages and staff?

P: But we have 'motivation' session, because sometimes they might meet patients who have so many problems. Sometimes, patience is getting less. Sometimes, they have negative energy from our surroundings everyday. So, they get stressed. We have to observe them and managers have to supervise their employees. There are trainings and motivations all the time.

R: So, it means that AJT is not only concentrated on design?

P: Yes. It is the whole system from…Because we think that when we work on one model, when they hire us. It has to be a model that works out everything. Even doctors we have our own medical director in the US. He is working on chronic brain or someone whose brains are damaged or got accidents. He often uses hormone therapy with some protocols.

So, when we are doing any programme, he is the one who look at them first. After looking at them, we will certify for us to use them. So, when we set up any centres, if they are doctors to register for clinics or senior centres to have doctors taking care. They will gather doctors from each country to train with our doctors first to follow the same protocols.

R: Have you heard about the concept of Dementia-friendly communities before? How do you think about it?

P: In general, I think it depends on culture in different countries right. If we compare with Europe and Australia, I think that they are already developed. So, as they are developed, they are more open-minded. It is easy. But if they are Asians, especially Thai people, they are under developed. We have a foundation of family oriented, which is under the conduct/power of parents.

So, when you meet the society, to be open-minded, it takes time. There is something like a barrier which separate. You can observe that Thai people when we have meeting or we have meetings and there is problems. They will say not but start gossiping. It does not like 'farang' (foreigners), that they speak in meetings. So, the procedures that you bring into communities have to be observed. But I think it is good because as we talked at first that they have to live independently. As they can live independently and they have confident, they can socialise with others as well. So, I think the way they can come out to the communities is a great idea. But we have to observe cultures for each country. Also, find ways. There are activities already in which they can do in communities for them to share these experiences.

R: To what extent do you think the design of physical environment can support independent living?

P: If our environment…we did not talk about the environment outside, I will talk about the whole picture first. For the environment, if this person who is dementia, has an opportunity to live in wellness community…like wellness lifestyle community to improve themselves. At least this centre, there is a quality…at least they have 5-6 qualifications. Firstly, they should have wellness centres for taking care and health check up for them everyday. Such as measuring vital sign…how are you today. This is because some people, they have an individual chronic history. So, we have to observe how are they. Secondly is health screening centre. Third one is activities…social activity for them to stimulate their brains all the time. Also, there must be a living space for them to relax. Like, you can persuade them to sit outside. Moreover, there is an issue of F&B and food. There are things about safety and other systems.

So, these link to the whole system outside. It is a big picture of environment. There will be a forest bath, which trees give oxygen naturally. Or, we can do nap therapy. It is quite popular in Europe. There are 2-3 zones with smooth and rough sands for them to walk and stimulate their feet. This is because the feet are the core for body's strategic position. So, when we step on it, it is kind of like stimulate…to stimulate them to perceive more. Something like that. So, these are in general systems. If we do this kind of a complete system; both for taking care, checking up, arranging programmes, organising food, sleeping, as well as various activities.

(…)

Participant 4: Architect/Academic

Gender: Female; Age: 40+; Nationality: Thai

P: Have you talked to Ajarn Sirintorn (doctor)? Symptoms are not different, but depending on the background. So, it is quite different in foreign countries in terms of colours. They often use warm colours and lighting in warm white. But as I have surveyed most Thais like cool tones…cool colour tones. Also, lighting is cool white…according to my research. This is what is different from foreign countries. Just only this. Except for this, the main elements are orange and red colours to attract, or bring old objects to decorate…I think the main difference is the whole picture of wall colours and colours of lighting. These are the main differences.

I have interviewed Ajarn Sirinthorn (doctor)…have you interviewed her? She is very nice (…). She is the most influenced doctor in the field of dementia. As I have interviewed her, she mentioned that the last thing that we will remember is images. I mean text, perception, and memory. Something like that. Like this book by Ajarn Wimonsit, do you have one? (she shows a book about perception and environment to me). I questioned like why the grandma can remember? Remember names or something like that…it is the visual sense indeed. I am using them to discuss in my report as well that it is possible for dementia to decrease. We can remember something. But when we are in other places, we cannot…this is because something is stimulating really.

R: Yeah, I also have chances to talk to occupational therapists…

P: Images, images…Ajarn Sirinthorn mentioned that the last thing we remember like we may not remember the names of people but we can remember their faces. Yeah, so I was like …yes. So, we can use symbols. So, the symbols must be easy to perceive. Because they can understand like Oh! this object. Something like that. Like, what is this…something like this. Yeah, it is true.

R: How can the design of physical environment support social interaction between people with dementia and care staff?

P: I think it helps…from the test, I found out that…for example I have tested things such as VR (Virtual Reality). Then I changed various factors; which factors are or used them to find ways such as wayfinding. Which kind of wayfinding is better? Which places they can remember more. There are factors, which we are varied, then summarise them into factors that they can remember more. Or, wayfinding like which ones they can find ways better. Which places they can remember more when they are inside. So, we compare by using factors that we are varied (…). Sometimes, we use TNS or the assessment for dementia if in this environment they can remember, or which one they have better symptoms between this and that.

However, the main factors are…it happens as they can remember firstly. So it is like they have to remember the factor which is...to restore. There must be something that are syncing between short-term memory and long-term memory. It has to support the 9 parts of their brains. The first part is…the front part is the one that support logical memory. So, the memory…

But, there is something that they are syncing because I am finding the answer…by measuring before and after the condition of dementia can really decrease. The nurses who take care of these cases can also observe that.

Like, why they can remember their children's names. It shows that…it does not mean that they can remember these houses. Houses are not moving, so they can remember for sure because there are particular colours. But why they can remember the names. So, I think….I am not a neuroscientist or a doctor, I don't know. So, I found this one to discuss in the paper. I don't know if they are connected somehow.

I guess that it might be something that stimulate. I think it has affected and I want to know to as well and I also asked Ajarn Sirinthorn and she said "yes, it helps" and rushed to go. Also, hospitals where I have observed, one for psychiatric patients and one for dementia patients, they cannot yet find explanation that in dementia, it has to be deteriorating and it cannot be reversed. Like, their scores in MMSC up to 2 points, it is very difficult. But for this case, MMSC scores increase. So, they don't know why as well. I am trying to find answers.

Also, for depression, I asked the doctor…are they only biological factors that can cure the systems. And, she has mentioned that everything is in the hand of architects. So, everything is about behaviours, thinking process, and feeling and self-esteem. This is because everything we can build them. We can change behaviours, we can change feelings. We can enhance self-esteem. We can make everything to visualise. We can make them to do frequent physical exercise because we build attractive spaces. So, she said that it is not strange that the environment can do these affects.

(…) They want to do more cooking because rooms are beautiful and they want to sit. And, people come to visit them more often. So, it is kind of affected all round.

But in dementia, I am not quite sure. I am finding books to explain all these findings. I think when they are in the environment that is familiar. They might have some connections.

R: To what extent do you think healing environment can support people with dementia and care staff?

P: Yes…healing environment. But I did not survey in aspects of gardens. For gardens, there is another academic who are focusing on this. For gardens for dementia, she is an expert. But for that, my project is only about gardens and the finding of reading in the garden that I have interviewed and summarised. But actually, it is interior environment. Interior means inside. So, it is only about colours, lighting and materials. Something like that. And, industrial design, we are also not concerned. And, not even physical characteristics of falling. It is more about signs and symbols.

R: Have you seen this kind of design and assessment tools before? How do you think about them?

P: For this checklist, are care managers the one who use this? It is an assessment of physical environment to supervise their care homes…

But, what will happen if there are faults in the project? (…) that they are not standardised and they are not suitable. But there are not that kind of laws and regulations right? But it is just telling care managers that it is not suitable for dementia. So, it is more like guidelines.

Yeah…I think they are very aware with dementia…both UK and the Netherlands. But in Thailand, there is nothing like this (Laughter). In Thailand, there is nothing like this…there is nothing like design for dementia. Moreover, there is nothing about design for depression in the world. For design for dementia, there are some manuals when we try to search about it. I think it is good for these checklists…it is like criterion.

(…)

R: I also have to interview occupational therapists…

P: Actually, the occupational therapists can support. But, I think you should go to interview doctors…doctors for dementia. So, they are like quite busy but they are really help with the concept 'home for dementia' and it is quite difficult to find research participants…who will allow you to come into their homes.

R: Have you heard about dementia-friendly communities? How do you think about the concept?

P: I think it is quite difficult. Like, in foreign countries, they are quite widely acknowledged. But here, if we have already checked, we then have to ask what will happen after the assessment. Something like that.

Also, the issues of budget as they don't know where to ask for fundings. For private properties are limited their budget first. But if they are in foreign countries such as Europe, they are caring about the quality of life. So, they are extremely into it. In Thailand, we acknowledge and do nothing.

I have contacted one of lighting manufacturers. I asked if the lighting for older people could be sold more for the older people? They said no because developers, older people themselves and their relatives did not concern about the importance of lighting that it needs to be used. They think that they are older people. They have to save money for savings. This is because of cultural differences. The savings are mainly for curing if they are sick or got diseases. They don't concern about appearance or their livelihood.

So, it is more like curing following symptoms. Like, taking medicines or take this time to go to see doctors. Instead of buying a lamp for your health. Something like that. I guess that it can be used in certain levels. It can be used in assessing to know about facilities. But, if they have to apply these elements, it might be hard because of the budget. Like my design, what happens is the impact. How can it be applied to the general or have to adjust.

As my design is more like a manual suggesting some design recommendations. Then, what happen next after they got a manual? The issue of money is important…like the lighting is already bright. Why do you need to adjust? I think it is depending on culture. If you ask if they are beneficial, I think yes…so we can know that the environment like this it can make their quality of life better. There are a lot of politics inside as well. The knowledge is not wide spread yet.

R: How do you think about dementia-friendly technologies? Have you applied in your design?

P: I think it helps because they will not be lonely and they can practice using their brains all the time. I have interviewed nurses who take care of people with dementia. She said that these kinds of activities help. It kind of stimulated them. If you don't want to become dementia, you have to practice calculating. You have to practice these all time and it can increase memory capacity. Thinking process and logic…practice their brains. So, this can be supported at all time.

Sometimes, there is space limitation that they are not able to do some activities for example physical exercise. Something like that. They use plenty of spaces. Or, running. Currently, there are VR technologies. So, they walk on the track. We are talking in the same language (Laughter). They also use VR for travelling as well. Also, there is a technology…VR technology that project images of their own houses. And, it is like walking, walking, and walking inside their houses. This supports their memory and enhances them to remember their houses. Like sometimes, space is limited; they don't know where to walk, so when they are here they can do these types of activities. Or, mobile applications that help them to remind.

Also, there are wristbands in the context of Thailand to scan QR code. So, other than the environment, you should work on innovations. If space is limited, it can help. I think it is the new knowledge which is…and older people in Thailand, many of them have dementia. It might be because people don't work hard and they don't frequently have health check-up. Since, I started to research in this field, there are lots of Thai people who have dementia. Majority of them are in mild stage. Not many in moderate stages. If you talk to doctors in this field, they will probably say that it is the most popular disease in older people at the age over 60 years old. But it is just starting. There is still no clear policy or something like that.

R: There is a concept called dementia-friendly communities…have you heard about this concept before?

P: I think it should happen now because our people are affecting. But, I think it is mostly about budget and policy. They are the main problems. There is no one who initiates this issue in terms of government policy. I think it will take quite a while about 5-10 years. So, I think it takes time to push…

R: To what extent familiar environment can support dementia care…from your experiences?

P: It is very important. Ajarn Sirinthorn gave me one concept that 'What is the model house?'. We have to erase this question. We cannot have a model house. This is because older people who have dementia, they want to go back home. But if we adjust or relocate them to somewhere else. They will try to go back home, the place where they can remember. They can remember the environment with their old objects. So, the best way is to arrange their old houses to be more suitable by remaining the previous environment…more than half. Or, ask them if they want to keep these objects, or if we change…will they get confused. If they are not confused, we can change them to facilitate…

If they have to relocate in nursing homes, bring most objects as much as possible because they are attached to their objects. If we move to new houses, they want to go back to old places. But if we can bring objects for them to recognise that these are their stuff and remind them their belongings.

R: So, it is more about objects?

P: The environment cannot…we cannot make beds to be the same, it is impossible. So, we need to bring objects, which is the easiest ways.

R: As you have memory boxes in your presentation right?

P: Yeah. But that one is renovating their old houses, so it is not difficult. If I have to design a new house, I will be in trouble and also no budget. So, with the limited budget, we can do only adjusting their old houses. There must be old objects in the spaces about 50-60%. If not they will be confused. So, that's why Aunty did not escape to anywhere else, she stays in the house. Memory boxes...also help to support her to stay as well.

(…) She cannot see black colour (on the floor), if she sees it, she will try to cross because she thinks that it is a hole or a pond. So, she is frightened.

But she stops every time, when she sees her husband's video. People with dementia often see things in two dimensional, so she sees her husband on the screen as 3D. So, she sleeps and looks at the video all day.

(…)

Participant 5: Architect

Gender: Male; Age: 40+; Nationality: Thai

P: The project was designed quite long time ago. For now, it was relocated the site in Bang Plea district. So, when they change the site, the land is smaller. In this case, we have to

redesign it again. We have our landscape designer team. At Huahin, there is a quite large landscape area. Now, it is more in detailed than the one in Huahin.

R: When you get a brief…you get a brief from Mahidol Hospital first?

P: There is only a small part. The garden is only a small area of the site, which is next to the dementia care unit. So, firstly we did the zoning in general what and where each programmes should be. For zoning, we have a system of relationship including a large connection and internal connection that can connect each other conveniently. Then we arrange them into a building form, which one can be reached first and which zones should be more quiet. So, it is a zoning like this.

This is because our project is quite big. So, it is more like a hospice project. Previously, we have a land of 100 Rai. But we have to relocate which the land was reduced to 41 Rai. This is a huge reduction that we start from master planning. The concept starts from the connection to nature and connection of buildings. As in Huahin, it can be fit in. But for here, we can fit less because there are green spaces and trees…In fact, the one that we have designed; we have planned for 70-80% of the whole site. That's why we have planned to have lots of green spaces and buildings, which are not that effective to feel like we are at home. So, the scale is not that big.

In fact, there is a part at the back where there are some tall buildings…about 7-8 floors, which are for staff. But for the main users, the buildings are 2-3 floors only. So, we would like their feeling to be like…being at home. So, we talk about master planning and then usability and then the concept of healing.

The first one is using naturopathy for them to see green spaces. Secondly, we use relationship therapy that has spaces for interaction…in smaller scale in each part, which there are many researches that support. Thirdly, we use 'architectural therapy' which we use characteristics of home-like architecture…not too large, and eaves that they can touch. Fourthly, we use spiritual therapy which we have spiritual spaces spreading out in the project area. At Huahin, there are many spaces like this. But, in here, there are not many. We have Sala Thai (Thai pavilion). We have spaces for praying. We have spaces for every religion. But we emphasise on Buddhism because here…it is in Thailand.

So, this is about the master planning. I take you back to the first point is to build the environment which is enabling for healing by arranging zones and arranging clear circulation system…which users will not get lost. When people come here, they will not get lost. We also specify spatial hierarchy when people approach the site. Specify zoning which are quieter inside. Thirdly, we use…we are trying to use local vernacular concept. So, we have three main concepts like these.

As you see from the planning, our planning has a circulation system that the outer ring is a road and the inner ring is walking pathway…for walking and buggies and bicycles and wheelchairs. This is the main system.

But for dementia care unit, it is very small. Just only that. Only that in the planning. Also, it has only one floor. The building has three floors but dementia care unit occupies only the ground floor. There are 22 residential rooms in total. So, this is the specific zone for dementia. Like, for a garden, it is directly located next to the building. As the whole, it is close to here (point in the plan). This is the first plan then we have adjusted into this. Here, we cannot. We have problems with amount of land so we have to adjust forms to occupy smaller spaces.

So, this is the garden that they can come out from the building. Like this, we have only this size of spaces. It is quite small but the garden as I have read…in fact, before designing, we

have discuss with doctors. If patients require anything, mainly their brains are memory lost; they cannot remember their ways. When they want to go out, they don't know where they are. So, initially, the doctors told us that they should not get lost. Our design methodology is that the circulation is a loop that makes them not to get lost. They will meet at the same place. That's mean, not getting lost. They might have visual landmark as trees. Trees at this place indicate that there is seating. So, it makes them to recall. Like, they are not getting lost, they can see and find seating. Also, the doctors talked about their elements in the past or elements that can stimulate their memory. But I am not sure what are those elements as the doctors mentioned about a mode of transportation such as bicycle or cars. They can not be used but just place them for recalling their past memories. Something like that.

In terms of materials to be used, I have researched some information from lecturers at Chulalongkorn University (Aj.Anne). So, she is doing research about dementia for patients with dementia that have this list. The list has mentioned about safety, stimulation, independence when they come out to use outdoor spaces, usability, and maintenance.

For safety aspect, in fact, it is something like universal design, which consists of 1:12 ramps, smooth flooring, non-slip, not too rough finishes, and it should be 1.50 m wide. When they walk, no risk of falling. Not use poisonous trees.

R: So, these are all from the research of Ajarn Anne?

P: Yes. We then listed out and transformed into the plan. But at the end, the doctors had added on circulation pathway, which is made of gravels that they can step on. They have different textures from the main circulation. But here, we have railings for them to hold. So we have different textures, different gravels, seating, and different sizes of gravels. So, it is like more chances for them to touch.

Basically, we work together. The doctors have suggested some ideas. This is because the doctors are the one who have seen more patients than us. Also, there is an issue of safety, as fences are needed all around. If they get lost, they can only get lost in here. Also, nurses can take care of them easily. If they can go outside, it can be quite dangerous.

R: How high is the fence?

P: About 2-3 m. Just a normal fence. But here, we use a green wall. At first the doctors talked about the idea in terms of labyrinth. Something like when they walk, it is far…they repeatedly walk in a loop in their places. Something like that. This is because the spaces are limited. But, they can still feel that they can walk repeatedly in loop. But at the end, we didn't use that massing. But we still use the characteristics of the loop to walk repeatedly. But planting in the middle is quite high if you can see from the section (point at the section). It is quite screening the visual levels. But they can still see if the opposite sides have people or not. So, it can create some privacy. Some screening of visual levels.

R: For the interior spaces, is the circulation in a form of loop?

P: Yes it is. So, we also use the similar conceptual thinking. This is because they don't have a system which means they cannot do anything much by themselves. They are in that routing. They don't have to get lost and the controllers are at the entrance. So, they can monitor every room.

The doctors have mentioned that caregivers have to be able to see every door. If the patients have any problems, they can go into rooms straight away. Also, a space in the middle is a community space, which is a garden. This is an indoor garden. But, we didn't design. It is now only a grass lawn.

We have a community space, which is a space where they come to eat or get together. Like dining spaces or doing activities together. So, we have this kind of characteristics.

In case of rooms, there are interior designers who are responsible for them. But what I can remember is that I did general layouts and the patients must see bathroom doors. Normally, when we design, we often hide or design them as a hotel room. But for this case, the patients must see the bathroom doors clearly, so that they can go. Colours inside the room should have contrast. So, they can recognise that these are doors, these are steps. For them to understand and perceive them correctly.

The next thing is doors or windows that can see outside must be doors or windows that they cannot go out. This is because this type of patients, they are quite dangerous somehow. We cannot predict them. If we have openings for them to go out, they will go out for sure. They can escape if we have smaller voids, they can even climb out. So we have to think about nature for the patients to see outside. But, in fact, when they can see outside, we have to control them not to go out.

So, in here, there is a control. There is a loop. If they go outside, they must pass through the take care point by caregivers. So, they can go outside…to the garden zone. Or, if they want to go outside, they must pass through the control.

R: So, it means that if they want to go outside, they must be taken care of by caregivers?

P: Yes. In fact, the doctors have mentioned that it depends on each person. If some people who can take care of themselves such as they can walk or are still healthy. They can still go because a fence encloses the courtyard space. In fact, the nurses or doctors have to be able to see all around. For this design, the doctors have commented in aspects that they can go inside and have visual screens. Something like that. We have asked that they cannot see all around. But the doctors said that they still have CCTVs and they can see from the control room to monitor where people are walking. As the space is not big, so the doctors don't have this as the main issue for the monitoring the whole site.

R: The next question is about homeliness. How do you think about the concept of homeliness?

P: I think I agree with the concept because for feeling if we are patients and we are able to go back home or we are at home. We may have the feeling of safe and comfortable. So, it can make our mental status better. It is like…elderly or grandma when they are sick, they often cry to go back home. So, it is kind of something like that. So, if we do hospitals to have characteristics like home, it might help in terms of feeling. But, in these circumstances, 'homeliness' is consisting of many meanings. Not only designing furniture, tables or cupboards to be home-like. But it must depend on people as well, including relatives or caregivers to make them feel like home and families.

So, normally when we design the environment for hospitals, we often think about home-like environment because as I have mentioned that for older people, they are not really want to go to hospitals. They want to stay at home. Especially patients with dementia, in order to stimulate their memory. Even though they are not really think that they can be reversed into normal level, we have stimulated for this type of things. Home-like environment is mainly enabling them to enhance memory. This may be because people may stay at home quite often. But it might be in terms of human resources too as the homeliness has many elements. The concept is not only depending on them (people with dementia).

R: Can I ask more about common area? How do you plan or design to use these spaces?

P: Dining, sitting to do activities. They might sit and talk and play games especially the activities, which are not that hard.

R: Do you have specific design for this particular space?

P: At first, we have these empty spaces for looking into green spaces. Then, it becomes a common area.

R: To what extent can healing environment support people with dementia and care staff?

P: There are fences and because this project has many zones and parts. It is not all about dementia. We have bedridden patients or late-stage patients…intermediate patients. So, it needs to be controlled as much as possible. From my understanding, I think they are afraid that the patients can do something, which cannot be predicted if we don't control. There are high chances that they go out and we cannot find them.

For sound of water or they are fine to be under the trees and see green spaces. Then they feel good. Depends on each individual. But I think they are effective indeed.

For pet therapy, actually the project in Huahin we have that, but as we have relocated our spaces are limited. It causes us to eliminate this type of therapy. Previously as we have prepared for Huahin is a big system which involve this type of therapy. The environment is effective indeed. In general, even if they are dementia or not…in general the environment is affecting human being. A good environment can enable people to live well…when we are closed to nature or green spaces. Something like that.

R: How do you think about dementia-friendly technologies? Have you applied this into your design?

P: It must be good for sure because…it is as I have mentioned that in fact patients or normal people if they have technologies; their lives are more convenient. So, for the patients, they might require these tools too in order to help. For example, if they are getting lost, to follow them or to set up reminders or timetables for each event or calendar such as taking medicines and eating. Sometimes, the ones who are sick forget that they have already eaten. Sometimes, they have eaten and they eat again. So, if we set reminders for them and they use technologies to support. Then, they are helping.

R: What about technologies in terms of design?

P: (Pause). I don't know how will they appear in terms of design or in the physical environment. I cannot think of anything. Yeah…even we are normal people, we also want technologies in our lives. If they cannot go out and they see some people who are in the same age group and characteristics. And, these normal people can go out but they cannot. They will be sad.

However, it has to be suitable for people with dementia. Sometimes they have certain limitations. And, if we use unsuitably, it can cause harm to them. In fact, I totally agree but it has to be suitable. So, it has to be suitable for each individual…so this is difficult also. This is because each person has different degrees of dementia.

R: There are some examples of design tools…have you seen these tools before?

P: As I have mentioned, I have not seen these kind of tools before. What I have seen is research papers. They are spreading in different research articles. They are not about dementia specifically. So, most designers and architects have to find research by ourselves. Also, from consultants and doctors. We don't have complied this kind of booklet. So, we

require observing other case studies and following doctor's content and we will adapt. So, doctors will tell us about patients' details. They told us what are users' needs. Which kind of environment is suitable for them? But we don't have chances to interact with the users. Not people with dementia. Mostly they are told through the doctors.

Yeah, it is good…It can make the building more completed for the patients. This is because at the moment, there is no tool like this. If there is…it will help us to work more easily. In terms of, we don't have to wait for feedbacks from the doctors. This is because the doctors' feedback might not be completed. They might know, but sometimes, they see the design…and they are in different disciplines. When they see the design, they cannot visualise. So, this kind of tool can help. The doctors usually tell only from what they have known. But, they don't know what kind of things we should know when we design. So, we often receive information from doctors and nurses.

R: Do you have previous projects about dementia?

P: Yes…In fact, the doctors suggested us the case study that it has to be controlled like this. And, out of this control to the gardens. So, we usually use this pattern that they talked. But I am not so sure…that they suggested the case study, which her friend is taking care of. Things about control, accessibility, garden, entrance/exit…

R: How do you think about the concept of dementia-friendly communities?

P: I think it is good because I think the patients want to have a normal lifestyle. So, they might think that they are back to the time when they are young and healthy. But if they are living in the community, the community has to understand the nature of patients as well. It is hard because it is not everybody that can understand the patients. It is hard in this case. But, if you ask if they can live in the communities…normally, it is good. It depends on that particular communities…to what extent they can understand. The patients must be taken care more than normal levels and care more than usual.

In fact, it is what we have already thought about….communities and relationship therapy. People want to be healthy, to have interaction or to meet people. There are some findings about 'Losito' in Pennsylvania State. It is an ageing city by not usually gets sick. So, for the whole hospice, it can be seen as one community…

R: To what extent do you think the design of physical environment can support independent living?

P: It depends on the levels of sickness. For example if their bodies are not ready. Even we design for supporting them, they cannot use. But if their bodies are alright and can take care of themselves, we universally design for older people. If we design and the usability is good…Then, they want to go out and use. If we design and it is hard to use and seems to be dangerous and not safe. Or, if the outside is hot and there is no shade. Then, they can think that they are more convenient to stay inside.

Also, for now we are not sure if the one that we designed is right or wrong. But we are trying…we believe that our buildings can stimulate and part of them can live independently. They can depend on themselves, which might help them to be back to their normal stages. It might not be 100% but it can help them…better. Something like that.

Participant 6: Interior Designer

Gender: Female; Age: 40+; Nationality: Thai

P: So, previously…from the past experience, my mom is actually a community nurse. So, I grew up within the community…like home care and doing fieldwork with them. So, it is kind of absorbing…and later it becomes an architectural design of taking care or architecture for healthcare. Also, in 2011, when Bangkok was flooded. That year, the early in that year, my clients…I don't like to call them clients….let's call them, co-workers, they said that they are in the group of CSR (Corporate Social Responsibility). So, they contacted me to design landscape. And, at that time, design with one of the community in Khlong Sarn. Then, mainly…they see that the issue of ageing society is the topic, which is quite far from us. They have already connected with that community and they invited me to design the landscape for older people. At that first, it is my first time…9 years ago that I have tried to do the real project. At that time, it was to design the landscape outside their houses. They are the community next to a canal (Rim-Khlong Community), which has characteristics of old wooden shophouses. There are some small spaces in front of the houses and then you will see a canal. So, the landscape is more like the front spaces in front of their houses (transitional entrance spaces) beyond the walkway.

There, it is the first project that we use procedures that we have used in other places, which are participatory processes…to find solutions together with the community. Something like that. So, the results were we got the landscape that we have the same feedbacks that…Things that can be implemented and are interesting including 3 main points, which are:

The first thing is spaces, which have connection for planting food. This is because the idea of planting food can lead to the idea of growth. For example planting vegetables or various herbs. So, the older people can relate to them because in their generations, they still cook by themselves. Also, when there is a growth, they would like to observe and feel like they have kids at home. So, I think that they are important for our learning skills.

The second things, it relates to the context…physically because the area is narrow. To construct social spaces in long and narrow typology…sometimes, if we don't do good design, the design might come out as a line. For example if we design chairs, it might be applied repeatedly in linear. To construct spaces for ageing society to be livelier, we might have to adjust ways of arranging these elements. For example, how the arrangement of chairs can reinforce social interaction. So, this is one of the issue which we dig quite deeply.

Thirdly, we also design physical exercise equipment. From my interest, bamboo work in urban areas is my personal interest. So we are designing things that can be applied in our everyday life as well as a good aesthetics. (…) So, I see opportunities for the integration of materials (bamboos) and also wheel rubbers. It is a kind of our signature because I really like this kind of experiments. So, for this material, they want a physical exercise equipment right. So, it can be maintained and fixed by them if they are broken.

Sometimes, work about development will be things like physical exercise equipment, playgrounds or by letting the government do them. So, everything is mostly like standard that other people think for them (users). So, we tend to design to fit for them, to fit their conditions and their ergonomics.

But, the physical exercise equipment also integrates with a children's playground to have spaces of cohesion for adults and elderly…between generations. Things that I have learnt from my mom is, my mom always emphasise that if we talk about older people. We often think only about physical spaces. If we want to design for them, we have to emphasise on their social spaces. Like, these kinds of spaces are beyond physical spaces. It has to be linked to their inner spaces…their social spaces. Spaces for older people, in fact, are spaces for everyone to widen the boundary of what we can visualise.

So, we got these 3 points. Then, we use these three main points to develop the landscapes. We have developed into pocket spaces, which have three main elements, plugged into. We build gardens all round. Food and herbs in different zones.

R: What about interior spaces?

P: For my first project, I did not involve in the interior parts. But the next project, the organisation called…it is an organisation which is a kind of activists. I am not so sure if they work under the Ministry of Public Health or not (…). This organisation, they are dealing with rights for disabled people. They aim to provide spaces for this fragile group of people to move freely. It also means that they have rights in the society because people still think that they are still living in the same society. How these things can be translated into design. We are trying to take them to one unit of the organisation. (…). So, my work is often related to universal design (UD). But they are not mostly in urban areas because I usually use participatory design processes, which it is easier to test in the scale of communities.

But, I think universal design in Thailand is more like something that is too much related to standard…like ramp 1:12. For myself, they are not straightforward with the reality. So, if you said that blind people have to use rules of universal design, 1,2,3, and 4. But to be at home, for tribe people, they live in bamboo vernacular houses with high spaces under. What to do with them then?

So, what we have to do through design thinking is that design is not only to solve problems. But design is to work together. This is very important. To work with physical therapists, nurses or people who take care (caregivers) does not mean that they don't have to do anything. But it means that it is ease of use to take care or to attract them to do certain activities. We have to work with the same lifestyle and the same caregivers to know how they use them conveniently. By which in terms of standard, it may not match at all.

For me, I think this is important because in our countries, when we talk about design, we talk too much about standards. But for those particular standards, it is only for one group. When we design in the context of rural areas, it has limitations and it means that you would like to exclude. So, it makes me interest in equality and as I am working in this field, I want to use my potential to adapt…more than destroying everything and then purposely built the new one to get the certain standards.

R: I think it has directly related to the design tool. Have you seen this kind of tools before?

P: Yeah…I am also working on checklists but I also have examples for them to see simultaneously. If you ask they are using, they are using. But people who are using them are communities volunteers, and other staff (e.g. community nurses, or physical therapists). But if you ask how successful it is, I don't know because I did not follow. But actually, it is the knowledge that we have extracted from them. So we take in and then take them back. We get quite good feedbacks but I have tried to simplify them because at the end I want them to reach the houses' owners (end users) or people who live with frailty to really use. So, that will not involve other designers. Dimension that we relate…so designers can use it as well. But at the end, the smallest unit is for caregivers. Something like that. So, that is our goals.

But as I have looked through the tool quite quickly, I think the knowledge of Thai designers who are working on this is very few. So, I think that these kinds of manual and checklists are more beneficial than limitations. Yeah, I have to see the content inside first to see if this user group can co-work with the lists. Or which design aspects, they want to work on.

R: How do you think about the concept of homeliness?

P: I think that…I believe in human adaptation. So, which environment they live in, humans are finding ways to survive both inside and outside spaces. So, for me, I think it is a tool for supporting them, like you give them medicines. But it is not chemical kind of medicine but it is medicine in terms of environment (non-pharmaceutical approach). Also, it works with visual. It works with mental and it works with usability. Naturally, we don't have to give human medicines all the time. So, for me, it is the tool that not causes any problems for me. But if some days, they have to go outside, humans can still live there. I know that some symptoms, they can be violent. But these kinds of things we can assess. So, if they have tendency to be violent, they are not allowed to live alone. I don't have problems with it and it is interesting in aspects of design experimentations. It is similar to us, when we have stomachache, how to get better…we have to experiment (…).

R: To what extent do you think healing environment can support dementia care?

P: I really believe in this…to reduce amounts of chemicals or healing by not…Or getting side effects. I think it is very interesting to experiment. When we design, we know for sure what are the main risks. So, there is no reason why they should not be built. If the end users are not fit, just adapt. But if they are not their own rooms, such as common spaces, they might have to create diversity to allow matching capacity. Like, there are more choices for them to choose from. Because we know that they are diverse; their symptoms or backgrounds which affect their behaviours to be variety.

R: How do you think about dementia-friendly technologies? Have you applied in your design?

P: My belief is more about the support from nature for healing human being. So, personally, I think technologies are beneficial but not to be that high tech/advanced. It has benefits in certain levels…in emergency levels for people and circulation systems, which are still, have some limitations. I think it may have benefits only in some areas.

But in terms of recalling their memories, interaction, or for them to reflect their inner self, I still support more manual approaches for healing by bringing in their relatives. But I know that some countries may have some limitations and gaps. But it does not mean that they cannot do.

Instead of developing these technologies, why don't you think about innovative programmes to support social environment to heal the society.

Ipads might help to stimulate their brains and support their individuality for them to heal themselves. But for human nature, there are connections and networks and relationships that we can visualise and we cannot. It is more about feelings or sensing. I think I support the approach of humans heal humans. Nature heals humans. Humans heal nature. I think it should reduce artificiality and it should touch on the non-visualised matter.

So, as there are not enough people, the main question should be how technologies can support to have enough people.

R: There is a concept called dementia-friendly communities…have you heard about this concept before?

P: I think the way to solve problems like this, I think it is a good way to find solutions. I think it is what we have to do. Actually, it should not only focus on older people, we should apply to everyone. Basically, this should be done but not only this group. It should be completed as a whole image. Not only particular groups. If not, we still solve problems at the end. You can do because we will encounter that time…everyone. We will be old one day. (Pause). If Thai politics is not like this, I think it should be done as soon as possible. Personally, I think politics

in the context is the main limitations. May be private developers might drive this whole idea faster. But, it can be done in only certain areas. There might be many groups that are trying by starting from cells that they can still control. So, they don't have to touch on the countries' images. I don't think it should involve politics, as it is human basic and human rights. We are still living in the culture, which is very hierarchical (…).

(…) I think it depends on how is the programming inside if we talk about the big picture. At the end, what are their objectives? If the owners' main goals are to let them to live with freedom, that means they have to do anything with spaces to support this group of people to take care of themselves. Either through occupational therapy or spaces that are designed if they fall they can get up again. If they fall, they are hurt but not die. They can still wait for people to see them or call people for help. They can still live...

Personally, I think that if their goals are like that, the design has to be in details. And, it must be built in reality. But as you have mentioned that these people are taken care of 24 hours. How severe are they?

So, I think that as we have talked earlier, we might have to think about programmes of care and their lifestyles, as they are all different. That means caregivers have to understand…their clients and customise. It does not mean to have programmes…like 1,2,3,4 to match, which programmes you like. There might be some basic intersection. But the goals must be a newly designed and have programmes for each individual to be taken care of.

It might not have to change the architecture that much. But to change architecture is also interesting in order to follow the end users. I think the main components are the healing programmes which you have to study for each individuals and translate them into the design.

(…)

The end users are required to be focused. It is like we are doing mapping. Like, this particular person, from waking up and getting up, going to toilets and eating…what are their symptoms. Starting from physical environment towards the mental which you have to be able to map. So, you use this data from the mapping to design.

R: For people with severe dementia…they have to be consent as a research process…

P: If it is a risky situation but I still support to talk to the end users as much as possible. So, at the end, it is the fact that we have to find values together that it is varied from when we receive information from telephones or through staff that they want to change their buildings. But, they have to be in the base of negotiation for interaction between researchers/designers and end users. Yeah, I think it is completely different. I think it depends on the gatekeepers mostly (…).

Participant 7: Architect

Gender: Male; Age: 30+; Nationality: Thai

P: My work, which is related to healthcare…or buildings, which are related to the Ministry of Public Health. It is a mega big project, which consists many projects inside. I worked on two hospitals. I have worked on two hospitals. One of the hospitals is located at Thailand-Cambodia border. Another one is located at Thailand-Laos border. So, at first, there was a research team from Kasetsart University that worked with the Ministry of Public Health. They worked on hospitals of the Ministry of Public Health. So, they got 10 hospitals in total…and my architectural firm is in charge for 2 hospitals.

So, for these two hospitals, they are located in two different contexts. Their contexts of development are not the same. Characters of staff are not the same as well. One of the hospitals has a manager who is quite tough. So, the manager oppresses the staff inside. As the results, they cannot talk or raise opinions much. But, this hospital can manage very quickly. This is because it is the way of orders/commands that lead to high work efficiency. But the feeling of the staff inside is not fulfilled that the staff can think and propose.

On the other hand, for another hospital, a previous manager left the job. Now there is only a manager who is on duty. People in the hospitals feel that it is a situation that is uncertain. This is because this manager is not going to stay with us for a long time. But, the previous manager is very strict. (…) They are desire for relaxation. Throughout the conversation, it has shown that the staff in the hospital has deeply understood the situations because they are practiced. They know what kind of design works or what design does not work.

What is interesting is when we handed in the construction drawings; there is one of a department called Design and Construction Division in Ministry of Public Health. They are the one who holds various construction drawings (for hospitals or other healthcare facilities). Then, Ministry of Public Health assigns public hospitals and asks if they open new hospitals and they want a finished building plans or not. If the Ministry sent drawings and hospitals don't want them, it can cause certain consequences because next year you might not get this offer again. That is the reason why the hospitals will answer 'yes' straightforwardly. But the building plans that they sent out did not answer user needs…if they can effectively use the space. This is a big issue that the system is not convenient and efficient.

There is a gap of the system that send building plans that does not serve a purpose to user groups and needs of the hospitals at all.

The second issue is…which is a big issue. When hospitals got these construction drawings, they built according to the construction drawings. Then, they have to wait for three years until they can modify these buildings. This is because they require assessment procedures that they follow the construction drawings or not. This is the real problem. As they got buildings, I cannot use design that I would like to design. The rooms for separation and division or partition are not the one that they need. I have to wait for three years until I can modify the building. Do you get it?

Sometimes, I got a form of a building, but I want to use another design…a building for traditional Thai medicine, which it requires different types of openings, entrances, or spaces for making medicines. But what they have got is an enclosed building…a square shaped one. As a box to use…but it does not serve a purpose. So, it is this kind of problems which I am encountering at the moment. Through design, I am finding solutions through designing a model. Still, there is not enough question or criticism of this system to reform.

However, for the traditional Thai medicine building, they can build immediately because the hospital owns the budget. They have managed their own budgets.

For example hospitals in Chiangmai, it is a hospital on a hill. It is located on a steep slope, almost 45 degrees. But the building is drawn as a square box. So, there is a soil adjustment process. In addition, it is a concrete building which they have to carry these materials uphill. But actually the material resources in the area are various. I think it is a good way of designing by observing and designing by using existing material resources. This can make us to raise my questions. If there is trees or forest areas…the question is the preserved wood can be cut or not. (…)

If laws do not allow us to cut them, we cannot use them with any benefits. So, it is a kind of our interpretation of how we value 'preservation' in this context.

By assuming that we have these spaces, all buildings are placed informally. So, there are some vacant/open spaces left over. So, what I did is…in the context that we have, how to arrange these buildings or for other programmes. If these buildings are not used, should we destroyed them. Is it difficult to torn down or can we use these spaces for more advantages. We plan for 10 years for the open spaces. What to be here and there. How they are connected. So, it is more like to arrange visions on master plan. The scales are something like 5 years and 10 years plan. Something like that. But I didn't go into details. It is just…here is a staff dormitory (…) we don't want an enclosed space, but we want something to separate them from strangers. So, we plant trees that can solve problems. We just do master planning basically.

R: What about design projects?

P: Yeah…for architectural scales we have involved participatory processes with nurses and doctors but only in the beginning of the project. During the time we were finding problems. For architects, sometimes it is like we talk and we get a brief. So, it is kind of how they use it to process by brainstorm, sit and talk. Like, processes of flow of people…how many people are going to use the spaces. Then, normal architects come to design. Then, they use the design straightforwardly.

But for our architectural firm, we design a tool for communicating with them (users). So, the design process is happening at that moment which the design is more than just talking.

It means like you use mock-up houses and cut them. Or we can use sketch models there (during design processes). So, we spend time with them instead of talking half days but we stay there for 2 nights.

R: You have mentioned about 'tools'. Is it a kind of co-design?

P: Yes, we can called them co-design. In this process, there are nurses, doctors, nurses specified for traditional Thai medicine, professionals of traditional Thai medicine. If we are lucky, we might have volunteers from communities. These volunteers are also related to human resources…for me, they are assets for designing. If we talk about trees, which kind of trees they used to plant. Or, the volunteers have experienced any kind of planting.

Instead of architects straightforwardly design a normal plant pots. For us, we have to ask the volunteers which kind of plants they know how to plant. So they are like…a knowledge unit or resources. At the end, instead of designing the planting area, we just draw them as the spaces for planting and we 'imagine' together that the last two weeks, the volunteers were trained for planting trees in rubber wheels. So, this is the design with car wheels as spaces for planting trees. For me, the design does not come out as clean lines, or polished with concrete detailing. But, it has values that ones who have knowledge, use their knowledge for this place and it can become a source of connection.

R: So, does it mean that your role as an architect is a facilitator?

P: Yes. You can say that because the design process requires facilitating, in terms of raising questions, or designing tools to enable clients to participate in the design process.

Another thing, which we are doing more than normal architects design, is we design people's relationship. We co-design the relationship, which for me it is the largest issue. When we design hospitals, we set the first brief as 'to build a dream hospital'. If we want to build a dream hospital, it cannot be done only from physical environment e.g. bricks and mortar. But we have to build bricks, mortar and spaces. We have to build compromised relationship and warmth.

We have to build so that staff's dream, including cleaners, gardeners, technicians, nurses…for their dreams to occupy the spaces.

R: What about patients as the end users?

P: Yes we have engaged but not really in detail. This might be because of condition and behaviours as they do not permanently stay there…At first glance, we want to engage patients. But there is a gap that we think that it is quite hard to communicate. When they come in (design process), they don't know how to respond. In fact, I think we can participate with them…but (Pause) it will take long time and so we did not do. It is just because the design process is running by people who we think we communicate and we can get core knowledge. Actually, it has to be done. I mean you can participate patients into the process if you have energy and time.

If you design hospitals, they are public spaces right…patients are also users. Not only nurses who are users.

I also think beyond this…to create spaces, which are more than hospitals…for healing. Like, patients who have to stay overnight for 2-3 days. They can walk…and can play roles of gardeners to water plants. They can do tasks that they can do which make their lives not only to stay in hospitals to cure.

R: You have mentioned the term enable; can you define the term a little bit more?

P: As a design or a person who does the design process, and facilitators, I believe that capabilities are inside each human being. I believe in human. But because of contexts and culture and their background, it is kind of paralysed some capabilities such as shy to give their opinions. So, the tools…sometimes we go there with clays, which can release their sensitivities, and ideas come out. Like, if I am an architect, I might not think about pathway for a foot massage or swings. It makes us to think more about these sensitivities that existed in their ideas. (…)

So, I think these co-design activities enable the users. Just talking on a meeting table is boring. It makes them able to communicate their ideas more. For this communication process, it gave us evidences. To create something, it is establishing your thinking. If there are no activities, power will go to the one who summarises. But with these activities, the users can visualise the ideas of architects/designers.

R: I am curious with the way you emphasise about communication with the users. To what extent?

P: It depends on if their ideas are suitable or not…and it has to make sense. It is a common sense of designers also. If they are make sense, beautiful and attractive to do. So, the designers do not leave these ideas there. But, if something is too fancy, we can bring these ideas to talk in further meetings. Then, participators will be the one who make decisions. So, the diversity of feasibility studies is occurring in that rooms. (…)

R: So, have you particularly used anything from the Design and Construction Division?

P: No. At first, we have planned to use it. Like, where to place this building. But when we talk to all participants, they said that they don't really want these spaces. So, we talked to the research team that if we can modify this building. But, at the end, we don't think that we really need this building.

Consequently, we got the same amount of budget and the design aims to serve a purpose for that particular contexts. So, each hospital has to be newly designed. But buildings that our team designed are not machine for living in…as they cannot be put in other contexts. We cannot blame the Design and Construction Division because it started in urban contexts, and that causes hospitals to be built widely. So, they require a design model to immediately start the construction. It works only in particular context…I think.

When one person is moving to another place…in transition. People who have lifestyle type A, when they arrive at a certain point, and it faces some changes. I think they can be adapted if they understand how to adapt. If we have lifestyle A and we have to relocate to lifestyle type B due to sickness. When I am in lifestyle type B and I don't understand type B. This can make them angry to live in type B. Such as, I used to sit on a sofa, why do I have to sit on a wooden chair. So, it depends on reasons, which they have to choose by themselves. That might result in hierarchical division.

However, I feel a bit emotional about this. Even though I understood their good intentions why they are trying to do this, but it might be because I don't know about their conditions or difficulty of this group of people. I just want to know to what extent how this environment can 'embrace' their sickness.

If one person knows themselves that they have cancer, the two patients die. They know the news and they change their lifestyle and be able to embrace….Embrace the imperfection of life. But that is because we believe in their learning capabilities that people tend to develop their self-awareness, or compassion for themselves.

But another person, he/she cannot do that so it ends up with angriness, fluctuating emotions. For these two cases, we should acknowledge to go for the middle pathway that learning potential is in the middle. But if they don't believe in learning process or transition. If we don't believe in learning, we don't really believe in transition too. But I don't know if the research might support this kind of design as they already prove them in educational systems. (…). But I think it is still in an early stage for 'design for humans'. This is not enough. I think it still needs a step before designing…may be an assessment to measure which levels are they in the transitions. Also, it has to be in detail…like if I am 70 years old and I have Alzheimer's. I will not able to remember memory from 50-70 years old. So, if I am not functional, I can come into this facility.

What is interesting is, what make us understand their learning capabilities. Secondly, which kind of design can trigger their memories? I use the term trigger because I believe that there might be some situations or past events that or I guess routes in their sub conscious that particular person cannot go in. But by using some medium, such as music, art or touch, or kinship. That particular things…. are there anything about them to trigger them and their learning capabilities.

R: You have mentioned about capabilities for people with dementia, could you explain a bit more?

P: I feel that it is the project that gives hope. Do you get it? You design to allow more opportunities to happen. It is the design that designs according to their conditions. But what I mean by good design is it needs to challenge the hope. And, especially for patients, they really need hope. They need miracle. I think to design for patients, it really needs hope.

There is one building, which I have designed. They are the building that hospital staff can design their functions by themselves. The hospital staff can design by themselves if they want to use them for meeting or curing. So, we have a quick meeting. At first, it is a box, so we clear everything out and build them 2-floors. Normally, there are monks who come to give merits

and bless only the ones who are in their last stages. But, they see that it is not only for people who are going to die. They can give a sermon to everyone and in a suitable space including patients, patients' relatives and people in the community. It is a kind of spiritual element that encourages all aspects of their life. So, for this programme, not only design for hope, but it is physically designed for monks to give a sermon.

Another case, they are not related to the design directly but with the participatory design process that 30 people are participated. When the building is starting to be constructed, these 30 people are looking forward because they are involving in the initial design process. I can feel that they love the project. For myself, they are 'hoping' for this building to be done. They are not concerning about openings, or something like that….but for a whole project.

For myself, aesthetics is fine. If there is aesthetics in the project, it is good for detail. However, it should not be symbolic. My approach is not to design openings that make them feel connected to special things. It should be something simple and reflect their lifestyles such as talking to monks. They are spaces for those patients' relatives who are sitting together because of natural sunlight, talking together or empowering each other. So, I think for my design approach is about relationship. Not form and not design condition.

R: What about function? Did you concern about it also?

P: They are all related like I designed a garden, I don't know if they are going to sit there, but I imagined they are sitting there. So, we have that garden for them to sit.

Another upcoming project is for mothers whom just giver birth and need to stay in hospitals for a week. Natural sunlight in the morning can make them feel…and their bodies to be healthy. They can get vitamins. So, it is biology of mammals. So, this provision of spaces might create opportunities for new relationship indeed. It can make the 'hospitalisation' becomes more diluted. This is because they can create friendship. I believe in the relationship…the sharing spaces can create bonding.

If you are in the UK and they are kind of like lock you in rooms. And, you cannot leave your houses (…). I think it is too extreme. I think if they are sick, these options can give them more life – if you care patients. In the UK, they might care about the safety of the surrounded society or their responsibility if someone is lost. If they are sick, we have to give them lives even though it can cause any risks.

R: To what extent do you think the design of physical environment can support independent living?

P: Normally, nature already have their own energy; including winds, humidity that make them more human. For example, trees, it encourages people to see changes and impermanence.

R: Have you heard about design tools for dementia care?

P: I don't know how to explain that…I'm doubt the sensitivity of it. (…). During my design participation workshop, I used flowers as the main media and found out that they are beautiful. But we have observed that when people see aesthetics, they received energy immediately. We feel fresh and we can feel that the meeting was very lively. So, that level seems to give us energy. It is like you are experiencing at that particular moment.

For example, it can become a design process for people with Alzheimer's…if we have a vase and in the morning they can go to pick flowers for flower arrangement session. And, we allow them to choose flowers, which colours they would like to use. You can influence them to think and have their lives. On the other hand, another case have already a flower vase served on

the table. They are completely different. (…) I think this is directly related to when people lost their dignity. They lost their dignity because they have not lived their lifestyles. They are arranged and served. But instead if we facilitate or support them, it might need additional 'work'.

R: How do you think about dementia-friendly technologies? Have you applied in your design?

P: I think they have to be separated…like what is life's essence, like lights can be turned on automatically. But if they are robots to water plants for them, I think I support them to water the plants by themselves. It is better to see the plants' dying. Better than have robots to water plants for us. I think we need to value what are important. The value has to support their capabilities as much as possible.

I think to apply technologies…at its best, it can give us hope. But if it cannot, things that are not related to or not add energy to life…I don't have any problem with them to support us. But if technologies are taking lives from people, we have to be careful about this…or make sure that they don't take their 'energy'.

Participant 8: Interior Designer

Gender: Female; Age: 40+; Nationality: Thai

P: I have some experiences to design healthcare facilities and schools for kids with learning disability. Requirements will certainly come. Including…spatial hierarchy or sequences where we take children from where to where. However, there are still no design rules. But there are guidelines such as no glare, light has to be indirect. The spaces need to be enclosed. No open spaces because they can get confused. So, it is more like design recommendations that list out into points. No hard materials or no sharp corner.

There are a design criteria and 'feeling' that you need to communicate in your design. Or, perception. Like they told us to use brick because it can make them feel homey. They don't want the design to be hard and tough or brutalism-like. Or as it is a governmental project, it cannot use too expensive materials as the budget is from taxes. So, these are consisted of multi-dimensional factors, not only design for Autism and then done…

All of my projects are about healthcare. But they are from different segments. Another of my project is about a private house for palliative care, which is step free as well as flood prevention.

However, they are not really clear in the context of Thailand. From my experience, the Red Cross sent requirements to me. For that clinic for the Red Cross, they come with requirements only…in the brief. I used to design an eye clinic for my friend; I used requirements from the Ministry of Public Health. There are books for guidelines to design general hospitals. Most architectural students in Thailand have to design hospitals once in their lives. So, the writer is an expert about designing hospitals in Thailand. It becomes like a standard for example circulation needs to be 3 m. wide for beds to pass in the opposite directions, or toilets.

But in this case, the question is why the standard comes from only one person and from a private individual and there is no standard from the state.

In Singapore, the standard comes from Ministry of Education, which comes as a manual this size…For this function, this size, For that function, this particular dimension. Or for the UK, there is a British Standard and the hospital manual.

R: What I have seen is drawings from Ministry of Public Health…

P: They might have but not particularly in detail. For that manual in Thailand that I have talked about, the main objective is for architects/designers to visualise easily because they have some graphic diagrams. They come as a graphic standard. Such as in Singapore, not for Autism, but for schools or other programmes, they come as graphic with tables and chairs following their laws and regulations. Also, they revise every year, which I am quite confident that there is a hospital manual for sure.

For British Standard class M is for human cycle; Birth, Ageing, Sick, and Dying. So, there is no step. Still, this is not law. The law does not order them to do but British standard aims to design and build according to standard. In the UK, if the type of building is for public building, architects have to concern about healthcare.

R: How about in Thailand, to what extent do you think design and assessment tools can create an impact?

P: We are still waiting for someone to do it. The one that you have mentioned about the standard from Ministry of Public Health collaborated with Chulalongkorn University, but it is very difficult to read because most of them are text. It has concerned about colours for things that you must not touch. But I think the interpretation is quite ambiguous. Actually, I can make the to be complied. In the case that it can be interpreted ambiguously.

R: You have mentioned after the lecture that the project emphasise too much on experience and utopia? What do you mean by these terms?

P: I think what I have said is it is too predictive about the future which leads to millions of mix-used property. Currently, for these projects, people who buy these aged-care properties are the one who are not yet old.

I think it is more like marketing. Even it is marketing, when they finish the construction, it can remind us to think about why as well. But we don't know if this will fail in the future. This is because it means they are selling dream and selling future. In Thailand, there are only news, but there is only one which is completely done…

R: But I think we have to think in terms of typology as well…for Jin wellbeing, it is more like condominiums. Or another place, which I have just visited, are kind of nursing homes…the question is to what extent do you think the design of physical environment can support people with dementia?

P: I think it is about culture. Only my mom, she has mentioned that if there is a caregiver, she will kill herself because she thinks that she is a burden. If they don't stay at home, or we take them to other places, it means that we don't have responsibilities. I think for the previous generation, they don't get the idea. But these care facilities might be built to serve our generations. It is a perception of nursing homes.

She will never go to hospitals because she mentioned that she is not sick and she is not dying. In Japan, they have entered super-ageing society since 1988. So, they have already prepared (…).

R: In the lecture, they also mentioned about five senses (…) used in the design?

P: (29:03) For this case, it is hard to say because it might depend on the values of each designer (how they value?). Or if there are levels of Autism or dementia, I don't think it is called experiences like that. So, they might use the word for…But actually it is functional.

Because…what kind of experiences, people with dementia can experience? They don't perceive already. So, everything is about guiding for them to walk from one point to another as their lifestyles or to do particular activities suitably. This is because when I designed for Autism…the logic is implied since we do the layout….spatial layout and the accessibility actually. Not all people drive cars. Also, some kids come to the school by themselves. Some come to the school by mass transit. So, it started from where is the mass transit, where is the drop off, and how to design so that the kids will not get accidents. These are all objectives.

For dementia, they cannot take care of themselves (they are dependent), but Autism, there are still some spectrums that they expect that they can be helped and they still have chances to go back into the communities.

R: For people with dementia, their capabilities can be maintained and delayed as long as possible.

P: What are spaces that can maintain and delay then? (…)

So, it is kind of enclosed at the boundary right?

If I am the designer for this project, my main question is about planning. How walking in a loop and dead-end corridors are different and why? I think loop is more like the one that they can orientate hardest. (…)

P: (46:57) The one that I deal with, he is a politician. So, it is related to the vision of managers and management. There is a café in front with a canteen. A good canteen like Starbucks which is run by kids with Autism. So, their goal is to help these kids in order to go back to the communities by themselves because no one can take care of them when they grow up. Their parent will die. So, these are only reversing. My case is about kids from kindergarten to high schools. But, yours is to the end of life. So, this is how to train them to go back into communities. So, as their visions are clear. They tend to imitate spaces…like a café. They have manuals for one kid to be able to do one task. Their brains are also deteriorating. So, what happen in this facilities is they have to do repeatedly everyday…as routine. They cannot practice only one day. That's why I ask how long it takes for them to orientate. As you answer 1-2 weeks, I am a bit surprise because they take months to practice.

I think for that one it is for profit. But this one it is a governmental project. So, what they have told me are facts because whatever, they have told me they have to use throughout the building life cycle. This facility is established for as a model for regional facility of SEA. They have to think and do repeatedly.

R: What about safety aspects?

P: These are cars' shields off. Cars can only be parked outside. If you observe, this is very clear that the car park only this area and in good distance as there is a lot of buffer zone. Also, these are all fences. But we designed to be as light as possible. For fences, we don't want them to be like prisons. The manager's vision is good. They have mentioned that the school should not be like prisons. But everything is quite extreme. The fence is 1.50 m high. So, the design is matter that…to design them as thin as possible. They should not feel imprisoned inside.

At the end, they are still being contained. If they are less than 1.50 m, they can jump out. So, most fences and railings here are 1.50m.

R: So, as you have mentioned about café…

P: They have practiced a lot before you are going to the café. These are some kinds of vocational school. (…). So, there are so many rooms to practice cooking, economics etc. There are also art and craft rooms. Really beautiful.

R: What about design aspects?

P: We make them to focus and not distract. Each room has special requirements. Like for Kindergarten rooms, lighting has to be high and not in eye level. Windows are up 1.50 m and the upper part allows indirect light. For kindergarten, the light comes in needs to be softest. Openings cannot be lower because they can be distracted. Moreover, each room has spaces for students to calm down. Only one person can enter the room. As some kids might scream and I don't want them to distract others.

R: Could you explain what are inside that room?

P: It is a vacant room without anything. This is because it is a low-cost project. For the wall, I used bricks and painted instead of using wallpaper. There is no finishing. It is more of concrete with colour pigment. It is a government project so if they see that it is too luxury, it will not be good for the owner. But it must be good. So, I think it is about ethics and care (of the owners).

R: Have you applied technologies in your design? How do you think about dementia-friendly technologies? Have you applied in your design?

P: My intention is do it as passive design. So it is not technologies in terms of high tech. But I think I took the core of architectural design, which is passive. Including orientation, orientation of sunlight and wind direction, indirect light, human guidelines and each characteristic. So, it is more passive. They are not dependent technologies for that. But there is a computer room, which teaches them to use computers. They think that computer skill is another vocational skill that can support them to get income…by staying at home. Skills that they teach include, bakery, which imitate an industrial kitchen. They also have a wooden workshop. So, if they know that which individual is interested or can do something. So, they support that skill.

So, I still don't get it how they (people with dementia) can remember to go back to their rooms.

Also, there is a home-like room, which imitate HBD flat (in Singapore). It is a typical flat in Singapore. So, the room is for training them to live in daily lives independently in the future.

R: Have you heard about the concept of dementia-friendly communities?

P: I think it depends on spectrums of their conditions. If they are severe, they should not be outside. I think they can cause some problems…

But it depends on yourself as well…because I don't know exactly the conditions of severe dementia. For the term communities, what do you mean by its scale? If they are village, or neighbourhood…dementia-friendly…what I have seen is that people are aware and acknowledged. People with dementia are in the distance according to their previous lifestyle. But everyone helps to monitor. If they walk out, another shop will inform the centre. It is not locked because this town is in a scale that they can still go. And, when they are going back to the facility, shopkeepers will inform the facility.

R: The city called Bruges in Belgium…

P: Yes…because that city is quite small as well. I think for this distance…it can be refered to neighbourhood scale, which are also mentioned in research paper.

So, I think it is a bigger scale than to imitate or model the farm-stay. But if I build a farm and bring people with dementia to there, it will not be fake right.

(…) It depends on scale, if not it means that designing department stores are not authentic (?) /lying.

I think it is related to psychology…So, I think you should not measure GDP but it should be GPH which stands for happiness. You have to measure index of happiness. If they are okay with it, it is okay. But for happiness, the main methodology…it has to be based on residents or investors…especially in Asian culture that people might indicate their parents' happiness by relatives' happiness as one of the measure. So, if I send my family members to these facilities, I have to be confident that I can see that my grandparents are happy or not. Because we can touch in the sense of family members. For Europeans, we cannot do that because we kind of have different mindset. For Asians, they might be measured by the standard of family and the rate of payment. If they live there and we can notice that they are not happy and we can feel that the option of dying might be better, then we should relocate them. The measuring standard should be concerning if dying is better.

So it should be their choices by concerning their background and why they come here, and what are their levels in order to analyse or calculate. This can become one part of the evaluation.

R: Yeah, I think this is very interesting because I can also think that it might not become only a design checklist...

P: Sometimes they are too personal, and their preferences are not the same. So, the checklists should not be an assumption or judgment by the managers. It should not be focused on only designers and architects to know what kind of capabilities the patients have.

So, that's why I think numbers should be useful for the design tool. For example, family members refer this case study by how much…in numerical/quantitative format. So, it should be involved many stakeholders indeed. Something like that.

V. Interview transcriptions of co-design workshops

Transcription (Case study 1)

The researcher was organising the design toolkit on the table in the meeting room. During the first 20 minutes, the researcher explains the overall findings and the four domains to the care stakeholders. The researcher placed design tools and design cards on the table. The main question is how are you agreed or disagreed with these domains? (Action) Placing cards on the table – It is okay to place these cards in different colour charts. (Participants) reading cards – you can switch the colours based on your opinions

(Moving the camera)

(Participants reading the cards and started placing the cards)

(13:10) – Started placing the cards…security and activity. The participants are helping each other to place the cards. In fact, we can swap the place if it does not work like that. But for the researcher (Nong), the colours does not depend on the cards.

(17:20) – Sequences of the co-design framework wheel. Placing narrative on orange circle (under identity). They like to tell narratives when they were young.

(17:42) – So this space will be broken into these spaces right. There might be two or three terms in each space.

Placing cues, Placing narratives, Placing education / stimulation

Asking for more information about the framework procedures. Letting them move the cards. Helping each other to place the cards.

(19:11) Feeling/Emotion should be placed in the security. It is like a place right? Like the sensation means more like the place. So, it should be in spirit of place. (Behind the spirit of place)

Placing green cards in the green area. Moving green cards out. Place with sustainability, sense of freedom. Sensation as place? Then place sensation behind sense of place and spirit of place.

Issues of health has to be monitored. Then, when we have security or then we have to take care of their security.

Surveillance – so they feel secured…so they have to be monitored. And environment has to be in surveillance? Like when we have security or CCTV, we are taking care of security for them. Like the environment should be enabling. Like spaces that เยอะๆและทึบๆ which is risky. So, the environment should be the main and the surveillance should be sub. Yeah, yes may be. But there are another environment. It may be too much involved. Enabling environment may link to the security – like what I think it links to the security too. The 'environment' may be vast. But for the enabling environment may be like the pavilion, building, something like that. Care manager: Yeah…it is fine with that.

Reading the cards – oh…trust… Then it is knowledge. Knowledge behind the education. Knowledge of whom? Caregivers or people with dementia?

So, it means that the atmosphere of the organisation is also matter.

Video 2 (still arranging the cards)

(5 minutes break)

Participant 2: I will start from creative functionality.

Spiritual forms - From my feelings, the buildings tell about the convenience/comfort of the usability. Then, it is enabling for the end users to make them feel…Like here, we design for them to be like…they don't feel that they are living in nursing homes. This makes them to feel like home. Or, feel like family. But another feeling, we would like the clients to feel like they are relaxing…like they are living in resorts or on vacation. So, we are designing the place to mediate…like for pavilions, the design can mediate to live with their families by having many rooms. In terms of villas, it makes the clients feel like they are living in resorts. So, this mediates the building forms which are different. Also, it links to the feeling/sensation that make the clients…feel like when they enter the buildings, they are entering a big house, a big house where people live together.

In addition, they are doing activities together and can have aesthetics with each other. Aesthetics together.

If we concentrate on the terms on cards…from the feelings when I see the cards…

Learning environment – In terms of the place, the place should enable the learning of the clients. This is because…even though the clients have dementia, they do not stop learning. This is because someone they might forget something…for example before leaving home have to wear shoes, but they might forget what have to be done before leaving. But if the place have a shoe shelve (at the door), they can remember they have to wear shoes before walking out. So, the place must enable them for their learning. This is because they might stay inside the room and does not leave the room. They will not know that before leaving the room, they have to wear shoes first. Like programmes…I am not so sure about the term…(then moves to activities/social inclusion) – it is like the management…or to be control

Most of them are happening in group activities…like it is an order. So, it might mean that the programmes are in the same space as well. So, it means like a command (1,2,3,4).

Spirit of place – It is like what you have told earlier. Like when people enter the place…they feel good to our place…for older people or their relatives to come to this facility. If the place is enabling or the environment…they see that it is a place that they live, and they are happy.

Also, sustainability is linking because if they feel good with the environment, the possibility of the length of stay is increasing. This is because for sustainability they are all relating. So, they are factors of the wholeness which cause them to stay with us longer. Also, for caregivers if everything is enabling.

(13:30) – So, it means like they are overlaying. The framework should not consist of only four domains and clearly divided.

The next domain is security. If the clients or the staff feel secure. Security consists of comfort and convenience. For example, if we give security to the clients and the clients feel uncomfortable like the place is restricted and limited. It is uncomfortable…it makes the clients feel not so good. Like being in a room. Like we know that this client is angry, or they are violent. Every time we cannot manage them by locking them inside. Or we know that outside has lots of dogs. If we lock the clients inside, it is truly secure, but they will not be convenient and don't have freedom. Now, the clients can walk around. This is because we have security guards to look after animals from outside. Gardeners also take care of poisonous animals to be away from here…for the security of the clients. Also, the security of the caregivers that take care of the clients in terms of bandage. This is because here we do not fix that the clients have to do the bandage. But we have recommendations about bandage if they have pressure sores. This is because we give them comfort and give them freedom of choices. Sometimes, they don't want to do. Like they are sleeping, but we want to flip their bodies.

Also, in terms of environment, we have to watch out. Like here, we have a lake at the back. At first it is deeper, but we solved the problem by filling the lake to make them shallower. We also built up a fence around the lake to protect the clients from falling. In fact, the clients have their own caregivers to support. But for the security, we have to do that. So, we cannot only focus on the security. But it has to enable and support the aesthetics and scenery. This is because if we don't have the lake, or it is all land and trees, it will be nothing (to look at). So, we have to manage the existing environment that we currently have to serve security for the clients.

In addition, the next theme is about education and training in terms of caregivers. This is because each client has different diseases and personality. We have to study like case by case. Various equipment or different appliances are quite specific for different clients. Like some client cannot walk, we have to use wheelchairs. The room has to be…have wider doors or wheelchair accessibility, or handrails have to support them. Or a towel hangers have to adjust to be lower. But if we design the buildings to match with normal people and the clients like this. We have to do double. This is because the height of someone who use wheelchairs. The clients are independent. They chose to stay in a villa type. Inside the villa, it has a cloth hanger in the appropriated level. So, we chose to hang it in that level. But for normal people, we have a towel hanger in the dimension for normal people.

So, this means it connects with the environment and the training of the caregivers. They are all related. The education of the caregivers is important. This is because the study of clients' personality, knowledge from the study, or work experiences. This is because someone has work experiences, but they don't know principles. They don't know strategies. But if we know, like in the past we use alcohol, but not it is changing to use saline. So, it means the combination of past experiences and knowledge that is contemporary has to be learned again. So, I explained roughly like this. But by using the concept of person-centred care, we mainly focus on clients. This is because sometimes clients like this and dislike that, we have to adjust. Each caregiver has to adjust according to their preferences and their needs

Participant 3: I would like to add. In terms of training…the care training for the clients, we need to focus on the person-centred care, right? Then, we will focus on the level of care. For each individual, he/she require different types of care. The caregivers' training…if we can train about their emotional care, it will finally be resulted in their preferences. Then, it will result in the memory cues of reminding them how to eat. It connects to the care training because the caregivers will be able to handle with clients. So, I think it is like that.

Researcher: So, it means that care training is very important.

Participant 3: So, I see it (education) as training.

Participant 4: We are learning every day. This is because the case that I am responsible for…he is different every day, especially his mood is different every day. The caregivers are changing every day.

Researcher: The next domain is self-esteem…

Participant 2: Clients are shy. They require privacy like when we do bed bath. They are shy. They require personal spaces when we enter their rooms. We must knock first. Even though their rooms are opening, we have to respect them.

They have high self-identity. They have fixed idea. I will tell my experience. They will not listen to us.

Participant 2: I think self-identity and selfhood are linked. Like we have to take care of them according to person-centred care….centre of the universe indeed. Like he wakes up and wants to shave, then he has to shave. They are quite similar…but should mainly focus on their identity.

I am not sure if it is called self-esteem…but self-identity is definitely. They never listen. They never change. Even though we gave them some advice and it is correct, they do not believe us. We have to do what they want. If not, they will be agitated.

For narratives, they have narratives of their past experiences like photo albums and letters. They tell us (…). So these work as memory cues Narratives and memory cues are very similar.So, it depends on the environment which reminds their memory.

Participant 4: For physical health, I think it belongs to caring because each individual. This is because they have different physical and mental health. So, we have to assess them fist like which types of care they require. This means that it is not care…not care training.

It is a care assessment or test which they have to do it before staying with us. By focusing on their physical and mental health and assess which levels they should belong. If they with us, should they require 24 hours of care. Or they might require only day care. (29:20).

Care becomes to be a sub of training. I think it belongs to comfort too. I think it should be another theme…including care levels.

The next theme is activity. In terms of doing activities for clients, the main factor is to engage clients to the social environment and to stimulate them to stay active. So, we do not force clients to participate in activity sessions. Some clients prefer privacy, so they do not have to come. But, we will invite them every time. This is because some day they will join. But if they do not, we still motivate them. We do not fix activities that they have to do this and that. Like dancing, they can dance freestyle. This means they can exercise and stimulate their neurons.

We have various choices of activities for example meditation for calmness. Every week we have a small party for them to socialise. Here, we have both people with dementia and normal older people.

Activities then should belong to the care domain…Activities are concerning with clients' symptoms. Like some clients are sitting on, but we have balls for them to exercise their arms. So, we need to manage activities to match each case. Assessment is important to measure to what extent they can do.

Participant 4: For me, activity is what we like them to do together…for them to participate. So, if they said that I don't want to do. But they can do. So, we have to train caregivers to have knowledge to push clients to participate in groups. This is because being isolated might cause their symptoms to get worse. This is what I think. (34:00)

So, there should be an overlapping of physical spaces and care assessments.

Participant 2: Some clients came from foreign countries. They like to say…in Europe, people do like this. In Europe, flowers are like this and that. However, our homes are not enabled. It is hot here. For us, if we can follow, we follow. For example, we can plant more flowers.

For dignity, we don't touch their Europeanness, or their occupations. We will not invade them. This is because…although in the past they have occupations, with us they are clients. So, we take care of them equally. So, our duty of care…even though they are gardeners before, they are our clients. Even though they pay lower than others, but care are not that different. Some people chose care packages of on call or 24 hours. Someone doesn't like to be tailed. The relatives will buy a full care package for them. Here, we indeed use the recognition of clients. But someone invades us by teaching us technical skills. They want to teach us because they have knowledge and tell us. But they are our clients. So, we are like…okay we accept that.

Participant 3: I think for self-esteem, clients are proud of themselves. They have their own loyalty. However, we did not reduce their privacy. Even though they are Europeans. But when they move to here, they have to adapt. But it does not mean that they have to be like 1,2,3,4, like we tell. We have to blend the cultures and adapt their own. But they are not losing their self. In order to live together, we have to match. By using our cultures…like care training. So, that they will accept us. Firstly, we have to accept their self. We have to train them to do like this.

So, this is the culture of the organisation.

Yes. We have to respect them first, then they will trust us. In different organisations, topics might be different. This is mainly because it is how they perceive inside particular organisations. You have to test the tools in different contexts.

(43:16)

Transcription (Case study 2)

The researcher set up a design framework on a table and started to explain the domains, themes, and sub-themes. The research participants help to lay out the cards. (11:38)

Participant 1: You know…Lily in our team will place this (he means sense of place) as the most important one. (Pause). The key three pillars in dementia care are…I only got two of them.

For me, the third pillar has to be…routine. You have got routine here (pointed at the sub-themes). Without a dementia setting and a routine environment, it will not function well. People with dementia are not cope well with change. So, they don't cope well with social inclusion either.

I don't know what we supposed to be doing but…I am a more practical person.

I heavily believe in the freedom of choice. But you have a line between that you have to draw. You cannot give the absolute freedom. Generally, they have to move back to the plan. They cannot get out from my resort. They cannot come back. So, they need a sense of freedom. There is a fine line of a sense of freedom and choice. But people with dementia often cannot make choices. So, for instance, my mother was here for dementia. You cannot say to my mother. What do you have for lunch? To ask for that question, we have to know what are available and what you like. And, most people with dementia cannot remember. So, my mother would say what do you have on the menu. And, first thing on the menu, she chooses. But she likes it? I don't know. People with dementia can't make decision and don't like questions. They scare of questioning. They are hiding the fact that they have memory loss. So, we have a menu and ask her if she would like a salad. She said exactly what I have said. They cannot have total freedom of choice because they have mental capacity. But don't get me wrong because people with dementia re not stupid. They cannot do their day-to-day activities…in their heads. They got their information they are going to work on. So, you cannot ask people with dementia what do you want to do this Saturday. It is a problem that they got in their heads. They might say only…yes, I do or no thank you. So, they are not stupid to make decision, but they need alignments to do that.

It has to be perfectly found. All the time, you need to remember. We cannot access their databases. Like, what do you want to do today? She said exactly what she did, and it is exactly the same.

For people with dementia…she can't…social inclusion. This is interesting. You cant get the most social person in the world and get dementia, and suddenly their ability to get the social is hidden. For a simple reason, if you cannot find memory, what you talk about. You are no longer watch the news because the news are no longer relevant. You cannot remember each morning…People with Alzheimer's, they rather do breakfast rather than gathering. They would sit at the same table. They will pick each other up because they are nearby rooms.

Participant 2: they are neighbours.

Participant 1: They walk to breakfast together. They sit together. They have breakfast and they walk back. For me, it is social inclusion. But it is the level that they can cope it. But they don't have a conversation because they don't know what to talk about. Like, Gary…he is sitting at the same chair. It is social in their own world. Everybody has a different opaque.

So, in many dementia care facilities, these are important. (He means the self-esteem domain). This includes self-esteem, respect, and recognition. A lot of care facilities include those themes. Also, there are some care facilities which include levels of care, physical health and ignore other factors. Without self-esteem, the activity factors are pointless. Life without self-esteem, without respect, and without dignity is not happy person. Self-esteem is what many facilities are lacked. You handle the security problem to security here you see.

Care homes in England they said it is like a prison. So, physical health is important. Person-centred care and emotional health are together. They have to know where they are in physical sense. So, it has to fit within the spirit of where they are. So, like they are going to the trip. It is challenging to go to the trip. You have to tell them 4,5,6 times before you go. So, they know

what they are doing. So, they know where they are. So, they need to know where they are. They first might get lost. Like some day they get lost and I might show them the way.

Researcher added a new domain of routine. When they communicate with their families, they feel secured.

The research participants continued to place cards

People with dementia…they want to live their normal life. Normal life…normal life. Nothing has to come out and do things. You have to look at the world through dementia side. So, they have to get to their normal lives. And, then they can say if their wives are aggressive. Or, you can just tell them and move to the next day. Most government should spend their money. Or, have a course for dementia sufferers. That would slow down the right of dementia decline. Because they would frustrate by their husbands or wives, or sons, or daughter. Then, they will start to understand. If you know the cause and the problem is. The fact is…my sister would love this because it is academic. As WHO has suggested, lifestyles are more important than medication. Lifestyles therefore is everything. This is how we are brought up. We are trying this must be the way. You have to understand that your life will be changed…to have a better life. Not more enjoyable but less frustrating. Less difficult for them, how can I achieve that.

For Cherry, it might be important.

If you move them into a hotel, it would have a negative impact. Sending them into a hotel room, you cannot walk like this. If they perceive sense of freedom. You have to find ways for people to express a sense of freedom. (18:03)

The environment is important but not necessary.

You have mentioned that it depends on their perceptions.

You cannot give her lunch. This is because the inside, she still has dignity and respect. My sister said to my mother…what do you want for lunch. It is about their perception if they are free or get it right.

So, caregivers require training, right?

Some of my friends who own care facilities in Thailand said that it is okay. But it is their perception right. The perception of languages. And, they cannot speak English that well…So everything comes to deal with them. They don't have to speak English, but touching can be used instead. This is because they don't have long conversation. Tthey are communicating and perceive where they are. She is at peace.

14 APPENDIX B – ETHNOGRAPHIC DATA

I. Photographs

massage room

hair salon

parking lot

organic garden

with activities such as feeding chickens and harvesting vegetables.

facility sala

P6 P4 P2

lake

pool lobby office

P5 P3 P1

walking route.

physical therapist room

staff facilities

handrails at the corridor

Ramp at the entrance

Building Plan (Scale 1:100)

W.C. kitchen W.C.

W.C. W.C.

W.C. staff stretching area

W.C. W.C.

W.C. W.C.

W.C.

kitchen area.

storage - used to be a TV room.

scu.

swimming pool & spa

RECEPTION
ประชาสัมพันธ์

portico at a room

garden

lake

nurse station

signage at the entrance

nurse station and staff facility

lake view

swimming pool

Working table

Bed.

Bedroom

W.C.

another room.

portico

Type B room.

garden at the ground level.

meeting/living space at the ground level.

under renovation

nurse station | stairs.

W.C. | W.C. | W.C. | W.C. | W.C.

Living spaces

W.C. | W.C. | W.C. | W.C. | W.C.
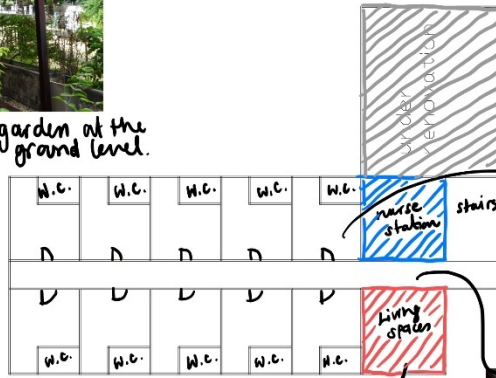
Corridor

1 Bedroom type

Living space.

staff facility at the ground level.

stairs | storage

W.C. | W.C. | nurse station

roof top garden.

W.C | W.C | W.C | W.C
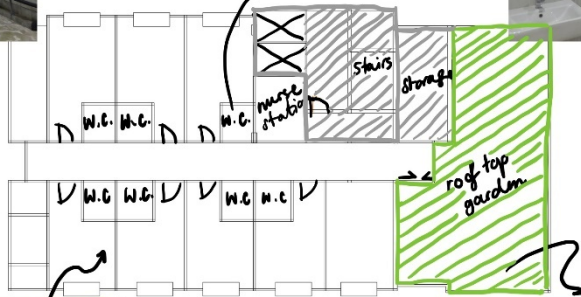
Bathroom

shared room type
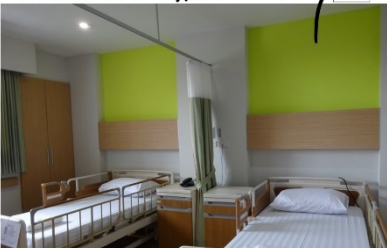
Rooftop garden.

II. Sketches and Ethnography

Building Plan (Scale 1:100)

Building Plan (Scale 1:100)

under renovation

Design Checklist of an Enabling Environment for Dementia Care

Task	Domains	Architectural Design Items	1) Site Planning?	2) Main Entrance	3) Cafe / Restaurant	4) Commercial Area	5) Public Toilet	6) pavilions to pavilions/or living spaces	7) Vertical Circulation	8) Quiet Space (7)	9) Activity Area	9) Activity Area (e.g. swimming)	10) Kitchen (at the pavilion)	11) dining activities happen at the	12) Living Area? (Common area?) -	13) Bedroom	14) En Suite	15) Staff facilities	16) Exterior Space	Comment and Response
		PART 1: LAYOUT AND SPATIAL QUALITIES																		
		1.1 GENERAL LAYOUT																		
1.1.1	Universal : Privacy	There is no open floor plan arrangement. Spaces can be broken up using moveable dividers. Screens and semi-private spaces within (by permeable materials).	0	0	1		0		No verti cal circu latio				1	1	1	1			0	13) The bedroom is not open floor plan arrangment - more like an L shape (bedroom floor plan as attached) 10) Kitchen Isalnd at the centre 2) The space is not that large for dividing into smaller spaces.
1.1.2	Universal : Privacy	Distance between seating is relaxing place for visitors to wait. There are spaces for private conversation (Van Hoof, 2013) and quiet space (intervals) within public spaces.	1	1	0		1		No verti cal circu latio				0	1	1	1			0	10) No proper seating area for eating. 6) At the entrance of the pavilion area
1.1.3	Universal : Privacy	There are small and intimate spaces and niches within the public area where individuals and families can gather in relative privacy.	1	1	0		1		No verti cal circu latio				1	0	1	0			0	3) Seatings are set up in configuration of 2,3, and 4. 10) There is small table at the centre of kitchen space (suitable for 6 people). 11) Only one table for six people 6) At the entrance of the pavilion area.
1.1.3	Universal : Privacy	There is no shared bedrooms. (on one's own, the wish for privacy, and having personal belongings around oneself)							No verti cal circu latio							1				13) No shared bedroom. The smaller bedroom in the pavilion type is ensuite. Not sure if I can access to see the exact bedrooms. But, the existing storage does not shows that they are enough storage for medical or personal belongings if someone needs to stay as long-stay. (3 cupboards, 1 TV
1.1.4	Universal : Privacy	There is a generous space of bedrooms. Residents with larger apartments may have better opportunities to have visitors when they want (Van Hoof, 2013)							No verti cal circu latio							0				13) what is the generous size? Residents in normal size room have a set of table and 2 chairs. Not enough space if their family come.
1.1.6	Universal : Privacy	Restrooms with multiple water closets must have toilets stalls made of impervious materials with minimum clearance dimensions and privacy locks (Binggeli, 2016).							No verti cal circu latio							0				13) No privacy lock (toilet).
1.1.7	Universal : Privacy	There are no private rooms on public routes (routes from entrances used by people accessing offices, meeting rooms or delivery points)							No verti cal circu latio							0				13) Private rooms opposite to the public routes. 10) At the pavilion, there is one private room which is at the middle of the pavilion - might be a nurseroom.
1.1.8	Universal : Privacy	There are no door to door bedrooms (cannot see others' rooms and bathrooms) along the double-loaded corridor.							No verti cal circu latio							0				13) Bedrooms are door to door but as cluster type.
1.1.9	Universal : Privacy	There are transitional spaces (semi-private area/ambiguous transtition) before bedrooms and circulation spaces.							No verti cal circu latio							0				13) No transition
1.1.20	Universal : Personali sation	There are spaces for all residents to store own wheelchairs and for personal items near dayroom and public spaces.	0	0	0		0		No verti cal circu latio				0	0	0					10) No proper spaces
1.1.10	Universal : Personali sation	There are adequate dressing/closet spaces, display space, and storage for personal items and professional equipment should be provided.							No verti cal circu latio							0				13) Dressing/closet spaces are made of wood/particle board (cannot see through what's inside. Also, it is next to the main door - ambiguous of public and private spaces).
1.1.12	Universal : Choice and Control	There are choice of locations for daytime activities, excluding dedicated dining rooms (available of pocket spaces in nearby area)	1 (Tour)	1	0		0		verti cal circu latio					0					1	12) no proper activities
1.1.13	Universal : Choice and Control	There are free and easy access to outside world which is a safe outdoor space in order for people to choose to go out when they want to (DSDC, 2013).	?	1	0		1		No verti cal circu latio					1	0				1	13) The bedroom is not directly connected to the outside spaces (but have wide windows). 10) Not from the kitchen area
1.1.14	Universal : Person- centredn ess	The space represents the symbol of culture (how?) of the residents.		1	1	1			verti cal circu latio				0	0	1	0			0	3) Menus are in German. Cuisine are Western. 13) Seems to be universal by using wood as the main material. Also, there is an image - Japanese style. 4) Selling breads and Swiss cakes. 6) paintings about Thailand 12) painting thailand
1.1.15	Universal : Person- centredn ess	The space represents the symbol or aspects of ethnicity of the residents, but also diversity?		1	1	1			verti cal circu latio				0	0	0	0			0	13) as the main ethnicity is German - cannot identify. 4) German language and signage.
1.1.16	Universal : Person- centredn ess	The space represents the symbol or aspects of spiritual and religious of the residents - Space where religious observances can take place, eg small lounge	0	0	0		0		No verti cal circu latio				0	0	0	0			0	
1.1.17	Universal : Person- centredn ess	The space are gender appropriated (how?) such as separated gender of public toilets.	0	0	0		0		No verti cal circu latio				0	0	0	0			0	3) Unidentified
1.1.18	Universal : Communi ty	The dimension of entrances can specify that it allow public access and are welcoming to visitors: reception or signposting. Main entrance sheltered from sun and rain		1		1			No verti cal circu latio											4) Very high ceiling structure.
1.1.19	Universal : Communi ty	There are public function spaces which are large enough for all residents from all living units to get together.	0	0	0		0		No verti cal circu latio				0	0						3) Not enough seating for 72 units? 10) Allow public/families/visitors to gather
1.1.21	Physical: Health and Safety	The space has secured and enclosed layout especially garden spaces have safeguards against resident wandering. Route from car park to entrance safe from vehicles entering site or manoeuvring within car park. On public transport	1				1		No verti cal circu latio				1	0					1	16) there is a gate next to swimming pool.
1.1.22	Physical: Health and Safety	There are emergency access: doors open out, or minimum room width 1.2m to avoid fallen resident becoming trapped	1	0	1		1		No verti cal circu latio				1	1	0				1	13) Doors are 90 m. (Wooden wall, not fireproof)., 4) no door
1.1.23	Physical: Health and Safety	The space is followed infection control? Food distribution route (kitchen or servery to dining) does not cross dirty laundry route (bedroom to sluice or laundry)	1	1	1		1		No verti cal circu latio				1	1						10) Laundry service is in another route.
1.1.24	Physical: Accessib ility	There are no grand steps or formal architectural elements such as pillars, solid doors or vestibules to impede ease of access for frail people.	1	0	1		1		No verti cal circu latio				0	0	0				1	13) Not sure if the wheelchair can turn around. 3) There are steps at the entrance of the cafe (portico side) 2) Two ways of entrance
1.1.25	Physical: Accessib ility	There is 1.3m turning space for wheelchairs.	1	0	1		1		No verti cal circu latio				1	0		1			1	13) 1.3 m

#	Category	Description													Comment
1.1.16	Physical: Accessibility	The corridor should not longer than 15 m from dayroom.					1	No vertical circulation			1	1	0	0	13} Depends
1.1.17	Physical: Accessibility	There is an adequate space for transfer from wheelchair or hoist, especially when two carers are required.	0	0	0	0	No vertical circulation			0	0	0	0	13} No hoist 3} There is no hoist at the dining area.
1.1.18	Physical: Accessibility	The clusters layout are arrayed in a back to back manner which allows easy access from a shared elevator and staircase.					1	No vertical circulation				1			13} Shared kitchen
1.1.19	Cognitive: Orientation	There is a loop route within living unit for wandering.					1	No vertical circulation				1		1	13} circular loop within the pavilion.
1.1.20	Cognitive: Normalness	The therapeutic kitchen or living area is located at the centre of the cluster. Domestic layout: similar to house (dayrooms on lower floor, bedrooms above) or domestic building divided into flats.						No vertical circulation			0	1	1		13} but not at the centre. 10} At the side (not at the centre), but they are seemed not used regularly.
1.1.21	Cognitive: Normalness	There are positive risk-taking activities.	?	?	?	?	No vertical circulation			1	?	0	1	13} How? 10} Yes?
1.1.22	Cognitive: Human Scale	Appropriate cluster size. Small houses are home to 6-12 residents. small-scale facilities that are homelike often leads to an architectural template or typology for a dwelling occupied by six to eight people.						No vertical circulation			0	1	1		13} 12 rooms
1.1.23	Cognitive: Human Scale	This space is double height or high ceiling (approximately 2.6 m) at the public and entrance areas. The entrance hall has double height spaces with skylight to create good atmosphere. Human scale (floor to ceiling height).	1 (or high er)	0	1	1	No vertical circulation			1	1	1		13} High ceiling (2.5 m and 3.1 m) 10} Triple height spaces (2 floors houses) but consist only 1 floor usage. Kitchen is 2.5 m in height. 3} The height is about 3 m in height with rafter (quite grand and luxury). 4} Double height ceiling - about 2.5 m 11} Double height ceiling (2.5 m)
1.1.24	Cognitive: Facilitation to social contact	The furniture that incorporates fittings and furniture that will encourage staff and patient interactions. There should be a variety of soft seats, many with high backs and the occasional two seater - choice.	?	0	0	1	No vertical circulation			1	0	0	0	13} Simple furniture layout 3} Depends on the residents - some carers sit that the back (baby seats and wait for the residents and keep distance (Asian residents).
1.1.25	Cognitive: Facilitation to social contact	The entrance hall has magazines shelves or small libraries next to the seating area (activities in the middle).	1			0	No vertical circulation						0	
1.1.26	Cognitive: Connection to outside world	The space has a direct connection to vista and scenery (natural environment).	0	1	0	1	No vertical circulation			1	1	1	1	13} Some trees but not garden. 10} Access to some trees. 3} Have flexible area which connect to the outdoor spaces (however, it allows insects to come in e.g. flies) 2} The seatings are not direct.
1.1.27	Cognitive: Connection to outside world	The space has a balcony or portico extending to the outdoor environment.	0	1	0	0	No vertical circulation			0	0	0	0	13} No
1.1.28	Staff Facilities	The nurse station is at the centre such as communal kitchen area.	0	0	0	1	No vertical circulation			0	0	0	0	13} Kitchen but not nurse station.
1.1.29	Staff Facilities	There are storage spaces with the same material or colours of the wall.	0	0	0	0	No vertical circulation			0	0	0	0	10} storage are made of wood material. 3} Storage is made of wood but for storing plates. 4} The storage is in glass material to allow seeing stuffs inside.
		1.2 WAYFINDING													
1.2.1	Cognitive: Orientation	There are recognisable wc visible from dayroom threshold. Ensuite wc visible from bed (score ½ for commode).	1	0	1	0	No vertical circulation			0	0		0	0	14} Cannot see restrooms from bed.
1.2.2	Sensory: Sight	There is extensive use of glass to show what is behind the doors and walls to increase visibility.	0	1	1	0	No vertical circulation			0	0		0	0	11} No wall and doors
1.2.3	Cognitive: Functionality	The spaces are recognisable by function (and objects?)	0	1	1	1				1	1	1	1	0	
1.2.4	Sensory: Sight	There are landmark objects such as memorabilia to aid wayfinding. (home-like design features). The space presents clear signage and landmarks as environmental cues.	0	0	0	0				0	0	0	0	0	13} Only room numbers 2} There are visual landmark as horse logo infront of restaurant door.
1.2.5	Cognitive: Orientation	The space uses colour or theme for assisting wayfinding (HousingLIN) - Colour coding within living unit to aid recognition of wcs, bathrooms etc	1	0	0	0				0	0	1	0	1	13} Colour coding at each pavilion 2} theme for decorating
1.2.6	Cognitive: Orientation	There are no two dayrooms with identical building form within living unit (score ½ if identical form but distinct décor)	1	0	0	1				0	0	0	0	1	13} Pavilions are similar as well as the room
1.2.7	Cognitive: Orientation	Doorframe is coloured (ref.) to navigate the residents.	0	1	0	0				0	0	0	0	0	10} No door 3} Door frame as wooden which arein different colour.
1.2.8	Cognitive: Orientation	The space intentionally has brighter lighting at corners and transitions	0	0	1	1				1	1	0	0	0	0	10} More lighting because at the corridor there is no light 3} Use only natural light
1.2.9	Sensory: Tactile	VIPs have difficulty locating, identifying and approaching the entrances to public toilets as no specially adapted information is provided (e.g. tactile or audio) to indicate the right direction or location (plain and line levels).	0	0	0	0				0	0	0	0	0	
1.2.10	Sensory: Odour	Odour as sensory cues (fragrance and marketing strategies)	0	0	0	0				0	0	0	0	0	3} No odours from the kitchen.
		1.3 DOORS													
1.3.1	Universal: Privacy	Sliding doors are chosen because they provide better access to people in wheelchairs, and they can also be shut and opened to some extent to control visual access and privacy. (connected to the living room) (Van Hoof, 2013)	0	0	0					0	0		0	1	13} normal doors 14} But opposite to the main bedrooms' door.
1.3.2	Universal: Choice and Control	The door is lockable from inside	0	0	0					0	0		1	0	
1.3.3	Physical: Health and Safety	The entrance door is closed at nighttime for safety reasons (controllable).	0	0	0					0	0				

Ref	Category	Description														Notes
1.3.4	Physical: Health and Safety	Good' access for residents with physical or mobility problems including wheelchair users.		1	1	1					0	0		1	1		
1.3.5	Physical: Accessibility	Doors open against the wall into the various rooms providing clues to a particular room's function, by giving an immediate view of the room and its content.		0	0	1					0	0		1	1		
1.3.6	Physical: Accessibility	The minimum doorway width is 0.8m		1	1	1					0	0		1			13} Door width is 0.9 m.
1.3.7	Physical: Functionality	Height of door handles		0	0	0					0	0					13} 1.03 m from the floor.
1.3.8	Physical: Accessibility	Opening - The entrance hall allows good levels of daylighting to communal spaces (DWELL, 2015) for time orientation.		1		0					0	0					
1.3.9	Physical: Accessibility	Double height entrance foyer with a balcony maximises the distribution of natural light into the public areas of the building (approximately 2.6 m).		1							1	0					2} also use downlighting to create ambience.
		1.4 WINDOWS															
1.4.1	Universal: Privacy	Windows are located horizontally above eye level for privacy.		0	0	0	0				0	0			0		14} eye level but blurred
1.4.2	Universal: Privacy	Windows are double-glazed for noise privacy.		0	0	0	0				0	0		0	0		13} 2 layers for mosquitos net and glass
1.4.3	Physical: Health and Safety	The entrance hall has optimised openings to allow (cross) ventilation, because it is responsible for the 'quality' of the air the occupants breathe (against security fear had prevented from openings to improve cross...)		1			0				1	0					
1.4.4	Physical: Health and Safety	The entrance hall has optimised openings for appropriated temperature and humidity.		1			0										
1.4.5	Physical: Health and Safety	Any window has security against intrusion / falling		0	1	0	1				1	1		1	1		13} 0.87 m from the floor. 3} door/window at the same time.
1.4.6	Physical: Health and Safety	Maximum windowsill height 600mm		0	0	0	1				1	1		1	1		13} 0.87 m from the floor.
		1.5 STEPS AND LEVELS + (SECTIONS)															
1.5.1	Physical: Accessibility	Ramps 1:20		1	0	0	0								1		
		PART 2: FURNITURE, FIXTURES, AND DECOR															
		2.1 FURNITURE															
2.1.1	Universal: Privacy	The entrance hall has a rounded reception desk helps to create a welcoming effect.		0			0										
2.1.2	Physical: Accessibility	The desk is at a height suitable for wheelchair users (ref.).		0	1	0	0				1	1		1			2} have smaller table for wheelchair users.
2.1.3	Universal: Privacy	The seating has visual barriers, which is easy to see, comfortable and varied with arms.		0	0	0	0				0	0		0		0	
2.1.4	Universal: Privacy	The seating has choice of styles and heights of chairs / settees in lounges		0	0	0	0				0	0		0		0	13} No choices of style (not customised) 10} Same as the one in the room. 3} Only one type of chair
2.1.5	Sensory: Tactile	Lounges have min 3 natural materials to touch from resident chair: wooden surfaces, furnishing fabrics (unless plastic or wipeclean), plants etc		0	0	0	0				0	0		0		0	3} Two materials (leather and wood)
2.1.6	Cognitive: Human Scale	Decor appropriate in lounges (domestic and appropriately scaled for size of area)		1	0	0	0				1	0				0	3} Look like commercial arrangement
2.1.7	Universal: Personalisation	There are appearance of personal furniture (variety of styles/materials, but have to pass fire regulation)		0	0	0	0				0	0		0		0	
2.1.8	Universal: Personalisation	There are an appearance of personalised fittings, colours or photos on doors to private rooms		0	0	0	0				0	0		0		0	
2.1.9	Sensory: Sight	The seating is made of natural material, which help create a warm, and less clinical environment.		1	1	0	1				1	1		1		1	1} Made of fabric. 3} Made of artificial leather and fabric 2} Fabric and wood
		2.2 FIXTURES (RAILINGS AND CANOPY)															
2.2.1	Physical: Health and Safety	There are railings are at the suitable height (1100mm above the floor).		0	0	0	0				0	0		0	1	1	16} metal railings
2.2.2	Sensory: Tactile	There are comfortable handrails to give both physical assistance and a sense of direction/distance.		0	0	0	0				0	0		0	1	1	13} no railing in bedroom.
2.2.3	Universal: Community	There are sheltered canopy at the entrance.		1	1	0	1				0	0		1		0	3} Work as shading devices.
		2.3 TOILET FIXTURES															
2.3.1	Universal: Choice and Control	Choice of bath or shower; domestic or assisted bath												0	0		13} only shower

Ref	Category	Description	Values	Notes
2.3.2	Physical: Health and Safety	There are secure handrails to bath, wc, washbasin	1 1	
2.3.3	Physical: Health and Safety	Ergonomic fittings to baths, washbasins, wcs (eg flush is lever, large and smooth to hold; taps are cross-top or lever)	0	
2.3.4	Physical: Health and Safety	Medical fittings in bathrooms are discreet	0	13) shiny/metal bar handrails.
2.3.5	Physical: Health and Safety	Distance of all toilet fixtures	0	
2.3.6	Physical: Accessibility	The height wash basin is suitable for wheelchair users.	0	
2.3.7	Physical: Accessibility	A wall hung or comfort height toilet. The conventional height of a toilet seat is 38 centimeters. The recommend height for toilet seats for people with disabilities is between 43-48 centimeters (Binggeli, 2016).	1	
2.3.8	Physical: Accessibility	The basin should not be too small (minimum 400mm wide).	1	
2.3.9	Cognitive: Functionality	Toilet is in the style of the traditional shape of a close-coupled cistern for residents to be able to recognise.		
2.3.10	Cognitive: Functionality	Familiar type of taps and faucets		
2.3.11	Cognitive: Functionality	In male restrooms, sinks do not resemble urinals (Tales et al., 2017)		
2.3.12	Cognitive: Functionality	Use of a lever or spatulate flush handle or automatic flush systems (Tales et al., 2017).		
2.3.13	Universal: Choice and Control	Mirrors have be covered.	0 0	
2.3.14	Physical: Independence	There are non-reflective surfaces (Tales et al, 2017)	0 0	13) Metal bar
		2.4 DECOR		
2.4.1	Universal: Personalisation	Appearance of personal items on walls (different styles of pictures, mirrors, photos etc rather than corporate style)	0 0 0 0 0 0 0 0 0	
2.4.2	Cognitive: Orientation	Reality orientation eg board for large print or pictorial display of day, month, weather	0 0 0 0 0 0 0 0 0	
		2.5 SIGNAGE		
2.5.1	Physical: Independence	There is a contrast between the colour and tone of the writing on the sign and the colour and tone of the background of the sign.	0 0 0 1 0 0 1 0 0	
2.5.2	Physical: Independence	There is a contrast between the colour and tone of the background of the sign and the colour and tone of the door/wall.	0 0 0 1 0 0 1 0 0	
2.5.3	Physical: Independence	The bases of all signs offering wayfinding for residents are around 1.2 metres from the ground.	1 0 0 1 ? 0 0 0	
		PART 3: ARCHITECTURAL SURFACES AND FINSIHES		
		3.1 FLOORING		
3.1.1	Physical: Health and Safety	The space uses carpet to reduce risk of slipping in wet weather (DSDC, 2013). Non-slip floor (carpet or grained floor)	1 0 0 0 0 0 0 0 0	10) use stone (terracotta - reduce slipping) 2) red carpet at the entrance
3.1.2	Physical: Health and Safety	The floor is not dark in colour such as black.	1 1 0 1 1 0 1 1 1	13) light colour wood 3) Brown as wood 2) use material as stone.
3.1.3	Physical: Health and Safety	The floor is the same 'tone' throughout the entrance hall.	0 1 1	2) Red abd beige
3.1.4	Physical: Health and Safety	The entrance zone barrier matting is similar in appearance to adjacent floor finishes.	0 0 1	
3.1.5	Cognitive: Quality of Stimulation	There are no elaborate patterns on the floor, which may be seen to be moving.	1 0 1 0 0 1	3) Dark wood pattern
3.1.6	Cognitive: Quality of Stimulation	There are no speckled, sparkly, or reflective materials (for both flooring and walls) as this may be seen as litter or dirt, or as if it is moving.	0 0 1 0 0 1	
3.1.7	Cognitive: Quality of Stimulation	There are swirls, vertical strips, and complicated patterns in fabrics, which may be misinterpreted.	0 0 1 0 0 1	3) Normal wood pattern - not sure if it causes swirl effect.

ID	Category	Description	Values	Notes
3.1.8	Sensory: Sight	The floor looks like real wooden oak floor planks and is easy to clean.	0 1 ... 1 ... 0 0 1 0 ... 0	13} laminate? 14} Same tone with the bedroom floor 10} Stone-like 3} stone and easy to clean.
3.2 WALL				
3.2.1	Physical: Health and Safety	The wall is the same 'tone' throughout.	0 1 ... 1 ... 0 0 1 1	13} white 14} Have green tile at the kitchen area {horizontal pattern} 3} different materials and pattern
3.2.2	Physical: Health and Safety	Entrance zone barrier matting similar in appearance to adjacent floor finishes.	0 ... 0 ...	
3.2.3	Cognitive: Quality of Stimulation	There are no elaborate patterns on the floor, which may be seen to be moving.	0 1 ... 1 ... 0 0 1 1	10} Green pattern 3} Wood pattern
3.2.4	Cognitive: Quality of Stimulation	There are no speckled, sparkly, or reflective materials (for both flooring and walls) as this may be seen as litter or dirt, or as if it is moving.	0 0 ... 1 ... 0 0 1 1	11} There is some glare 3} Hard to notice what's on the floor. The wooden wall has two mirrors to expand the size of the room.
3.3 CEILING				
3.3.1	Sensory: Sight	A high ceiling with visible rafters (to the aesthetic quality of the space)	1 1 0 ... 1 ... 0 0 0 0	3} Wood rafter 2} very high ceiling e.g. 6 m
3.3.2	Cognitive: Quality of Stimulation	Consideration of acoustic absorbtion treatment to ensure acoustic comfort (DWELL, 2015). High acoustic absorbency, in order to reduce echoes for the benefit of those with hearing impairments (ref.).	0 0 0 ... 0 ... 0 0 0 0	13} no acoustic
3.3.3	Cognitive: Quality of Stimulation	There are no elaborate patterns on the floor, which may be seen to be moving.	0 0 0 ... 0 ... 0 0 1 1	3} Wood rafter pattern
3.4 COLOUR CONTRAST				
3.4.1	Physical: Independence	Columns, handrails, doors, light switches, and other key elements are highlighted. (Emphasis corners of wall)	0 0 ... 0 0 ... 0 0 0 1 ... 0	13} They are all white. 14} Silver handrail 3} Wall and columns are the same material which are light oak. 2} same oak colour throughout.
3.4.2	Physical: Independence	Good colour contrast. Measure by Light Reflectance Value (LRV). If something does not contrast sufficiently, then it is invisible; Avoid black mat on the floor which the brain 'sees' as a black hole	Take photos (all columns)	
3.4.3	Physical: Independence	Different hues, with same LRVs and saturation	0 ? ? ... ? ... 0 0 0 ... 0	13} Different texture of wood 14} almost same hue
PART 4: BUILDING SYSTEMS AND TECHNOLOGIES				
4.1 LIGHTING (ARTIFICIAL AND SUNLIGHT?)				
4.1.1	Visual: Sight	Adequate natural light: minimum average daylight factor 2	1 1 0 ... 1 ... 1 1 1 0 ... 1	13} Access to natural light {one side of the wall} 3} Only natural light are used during the daytime (almost raining). 2} access to skylight
4.1.2	Visual: Sight	Lounges have sunlight: window facing between 45° and 315°	? 0 0 ... 1 ...	
4.1.3	Physical: Accessibility	Lighting level satisfactory (ample and no glare)	1 1 1 ... 0 1 ... 1	13} Dark in the evening. But no glare. 3} No glare 2} no glare
4.1.4	Universal: Choice and Control	Resident control of lighting, other than main switch by door (zero if shared)	0 0 0 ... 1 ... 1 1 1 1	
4.1.5	Physical: Independence	The entrance hall is well lit. Appropriated and consistent lighting with no glare	1 ... 1 ... 0	
4.1.6	Universal: Choice and Control	The light can be controlled at night to limit the access.	0 ... 1 ... 0 0 0	
4.1.7	Sensory: Sight	There is downlighting for welcoming mood and tone)	1 1 1 ... 1 ... 1 0	13} only one downlighting at the centre of the room. 3} May be the chandelier. (Mostly the resort uses natural material and different kinds of volume. 6} at the kitchen area
4.1.8	Sensory: Sight	Snoezelen (multi-sensory room with lights, sounds, tactile experiences, soft surfaces)	0 0 0 ... 0 ... 0 0 0 0	
4.1.9	Physical: Health and Safety	Adequate street lighting	0 0 0 ... 0 ... 0 0 ... 1	
4.2 NOISING AND HEARING				
4.2.1	Universal: Privacy	Acoustic privacy in lounge eg sound absorbent surfaces. Use acoustic ceiling and wall panels - Sound / noise absorbance by soft surfaces or acoustics panels	0 0 0 ... 0 ... 0 0 0 0 ... 0	13} No sound absorbance, but because there are no building nearby.
4.2.2	Cognitive: Quality of Stimulation	Ensuring that rooms are small and quiet (less reverberation). Noise level, not exceed	0 0 0 ... 1 ... 1 1 1 0 ... 0	10} Sound when the door bangs? 3} Can hear sound from the kitchen (e.g. washing dishes).
4.2.3	Cognitive: Quality of Stimulation	Muffling sound of water moving inside pipes by placing them on less acoustically critical wall, and wrapping and resiliently mounting them (Binggeli, 2016)	0 0 0 ... 0 ... 0 0 0 0 ... 0	
4.2.4	Sensory: Hearing	Use masking sounds such as music, fan noises or recirculating fountains (Binggeli, 2016)	1 1 1 ... 1 ... 0 0 1 1 ... 0	13} Fan and aircon noise 14} Fan noise 3} Background music 2} but still hear the construction sound
4.3 AIR QUALITY				

#	Category	Description	R1	R2	R3	R4	R5	R6			R7	R8		R9	R10		R11	Notes
4.3.1	Sensory: Tactile	Observed air movement and ventilation		1	1	1		1			Quite humid	Quite humid		1	1		1	13) Good flow of ventilation (two choices - fan and air con) 3) Air con and fans (to blow insects)
4.3.2	Sensory: Odour	Means of removing smell (extractor or window) in all wcs and bathrooms with wcs		1	0	0		0			0	0		1	1		0	13) Air/Fan
4.3.3	Sensory: Odour	Scented air sprays (Greed, 2003), or aroma oil		0	0	0		0			0	0		0	0		0	
		4.4 TEMPERATURE																
4.4.1	Sensory: Tactile	Temperature satisfactory		1	1	1		0			1	1		1	1		0	13) Room temperature if turn on the fan.
4.4.2	Sensory: Tactile	Variation in temperature within the room		0	0	0		0			0	0		0	0		0	Fan and air con
4.4.3	Sensory: Tactile	The space has mechanical ventilation systems such as air conditional systems or heaters.		1	1	1		1			0	1		1	1		0	13) No heater 2) fans 6) fans
4.4.4	Sensory: Tactile	Good humidity level.		1	?	1		?			Measure	Measure		Measure	Measure		?	
		4.5 BUILDING TECHNOLOGIES AND SYSTEMS																
4.5.1	Physical: Health and Safety	There are fire safety alarms and smoke detectors.		0	0	0		0			0	0		0	0		0	13) Used to have 3) No fire alarm
4.5.2	Physical: Health and Safety	Emergency call point		0	0	0		0			0	0		0	0		0	
4.5.3	Physical: Health and Safety	The entrance hall a security camera and CCTV to provide reassurance to staff and visitors that the area is being monitored.		1	0	0		0			0	0		■	0		0	
4.5.4	Universal: Privacy	No monitoring eg by glazed panel, spyhole, CCTV in private areas		0	0	0		0			0	0		0	0		0	
4.5.5	Physical: Health and Safety	The entrance has an entry system alert by assistive technologies		0	■	■		0			0	0		0	0		0	
4.5.6	Physical: Health and Safety	Falls will be detected by a smart floor system (vinyl floor with underfloor sensors), of which the technical supplies are designed out of sight to keep the apartment free of excessive visual stimuli.		0	0	0		0			0	0		0	0		0	
		PART 5: LANDSCAPE AND NATURAL ELEMENTS																
5.1.1	Cognitive: Connection to Outside	The space is accessible to view of natural landscape or garden.		1	1	1		1			1	1		1	0		1	
5.1.2	Universal: Continuity of Lifestyle	There are spaces for gardening.		0	0	0		0			0	0		0	0		1	
5.1.3	Physical: Health and Safety	There are outdoor seatings for vitamin D and sunlight.		0	1	0		0			0	0		0	0		1	
5.1.4	Sensory: Sight	There are natural environment indoor.		1	0	0		0			0	0		0	0		0	
5.1.5	Sensory: Audio	Listening to the birds and music outdoors.		0	0	0		0			1	0		1	0		1	
5.1.6	Sensory: Audio	There are water features.		0	1	0		0			0	0		0	0		1	
5.1.7	Sensory: Sight	Planting emphasises seasonal variation rather than evergreen scheme the same all year round		0	1	0		0			0	0		0	0		?	3) But not evergreen
5.1.8	Sensory: Sight	Outside spaces domestic rather than the corporate landscaping found round hotels and offices		0	0	0					Resort-like	Resort-like palm tree		0	0		?	13) Natural rather than domestic arrangement 3) Not domestic, but more natural and tropical. 2) plus natural landscape beyond the site boundary.
5.1.9	Sensory: Sight	The space is designed in organic form (?) - against authoritative form?		0	0	0		0			0	0		0	0		1	
5.1.10	Sensory: Odour	Odour of flowers and plants		0	0	0		0			0	0		0	0		1	
5.1.11	Sensory: Tactile	The space is pet-friendly (what do you mean by that?).		0	0	0		0			0	0		0	0		0	

ID	Category	Description	Values	Notes
3.1.8	Sensory: Sight	The floor looks like real wooden oak floor planks and is easy to clean.	0 1 1 ... 0 0 1 0 ... 0	13} laminate? 14} Same tone with the bedroom floor 10} Stone-like 3} stone and easy to clean.
		3.2 WALL		
3.2.1	Physical: Health and Safety	The wall is the same 'tone' throughout.	0 1 ... 0 0 1 1	13} white 14} Have green tile at the kitchen area (horizontal pattern) 3} different materials and pattern
3.2.2	Physical: Health and Safety	Entrance zone barrier matting similar in appearance to adjacent floor finishes.	0 0	
3.2.3	Cognitive: Quality of Stimulation	There are no elaborate patterns on the floor, which may be seen to be moving.	0 1 1 ... 0 0 1 1	10} Green pattern 3} Wood pattern
3.2.4	Cognitive: Quality of Stimulation	There are no speckled, sparkly, or reflective materials (for both flooring and walls) as this may be seen as litter or dirt, or as if it is moving.	0 0 1 ... 0 0 1 1	11} There is some glare 3} Hard to notice what's on the floor. The wooden wall has two mirrors to expand the size of the room.
		3.3 CEILING		
3.3.1	Sensory: Sight	A high ceiling with visible rafters (to the aesthetic quality of the space)	1 1 0 1 ... 0 0 0 0	3} Wood rafter 2} very high ceiling e.g. 6 m
3.3.2	Cognitive: Quality of Stimulation	Consideration of acoustic absorbtion treatment to ensure acoustic comfort (DWELL, 2015). High acoustic absorbency, in order to reduce echoes for the benefit of those with hearing impairments (ref.).	0 0 0 0 ... 0 0 0 0	13} no acoustic
3.3.3	Cognitive: Quality of Stimulation	There are no elaborate patterns on the floor, which may be seen to be moving.	0 0 0 0 ... 0 0 1 1	3} Wood rafter pattern
		3.4 COLOUR CONTRAST		
3.4.1	Physical: Independence	Columns, handrails, doors, light switches, and other key elements are highlighted. (Emphasis corners of wall)	0 0 ... 0 ... 0 0 ... 0 1 0	13} They are all white. 14} Silver handrail 3} Wall and columns are the same material which are light oak. 2} same oak colour throughout.
3.4.2	Physical: Independence	Good colour contrast. Measure by Light Reflectance Value (LRV). If something does not contrast sufficiently, then it is invisible; Avoid black mat on the floor which the brain 'sees' as a black hole	Take photos (all columns)	
3.4.3	Physical: Independence	Different hues, with same LRVs and saturation	0 ? ? ... ? ... 0 0 ... 0 0	13} Different texture of wood 14} almost same hue
		PART 4: BUILDING SYSTEMS AND TECHNOLOGIES		
		4.1 LIGHTING (ARTIFICIAL AND SUNLIGHT?)		
4.1.1	Visual: Sight	Adequate natural light: minimum average daylight factor 2	1 1 0 1 ... 1 1 ... 1 0 1	13} Access to natural light (one side of the wall) 3} Only natural light are used during the daytime (almost raining). 2} access to skylight
4.1.2	Visual: Sight	Lounges have sunlight: window facing between 45º and 315º	? 0 0 1	
4.1.3	Physical: Accessibility	Lighting level satisfactory (ample and no glare)	1 1 1 1 ... 0 1 1	13} Dark in the evening. But no glare. 3} No glare 2} no glare
4.1.4	Universal: Choice and Control	Resident control of lighting, other than main switch by door (zero if shared)	0 0 0 1 ... 1 1 1 1	
4.1.5	Physical: Independence	The entrance hall is well lit. Appropriated and consistent lighting with no glare	1 ... 1 ... 0	
4.1.6	Universal: Choice and Control	The light can be controlled at night to limit the access.	0 ... 1 ... 0 0 0	
4.1.7	Sensory: Sight	There is downlighting for welcoming mood and tone)	1 1 1 1 ... 1 0	13} only one downlighting at the centre of the room. 3} May be the chandelier. (Mostly the resort uses natural material and different kinds of volume. 6} at the kitchen area
4.1.8	Sensory: Sight	Snoezelen (multi-sensory room with lights, sounds, tactile experiences, soft surfaces)	0 0 0 ... 0 0 0 0	
4.1.9	Physical: Health and Safety	Adequate street lighting	0 0 0 0 ... 0 0 ... 1	
		4.2 NOISING AND HEARING		
4.2.1	Universal: Privacy	Acoustic privacy in lounge eg sound absorbent surfaces. Use acoustic ceiling and wall panels - Sound / noise absorbance by soft surfaces or acoustics panels	0 0 0 0 ... 0 0 0 0 0	13} No sound absorbance, but because there are no building nearby.
4.2.2	Cognitive: Quality of Stimulation	Ensuring that rooms are small and quiet (less reverberation). Noise level, not exceed	0 0 0 1 ... 1 1 1 0 0	10} Sound when the door bangs? 3} Can hear sound from the kitchen (e.g. washing dishes).
4.2.3	Cognitive: Quality of Stimulation	Muffling sound of water moving inside pipes by placing them on less acoustically critical wall, and wrapping and resiliently mounting them (Binggeli, 2016).	0 0 0 0 ... 0 0 0 0	
4.2.4	Sensory: Hearing	Use masking sounds such as music, fan noises or recirculating fountains (Binggeli, 2016)	1 1 1 ... 0 0 1 1 0	13} Fan and aircon noise 14} Fan noise 3} Background music 2} but still hear the construction sound
		4.3 AIR QUALITY		

No.	Category	Description	Notes
2.3.2	Physical: Health and Safety	There are secure handrails to bath, wc, washbasin	
2.3.3	Physical: Health and Safety	Ergonomic fittings to baths, washbasins, wcs (eg flush is lever, large and smooth to hold; taps are cross-top or lever)	
2.3.4	Physical: Health and Safety	Medical fittings in bathrooms are discreet	13} shiny/metal bar handrails.
2.3.5	Physical: Health and Safety	Distance of all toilet fixtures	
2.3.6	Physical: Accessibility	The height wash basin is suitable for wheelchair users.	
2.3.7	Physical: Accessibility	A wall hung or comfort height toilet. The conventional height of a toilet seat is 38 centimeters. The recommend height for toilet seats for people with disabilities is between 43-48 centimeters (Binggeli, 2016).	
2.3.8	Physical: Accessibility	The basin should not be too small (minimum 400mm wide).	
2.3.9	Cognitive: Functionality	Toilet is in the style of the traditional shape of a close-coupled cistern for residents to be able to recognise.	
2.3.10	Cognitive: Functionality	Familiar type of taps and faucets	
2.3.11	Cognitive: Functionality	In male restrooms, sinks do not resemble urinals (Tales et al., 2017)	
2.3.12	Cognitive: Functionality	Use of a lever or spatulate flush handle or automatic flush systems (Tales et al., 2017).	
2.3.13	Universal: Choice and Control	Mirrors have be covered.	
2.3.14	Physical: Independence	There are non-reflective surfaces (Tales et al., 2017)	13} Metal bar
		2.4 DECOR	
2.4.1	Universal: Personalisation	Appearance of personal items on walls (different styles of pictures, mirrors, photos etc rather than corporate style)	
2.4.2	Cognitive: Orientation	Reality orientation eg board for large print or pictorial display of day, month, weather	
		2.5 SIGNAGE	
2.5.1	Physical: Independence	There is a contrast between the colour and tone of the writing on the sign and the colour and tone of the background of the sign.	
2.5.2	Physical: Independence	There is a contrast between the colour and tone of the background of the sign and the colour and tone of the door/wall.	
2.5.3	Physical: Independence	The bases of all signs offering wayfinding for residents are around 1.2 metres from the ground.	
		PART 3: ARCHITECTURAL SURFACES AND FINSIHES	
		3.1 FLOORING	
3.1.1	Physical: Health and Safety	The space uses carpet to reduce risk of slipping in wet weather (DSDC, 2013). Non-slip floor (carpet or grained floor)	10} use stone (terracotta - reduce slipping) 2} red carpet at the entrance
3.1.2	Physical: Health and Safety	The floor is not dark in colour such as black.	13} light colour wood 3} Brown as wood 2} use material as stone.
3.1.3	Physical: Health and Safety	The floor is the same 'tone' throughout the entrance hall.	2} Red abd beige
3.1.4	Physical: Health and Safety	The entrance zone barrier matting is similar in appearance to adjacent floor finishes.	
3.1.5	Cognitive: Quality of Stimulation	There are no elaborate patterns on the floor, which may be seen to be moving.	3} Dark wood pattern
3.1.6	Cognitive: Quality of Stimulation	There are no speckled, sparkly, or reflective materials (for both flooring and walls) as this may be seen as litter or dirt, or as if it is moving.	
3.1.7	Cognitive: Quality of Stimulation	There are swirls, vertical strips, and complicated patterns in fabrics, which may be misinterpreted.	3} Normal wood pattern - not sure if it causes swirl effect.

ID	Category	Description														Notes
1.3.4	Physical: Health and Safety	Good' access for residents with physical or mobility problems including wheelchair users.	1	1	1					0	0		1	1		
1.3.5	Physical: Accessibility	Doors open against the wall into the various rooms providing clues to a particular room's function, by giving an immediate view of the room and its content.	0	0	1					0	0		1	1		
1.3.6	Physical: Accessibility	The minimum doorway width is 0.8m	1	1	1					0	0		1			13} Door width is 0.9 m.
1.3.7	Physical: Functionality	Height of door handles	0	0	0					0	0		1			13} 1.03 m from the floor.
1.3.8	Physical: Accessibility	Opening – The entrance hall allows good levels of daylighting to communal spaces (DWELL, 2016) for time orientation.	1		0					0	0					
1.3.9	Physical: Accessibility	Double height entrance foyer with a balcony maximises the distribution of natural light into the public areas of the building (approximately 2.6 m).	1							1	0					2} also use downlighting to create ambience.
		1.4 WINDOWS														
1.4.1	Universal: Privacy	Windows are located horizontally above eye level for privacy.	0	0	0	0				0	0			0		14} eye level but blurred
1.4.2	Universal: Privacy	Wundows are double-glazed for noise privacy.	0	0	0	0				0	0		0	0		13} 2 layers for mosquitos net and glass
1.4.3	Physical: Health and Safety	The entrance hall has optimised openings to allow (cross) ventilation, because it is responsible for the 'quality' of the air the occupants breathe (against security fear had prevented from openings to improve cross	1			0				1	0					
1.4.4	Physical: Health and Safety	The entrance hall has optimised openings for appropriated temperature and humidity.	1			0										
1.4.5	Physical: Health and Safety	Any window has security against intrusion / falling	0	1	0	1				1	1		1	1		13} 0.87 m from the floor. 3} door/window at the same time.
1.4.6	Physical: Health and Safety	Maximum windowsill height 600mm	0	0	0	1				1	1		1	1		13} 0.87 m from the floor.
		1.5 STEPS AND LEVELS + (SECTIONS)														
1.5.1	Physical: Accessibility	Ramps 1:20	1	0	0	0								1		
		PART 2: FURNITURE, FIXTURES, AND DECOR														
		2.1 FURNITURE														
2.1.1	Universal: Privacy	The entrance hall has a rounded reception desk helps to create a welcoming effect.	0			0								0		
2.1.2	Physical: Accessibility	The desk is at a height suitable for wheelchair users (ref.).	0	1	0	0				1	1		1			2} have smaller table for wheelchair users.
2.1.3	Universal: Privacy	The seating has visual barriers, which is easy to see, comfortable and varied with arms.	0	0	0	0				0	0		0		0	
2.1.4	Universal: Privacy	The seating has choice of styles and heights of chairs / settees in lounges	0	0	0	0				0	0		0		0	13} No choices of style (not customised) 10} Same as the one in the room. 3} Only one type of chair
2.1.5	Sensory: Tactile	Lounges have min 3 natural materials to touch from resident chair: wooden surfaces, furnishing fabrics (unless plastic or wipeclean), plants etc	0	0	0	0				0	0		0		0	3} Two materials (leather and wood)
2.1.6	Cognitive: Human Scale	Decor appropriate in lounges (domestic and appropriately scaled for size of area)	1	0	0	0				1	0				0	3} Look like commercial arrangement
2.1.7	Universal: Personalisation	There are appearance of personal furniture (variety of styles/materials, but have to pass fire regulation)	0	0	0	0				0	0		0		0	
2.1.8	Universal: Personalisation	There are an appearance of personalised fittings, colours or photos on doors to private rooms	0	0	0	0				0	0		0		0	
2.1.9	Sensory: Sight	The seating is made of natural material, which help create a warm, and less clinical environment.	1	1	0	1				1	1		1		1	1} Made of fabric. 3} Made of artificial leather and fabric 2} Fabric and wood
		2.2 FIXTURES (RAILINGS AND CANOPY)														
2.2.1	Physical: Health and Safety	There are railings are at the suitable height (1100mm above the floor).	0	0	0	1				0	0		0	1	1	16} metal railings
2.2.2	Sensory: Tactile	There are comfortable handrails to give both physical assistance and a sense of direction/dstance.	0	0	0	1				0	0		0	1	1	13} no railing in bedroom.
2.2.3	Universal: Community	There are sheltered canopy at the entrance.	1	1	0	1				0	0		1		0	3} Work as shading devices.
		2.3 TOILET FIXTURES														
2.3.1	Universal: Choice and Control	Choice of bath or shower; domestic or assisted bath				1							0	0		13} only shower

ID	Category	Description						No vertical circulation										Notes
1.1.16	Physical: Accessibility	The corridor should not longer than 15 m from dayroom.					1					1	1		0		0	13} Depends
1.1.17	Physical: Accessibility	There is an adequate space for transfer from wheelchair or hoist, especially when two carers are required.	0	0	0		0				0	0		0		0	13} No hoist 3} There is no hoist at the dining area.
1.1.18	Physical: Accessibility	The clusters layout are arrayed in a back to back manner which allows easy access from a shared elevator and staircase.					1							1			13} Shared kitchen
1.1.19	Cognitive: Orientation	There is a loop route within living unit for wandering.					1							1		1	13} circular loop within the pavilion.
1.1.20	Cognitive: Normalness	The therapeutic kitchen or living area is located at the centre of the cluster. Domestic layout: similar to house (dayrooms on lower floor, bedrooms above) or domestic building divided into flats.									0	1		1			13} but not at the centre. 10} At the side (not at the centre), but they are seemed not used regularly.
1.1.21	Cognitive: Normalness	There are positive risk-taking activities.	?	?	?		?				1	?		0		1	13} How? 10} Yes?
1.1.22	Cognitive: Human Scale	Appropriate cluster size. Small houses are home to 6-12 residents. small-scale facilities that are homelike often leads to an architectural template or typology for a dwelling occupied by six to eight people.									0	1		1			13} 12 rooms
1.1.23	Cognitive: Human Scale	The space is double height or high ceiling (approximately 2.6 m) at the public and entrance areas. The entrance hall has double height spaces with skylight to create good atmosphere. Human scale (floor to ceiling height).	1 (or higher)	0	1		1				1	1		1			13} High ceiling (2.5 m and 3.1 m) 10} Triple height spaces (2 floors houses) but consist only 1 floor usage). Kitchen is 2.5 m in height. 3} The height is about 3 m in height with rafter (quite grand and luxury). 4} Double height ceiling - about 2.5 m 11} Double height ceiling (2.5 m)
1.1.24	Cognitive: Facilitation to social contact	The furniture layout incorporates fittings and furniture that will encourage staff and patient interactions. There should be a variety of soft seats, many with high backs and the occasional two seater - a choice.	?	0	0		0				1	1		0		0	13} Simple hotel/resort layout 3} Depends on the residents - some carers sit that the back (baby seats and wait for the residents and keep distance (Asian residents).
1.1.25	Cognitive: Facilitation to social contact	The entrance hall has magazines shelves or small libraries next to the seating area (activities in the middle).	1				0									0	
1.1.26	Cognitive: Connection to outside world	The space has a direct connection to vista and scenery (natural environment).	0	1	0		1				1	1		1		1	13} Some trees but not garden. 10} Access to some trees. 3} Have flexible area which connect to the outdoor spaces (however, it allows insects to come in e.g. flies) 2} The seatings are not direct.
1.1.27	Cognitive: Connection to outside world	The space has a balcony or portico extending to the outdoor environment.	0	1	0		0				0	0		0		0	13} No
1.1.28	Staff Facilities	The nurse station is at the centre such as communal kitchen area.	0	0	0		1				0	0		0		0	13} Kitchen but not nurse station.
1.1.29	Staff Facilities	There are storage spaces with the same material or colours of the wall.	0	0	0		0				0	0		0		0	10} storage are made of wood material. 3} Storage is made of wood but for storing plates. 4} The storage is in glass material to allow seeing stuffs inside.
		1.2 WAYFINDING																
1.2.1	Cognitive: Orientation	There is recognisable wc visible from dayroom threshold. Ensuite wc visible from bed (score ½ for commode)	1	0	1		0				0	0			0		0	14} Cannot see restrooms from bed.
1.2.2	Sensory: Sight	There is extensive use of glass to show what is behind the doors and walls to increase visibility.	0	1	1		0				0	0			0		0	11} No wall and doors
1.2.3	Cognitive: Functionality	The spaces are recognisable by function (and objects?)	0	1	1		1				1	1		1	1		0	
1.2.4	Sensory: Sight	There are landmark objects such as memorabilia to aid wayfinding. (home-like design features). The space presents clear signage and landmarks as environmental cues.	0	0	0		0				0	0		0	0		0	13} Only room numbers 2} There are visual landmark as horse logo infront of restaurant door.
1.2.5	Cognitive: Orientation	The space uses colour or theme for assisting wayfinding (HousingLIN) - Colour coding within living unit to aid recognition of wcs, bathrooms etc	1	0	0		0				0	0		1	0		0	13} Colour coding at each pavilion 2} theme for decorating
1.2.6	Cognitive: Orientation	There are no two dayrooms with identical building form within living unit (score ½ if identical form but distinct décor)	1	0	0		1				0	0		0	0		0	13} Pavillions are similar as well as the room
1.2.7	Cognitive: Orientation	Doorframe is coloured (ref.) to navigate the residents.	0	1	0		0				0	0		0	0		0	10} No door 3} Door frame as woodedn which arein different colour.
1.2.8	Cognitive: Orientation	The space intentionally has brighter lighting at corners and transitions	0	0	1		1				1	1	0	0	0		0	10} More lighting because at the corridor there is no light 3} Use only natural light
1.2.9	Sensory: Tactile	VIPs have difficulty locating, identifying and approaching the entrances to public toilets as no specially adapted information is provided (e.g. tactile or audio) to indicate the right direction or location (plain and line levels)	0	0	0		0				0	0		0	0		0	
1.2.10	Sensory: Odour	Odour as sensory cues (fragrance and marketing strategies)	0	0	0		0				0	0		0	0		0	3} No odours from the kitchen.
		1.3 DOORS																
1.3.1	Universal: Privacy	Sliding doors are chosen because they provide better access to people in wheelchairs, and they can also be shut and opened to some extent to control visual access and privacy. (connected to the living room) (Van Hoof, 2013)	0	0	0		0				0	0		0	1			13} normal doors 14} But opposite to the main bedrooms' door.
1.3.2	Universal: Choice and Control	The door is lockable from inside	0	0	0						0	0		1	0			
1.3.3	Physical: Health and Safety	The entrance door is closed at nighttime for safety reasons (controllable).	0	0	0		0				0	0						

Design Checklist of an Enabling Environment for Dementia Care

Scores

Task	Domains	Architectural Design Items	1) Site Planning?	2) Main Entrance	3) Cafe / Restaurant	4) Commercial Area	5) Public Toilet	6) pavilions to pavilions or living spaces	7) Vertical Circulation	8) Quiet Space (7)	Activity Area	9) Activity Area (e.g. swimming)	10) Kitchen (at the pavilion)	11) dining activities happen at the	12) Living Area? (Common area?)	13) Bedroom	14) En Suite	15) Staff facilities	16) Exterior Space	Comment and Response
		PART 1: LAYOUT AND SPATIAL QUALITIES																		
		1.1 GENERAL LAYOUT																		
1.1.1	Universal · Privacy	There is no open floor plan arrangement. Spaces can be broken up using moveable dividers. Screens and semi-private spaces within (by permeable materials).	0	0	1		0		No vertical circulation				1	1	1	1			0	13} The bedroom is not open floor plan arrangement - more like an L shape (bedroom floor plan as attached) 10} Kitchen Isalnd at the centre 2} The space is not that large for dividing into smaller spaces.
1.1.2	Universal · Privacy	Distance between seating is relaxing place for visitors to wait. There are spaces for private conversation (Van Hoof, 2013) and quiet space (intervals) within public spaces.		1	1	0		1	No vertical circulation				0	1	1	1			0	10} No proper seating area for eating. 6} At the entrance of the pavilion area
1.1.3	Universal · Privacy	There are small and intimate spaces and niches within the public area where individuals and families can gather in relative privacy.		1	1	0		1	No vertical circulation				1	0	1	0			0	3} Seatings are set up in configuration of 2,3, and 4. 10} There is small table at the centre of kitchen space (suitable for 6 people). 11} Only one table for six people 6} At the entrance of the pavilion area.
1.1.3	Universal · Privacy	There is no shared bedrooms. (on one's own, the wish for privacy, and having personal belongings around oneself)							No vertical circulation							1				13} No shared bedroom. The smaller bedroom in the pavilion type is ensuite. Not sure if I can access to see the exact bedrooms. But, the existing storage does not shows that they are enough storage for medical or personal belongings if someone needs to stay as long-stay. (3 cupboards, 1 TV...
1.1.4	Universal · Privacy	There is a generous space of bedrooms. Residents with larger apartments may have better opportunities to have visitors when they want (Van Hoof, 2013)							No vertical circulation							0				13} what is the generous size? Residents in normal size room have a set of table and 2 chairs. Not enough space if their family come.
1.1.6	Universal · Privacy	Restrooms with multiple water closets must have toilets stalls made of impervious materials with minimum clearance dimensions and privacy locks (Binggeli, 2016).							No vertical circulation							0				13} No privacy lock (toilet).
1.1.7	Universal · Privacy	There are no private rooms on public routes (routes from entrances used by people accessing offices, meeting rooms or delivery points)							No vertical circulation							0				13} Private rooms opposite to the public routes. 10} At the pavilion, there is one private room which is at the middle of the pavilion - might be a nurseroom.
1.1.8	Universal · Privacy	There are no door to door bedrooms (cannot see others' rooms and bathrooms) along the double-loaded corridor.							No vertical circulation							0				13} Bedrooms are door to door but as cluster type.
1.1.9	Universal · Privacy	There are transitional spaces (semi-private area/ambiguous transition) before bedrooms and circulation spaces.							No vertical circulation							0				13} No transition
1.1.20	Universal · Personalisation	There are spaces for all residents to store own wheelchairs and for personal items near dayroom and public spaces.	0	0	0	0	0		No vertical circulation				0	0	0					10} No proper spaces
1.1.10	Universal · Personalisation	There are adequate dressing/closet spaces, display space, and storage for personal items and professional equipment should be provided.							No vertical circulation							0				13} Dressing/closet spaces are made of wood/particle board (cannot see through what's inside. Also, it is next to the main door - ambiguous of public and private spaces).
1.1.12	Universal · Choice and Control	There are choice of locations for daytime activities, excluding dedicated dining rooms (available of pocket spaces in nearby area)	1 (Tour)	1	0		0		No vertical circulation						0				1	12} no proper activities
1.1.13	Universal · Choice and Control	There are free and easy access to outside world which is a safe outdoor space in order for people to choose to go out when they want to (DSDC, 2013).	?	1	0			1	No vertical circulation						1	0			1	13} The bedroom is not directly connected to the outside spaces (but have wide windows). 10} Not from the kitchen area
1.1.14	Universal · Person-centredness	The space represents the symbol of culture (how?) of the residents.		1	1	1		1	No vertical circulation				0	0	1	0			0	3} Menus are in German. Cuisine are Western. 13} Seems to be universal by using wood as the main material. Also, there is an image - Japanese style. 4} Selling breads and Swiss cakes. 6} paintings about Thailand 12} painting thailand
1.1.15	Universal · Person-centredness	The space represents the symbol or aspects of ethnicity of the residents, but also diversity?		1	1	1		0	No vertical circulation				0	0	0	0			0	13} as the main ethnicity is German - cannot identify. 4} German language and signage.
1.1.16	Universal · Person-centredness	The space represents the symbol or aspects of spiritual and religious of the residents - Space where religious observances can take place, eg small lounge	0	0	0			0	No vertical circulation				0	0	0	0			0	
1.1.17	Universal · Person-centredness	The space are gender appropriated (how?) such as separated gender of public toilets.	0	0	0			0	No vertical circulation				0	0	0	0			0	3} Unidentified
1.1.18	Universal · Community	The dimension of entrances can specify that it allow public access and are welcoming to visitors: reception or signposting. Main entrance sheltered from sun and rain		1		1		1	No vertical circulation											4} Very high ceiling structure.
1.1.19	Universal · Community	There are public function spaces which are large enough for all residents from all living units to get together.	0	0	0			0	No vertical circulation				0	0						3} Not enough seating for 72 units? 10} Allow public/families/visitors to gather
1.1.21	Physical Health and Safety	The space has secured and enclosed layout especially garden spaces have safeguards against resident wandering. Route from car park to entrance safe from vehicles entering site or reappearing within car park. On public transport		1				1	No vertical circulation				1	0					1	16} there is a gate next to swimming pool.
1.1.22	Physical Health and Safety	There are emergency access: doors open out, or minimum room width 1.2m to avoid fallen resident becoming trapped	1	0	1			1	No vertical circulation				1	1		0			1	13} Doors are 90 m. (Wooden wall, not fireproof)., 4} no door
1.1.23	Physical Health and Safety	The space is followed infection control? Food distribution route (kitchen or servery to dining) does not cross dirty laundry route (bedroom to sluice or laundry)	1	0	1			1	No vertical circulation				1	1						10} Laundry service is in another route.
1.1.24	Physical Accessibility	There are no grand steps or formal architectural elements such as pillars, solid doors or vestibules to impede ease of access for frail people.	1	0	1			1	No vertical circulation				0	0		0			1	13} Not sure if the wheelchair can turn around. 3} There are steps at the entrance of the cafe (portico side) 2} Two ways of entrance
1.1.25	Physical Accessibility	There is 1.3m turning space for wheelchairs.	1	0	1			1	No vertical circulation				1	0		1			1	13} 1.3 m

ID	Category	Description	A	B	C	D	E	F	G	H	I	Notes
4.3.1	Sensory: Tactile	Observed air movement and ventilation	1	1	1	1	Quite humid	Quite humid	1	1	1	13) Good flow of ventilation (two choices - fan and air con) 3) Air con and fans (to blow insects)
4.3.2	Sensory: Odour	Means of removing smell (extractor or window) in all wcs and bathrooms with wcs	1	0	0	0	0	0	1	1	0	13) Air/Fan
4.3.3	Sensory: Odour	Scented air sprays (Greed, 2003), or aroma oil	0	0	0	0	0	0	0	0	0	
		4.4 TEMPERATURE										
4.4.1	Sensory: Tactile	Temperature satisfactory	1	1	1	0	1	1	1	1	0	13) Room temperature if turn on the fan.
4.4.2	Sensory: Tactile	Variation in temperature within the room	0	0	0	0	0	0	0	0	0	Fan and air con
4.4.3	Sensory: Tactile	The space has mechanical ventilation systems such as air conditional systems or heaters.	1	1	1	1	0	1	1	1	0	13) No heater 2) fans 6) fans
4.4.4	Sensory: Tactile	Good humidity level.	1	?	1	?	Measure	Measure	Measure	Measure	?	
		4.5 BUILDING TECHNOLOGIES AND SYSTEMS										
4.5.1	Physical: Health and Safety	There are fire safety alarms and smoke detectors.	0	0	0	0	0	0	0	0	0	13) Used to have 3) No fire alarm
4.5.2	Physical: Health and Safety	Emergency call point	0	0	0	0	0	0	0	0	0	
4.5.3	Physical: Health and Safety	The entrance hall a security camera and CCTV to provide reassurance to staff and visitors that the area is being monitored.	1	0	0	0	0	0	■	0	0	
4.5.4	Universal: Privacy	No monitoring eg by glazed panel, spyhole, CCTV in private areas	0	0	0	0	0	0	0	0	0	
4.5.5	Physical: Health and Safety	The entrance has an entry system alert by assistive technologies	0	■		0	0	0	0	0	0	
4.5.6	Physical: Health and Safety	Falls will be detected by a smart floor system (vinyl floor with underfloor sensors), of which the technical supplies are designed out of sight to keep the apartment free of excessive visual stimuli.	0	0	0	0	0	0	0	0	0	
		PART 5: LANDSCAPE AND NATURAL ELEMENTS										
5.1.1	Cognitive: Connection to Outside	The space is accessible to view of natural landscape or garden.	1	1	1	1	1	1	1	0	1	
5.1.2	Universal: Continuity of Lifestyle	There are spaces for gardening.	0	0	0	0	0	0	0	0	1	
5.1.3	Physical: Health and Safety	There are outdoor seatings for vitamin D and sunlight.	0	1	0	0	0	0	0	0	1	
5.1.4	Sensory: Sight	There are natural environment indoor.	1	0	0	0	0	0	0	0	0	
5.1.5	Sensory: Audio	Listening to the birds and music outdoors.	0	0	0	0	1	0	1	0	1	
5.1.6	Sensory: Audio	There are water features.	0	1	0	0	0	0	0	0	1	
5.1.7	Sensory: Sight	Planting emphasises seasonal variation rather than evergreen scheme the same all year round	0	1	0	0	0	0	0	0	?	3) But not evergreen
5.1.8	Sensory: Sight	Outside spaces domestic rather than the corporate landscaping found round hotels and offices	0	0	0	0	Resort-like	Resort-like palm tree	0	0	?	13) Natural rather than domestic arrangement 3) Not domestic, but more natural and tropical. 2) plus natural landscape beyond the site boundary.
5.1.9	Sensory: Sight	The space is designed in organic form (?) - against authoritative form?	0	0	0	0	0	0	0	0	1	
5.1.10	Sensory: Odour	Odour of flowers and plants	0	0	0	0	0	0	0	0	1	
5.1.11	Sensory: Tactile	The space is pet-friendly (what do you mean by that?).	0	0	0	0	0	0	0	0	0	

Design Checklist of an Enabling Environment for Dementia Care

Task	Domains	Architectural Design Items	1) Site Planning?	2) Main Entrance	3) Cafe / Restaurant	4) Commercial Area	5) Public Toilet	6) pavilions to pavilions/ or living space	7) Vertical Circulation	8) Quiet Space (7)	Activity Area	9) Activity Area (e.g. swimming)	10) Kitchen (at the pavilion)	dining activities happen at the	12) Living Area? (Common area?)	13) Bedroom	14) En Suite	15) Staff facilities	16) Exterior Space	Comment and Response
		PART 1: LAYOUT AND SPATIAL QUALITIES																		
		1.1 GENERAL LAYOUT																		
1.1.1	Universal · Privacy	There is no open floor plan arrangement. Spaces can be broken up using moveable dividers. Screens and semi-private spaces within (by permeable materials).		0	0	1		0	No vertical circulation				1	1	1	1			0	13} The bedroom is not open floor plan arrangment - more like an L shape (bedroom floor plan as attached) 10} Kitchen Isalnd at the centre 2} The space is not that large for dividing into smaller spaces.
1.1.2	Universal · Privacy	Distance between seating is relaxing place for visitors to wait. There are spaces for private conversation (Van Hoof, 2013) and quiet space (intervals) within public spaces.		1	1	0		1	No vertical circulation				0	1	1	1			0	10} No proper seating area for eating. 6} At the entrance of the pavilion area
1.1.3	Universal · Privacy	There are small and intimate spaces and niches within the public area where individuals and families can gather in relative privacy.		1	1	0		1	No vertical circulation				1	0	1	0			0	3} Seatings are set up in configuration of 2,3, and 4. 10} There is small table at the centre of kitchen space (suitable for 6 people). 11} Only one table for six people 6} At the entrance of the pavilion area.
1.1.3	Universal · Privacy	There is no shared bedrooms. (on one's own, the wish for privacy, and having personal belongings around oneself)							No vertical circulation							1				13} No shared bedroom. The smaller bedroom in the pavilion type is ensuite. Not sure if I can access to see the exact bedrooms. But, the existing storage does not shows that they are enough storage for medical or personal belongings if someone needs to stay as long-stay. (3 cupboards, 1 TV
1.1.4	Universal · Privacy	There is a generous space of bedrooms. Residents with larger apartments may have better opportunities to have visitors when they want (Van Hoof, 2013)							No vertical circulation							0				13} what is the generous size? Residents in normal size room have a set of table and 2 chairs. Not enough space if their family come.
1.1.6	Universal · Privacy	Restrooms with multiple water closets must have toilets stalls made of impervious materials with minimum clearance dimensions and privacy locks (Binggeli, 2016).							No vertical circulation							0				13} No privacy lock (toilet).
1.1.7	Universal · Privacy	There are no private rooms on public routes (routes from entrances used by people accessing offices, meeting rooms or delivery points)							No vertical circulation							0				13} Private rooms opposite to the public routes. 10} At the pavilion, there is one private room which is at the middle of the pavilion - might be a nurseroom.
1.1.8	Universal · Privacy	There are no door to door bedrooms (cannot see others' rooms and bathrooms) along the double-loaded corridor.							No vertical circulation							0				13} Bedrooms are door to door but as cluster type.
1.1.9	Universal · Privacy	There are transitional spaces (semi-private area/ambiguous transition) before bedrooms and circulation spaces.							No vertical circulation							0				13} No transition
1.1.20	Universal · Personalisation	There are spaces for all residents to store own wheelchairs and for personal items near dayroom and public spaces.		0	0	0		0	No vertical circulation				0	0	0					10} No proper spaces
1.1.10	Universal · Personalisation	There are adequate dressing/closet spaces, display space, and storage for personal items and professional equipment should be provided.							No vertical circulation							0				13} Dressing/closet spaces are made of wood/particle board (cannot see through what's inside. Also, it is next to the main door - ambiguous of public and private spaces).
1.1.12	Universal · Choice and Control	There are choice of locations for daytime activities, excluding dedicated dining rooms (available of pocket spaces in nearby area)	1 (Tour)	1	0	0		0	No vertical circulation						0				1	12} no proper activities
1.1.13	Universal · Choice and Control	There are free and easy access to outside world which is a safe outdoor space in order for people to choose to go out when they want to (DSDC, 2013).	?	1	0			1	No vertical circulation						1	0			1	13} The bedroom is not directly connected to the outside spaces (but have wide windows). 10} Not from the kitchen area
1.1.14	Universal · Person-centredness	The space represents the symbol of culture (how?) of the residents.		1	1	1		1	No vertical circulation				0	0	1	0				3} Menus are in German. Cuisine are Western. 13} Seems to be universal by using wood as the main material. Also, there is an image - Japanese style. 4} Selling breads and Swiss cakes. 6} paintings about Thailand 12} painting thailand
1.1.15	Universal · Person-centredness	The space represents the symbol or aspects of ethnicity of the residents, but also diversity?		1	1	1		0	No vertical circulation				0	0	0	0			0	13} as the main ethnicity is German - cannot identify. 4} German language and signage.
1.1.16	Universal · Person-centredness	The space represents the symbol or aspects of spiritual and religious of the residents - Space where religious observances can take place, eg small lounge		0	0	0		0	No vertical circulation				0	0	0	0			0	
1.1.17	Universal · Person-centredness	The space are gender appropriated (how?) such as separated gender of public toilets.		0	0	0		0	No vertical circulation				0	0	0	0			0	3} Unidentified
1.1.18	Universal · Community	The dimension of entrances can specify that it allow public access and are welcoming to visitors: reception or signposting. Main entrance sheltered from sun and rain		1		1		1	No vertical circulation										1	4} Very high ceiling structure.
1.1.19	Universal · Community	There are public function spaces which are large enough for all residents from all living units to get together.		0	0	0		0	No vertical circulation				0	0						3} Not enough seating for 72 units? 10} Allow public/families/visitors to gather
1.1.21	Physical Health and Safety	The space has secured and enclosed layout especially garden spaces have safeguards against resident wandering. Route from car park to entrance safe from vehicles entering site or manoeuvring within car park. On public transport		1				1	No vertical circulation				1	0					1	16} there is a gate next to swimming pool.
1.1.22	Physical Health and Safety	There are emergency access: doors open out, or minimum room width 1.2m to avoid fallen resident becoming trapped		1	0	1		1	No vertical circulation				1	1		0				13} Doors are 90 m. (Wooden wall, not fireproof)., 4} no door
1.1.23	Physical Health and Safety	The space is followed infection control? Food distribution route (kitchen or servery to dining) does not cross dirty laundry route (bedroom to sluice or laundry)		1	1	1		1	No vertical circulation				1	1						10} Laundry service is in another route.
1.1.24	Physical · Accessibility	There are no grand steps or formal architectural elements such as pillars, solid doors or vestibules to impede ease of access for frail people.		1	0	1		0	No vertical circulation				0	0		0				13} Not sure if the wheelchair can turn around. 3} There are steps at the entrance of the cafe (portico side) 2} Two ways of entrance
1.1.25	Physical · Accessibility	There is 1.3m turning space for wheelchairs.		1	0	1		1	No vertical circulation				1	0		1			1	13} 1.3 m

Ref	Category	Description	Scores	Notes
1.3.4	Physical: Health and Safety	Good' access for residents with physical or mobility problems including wheelchair users.	1 1 1 … 0 0 … 1 1	
1.3.5	Physical: Accessibility	Doors open against the wall into the various rooms providing clues to a particular room's function, by giving an immediate view of the room and its content.	0 0 1 … 0 0 … 1 1	
1.3.6	Physical: Accessibility	The minimum doorway width is 0.8m.	1 1 1 … 0 0 … 1	13} Door width is 0.9 m.
1.3.7	Physical: Functionality	Height of door handles	0 0 0 … 0 0	13} 1.03 m from the floor.
1.3.8	Physical: Accessibility	Opening - The entrance hall allows good levels of daylighting to communal spaces (DWELL, 2016) for time orientation.	1 … 0 … 0 0	
1.3.9	Physical: Accessibility	Double height entrance foyer with a balcony maximises the distribution of natural light into the public areas of the building (approximately 2.6 m).	1 … 1 0	2} also use downlighting to create ambience.

1.4 WINDOWS

Ref	Category	Description	Scores	Notes
1.4.1	Universal: Privacy	Windows are located horizontally above eye level for privacy.	0 0 0 0 … 0 0 … 0	14} eye level but blurred
1.4.2	Universal: Privacy	Wundows are double-glazed for noise privacy.	0 0 0 0 … 0 0 … 0 0	13} 2 layers for mosquitos net and glass
1.4.3	Physical: Health and Safety	The entrance hall has optimised openings to allow (cross) ventilation, because it is responsible for the 'quality' of the air the occupants breathe (against security fear had prevented from openings to improve cross…	1 … 0 … 1 0	
1.4.4	Physical: Health and Safety	The entrance hall has optimised openings for appropriated temperature and humidity.	1 … 0	
1.4.5	Physical: Health and Safety	Any window has security against intrusion / falling	0 1 0 1 … 1 1 … 1 1	13} 0.87 m from the floor. 3} door/window at the same time.
1.4.6	Physical: Health and Safety	Maximum windowsill height 600mm	0 0 0 1 … 1 1 … 1 1	13} 0.87 m from the floor.

1.5 STEPS AND LEVELS + (SECTIONS)

Ref	Category	Description	Scores	Notes
1.5.1	Physical: Accessibility	Ramps 1:20	1 0 0 0 … 1	

PART 2: FURNITURE, FIXTURES, AND DECOR

2.1 FURNITURE

Ref	Category	Description	Scores	Notes
2.1.1	Universal: Privacy	The entrance hall has a rounded reception desk helps to create a welcoming effect.	0 … 0	
2.1.2	Physical: Accessibility	The desk is at a height suitable for wheelchair users (ref.).	0 1 0 0 … 1 1 … 1	2} have smaller table for wheelchair users.
2.1.3	Universal: Privacy	The seating has visual barriers, which is easy to see, comfortable and varied with arms.	0 0 0 0 … 0 0 … 0 … 0	
2.1.4	Universal: Privacy	The seating has choice of styles and heights of chairs / settees in lounges	0 0 0 0 … 0 0 … 0 … 0	13} No choices of style (not customised) 10} Same as the one in the room. 3} Only one type of chair
2.1.5	Sensory: Tactile	Lounges have min 3 natural materials to touch from resident chair: wooden surfaces, furnishing fabrics (unless plastic or wipeclean), plants etc	0 0 0 0 … 0 0 … 0 … 0	3} Two materials (leather and wood)
2.1.6	Cognitive: Human Scale	Decor appropriate in lounges (domestic and appropriately scaled for size of area)	1 0 0 0 … 1 0 … 0	3} Look like commercial arrangement
2.1.7	Universal: Personalisation	There are appearance of personal furniture (variety of styles/materials, but have to pass fire regulation)	0 0 0 0 … 0 0 … 0 … 0	
2.1.8	Universal: Personalisation	There are an appearance of personalised fittings, colours or photos on doors to private rooms	0 0 0 0 … 0 0 … 0 … 0	
2.1.9	Sensory: Sight	The seating is made of natural material, which help create a warm, and less clinical environment.	1 1 0 1 … 1 1 … 1 … 1	1} Made of fabric. 3} Made of artificial leather and fabric 2} Fabric and wood

2.2 FIXTURES (RAILINGS AND CANOPY)

Ref	Category	Description	Scores	Notes
2.2.1	Physical: Health and Safety	There are railings are at the suitable height (1100mm above the floor).	0 0 0 0 … 0 0 … 0 1 … 1	16} metal railings
2.2.2	Sensory: Tactile	There are comfortable handrails to give both physical assistance and a sense of direction/dstance.	0 0 0 1 … 0 0 … 0 1 … 1	13} no railing in bedroom.
2.2.3	Universal: Community	There are sheltered canopy at the entrance.	1 1 0 1 … 0 0 … 1 … 0	3} Work as shading devices.

2.3 TOILET FIXTURES

Ref	Category	Description	Scores	Notes
2.3.1	Universal: Choice and Control	Choice of bath or shower; domestic or assisted bath	… 0 0	13} only shower

No.	Category	Item	Notes
1.1.16	Physical: Accessibility	The corridor should not longer than 15 m from dayroom.	13} Depends
1.1.17	Physical: Accessibility	There is an adequate space for transfer from wheelchair or hoist, especially when two carers are required.	13} No hoist 3} There is no hoist at the dining area.
1.1.18	Physical: Accessibility	The clusters layout are arrayed in a back to back manner which allows easy access from a shared elevator and staircase.	13} Shared kitchen
1.1.19	Cognitive: Orientation	There is a loop route within living unit for wandering.	13} circular loop within the pavilion.
1.1.20	Cognitive: Normaleness	The therapeutic kitchen or living area is located at the centre of the cluster. Domestic layout: similar to house (dayrooms on lower floor, bedrooms above) or domestic building divided into flats.	13} but not at the centre. 10} At the side (not at the centre), but they are seemed not used regularly.
1.1.21	Cognitive: Normaleness	There are positive risk-taking activities.	13} How? 10} Yes?
1.1.22	Cognitive: Human Scale	Appropriate cluster size. Small houses are home to 6-12 residents. small-scale facilities that are homelike often leads to an architectural template or typology for a dwelling occupied by six to eight people.	13} 12 rooms
1.1.23	Cognitive: Human Scale	The space is double height or high ceiling (approximately 2.6 m) at the public and entrance areas. The entrance hall has double height spaces with skylight to create good atmosphere. Human scale (floor to ceiling height).	13} High ceiling {2.5 m and 3.1 m} 10} Triple height spaces (2 floors houses) but consist only 1 floor usage}. Kitchen is 2.5 m in height. 3} The height is about 3 m in height with rafter (quite grand and luxury}. 4} Double height ceiling - about 2.5 m 11} Double height ceiling (2.5 m)
1.1.24	Cognitive: Facilitation to social contact	The furniture layout incorporates fittings and furniture that will encourage staff and patient interactions. There should be a variety of soft seats, many with high backs and the occasional two-seater – choice.	13} Simple hotel/resort layout 3} Depends on the residents - some carers sit that the back (baby seats and wait for the residents and keep distance (Asian residents).
1.1.25	Cognitive: Facilitation to social contact	The entrance hall has magazines shelves or small libraries next to the seating area (activities in the middle).	
1.1.26	Cognitive: Connection to outside world	The space has a direct connection to vista and scenery (natural environment).	13} Some trees but not garden. 10} Access to some trees. 3} Have flexible area which connect to the outdoor spaces (however, it allows insects to come in e.g. flies) 2} The seatings are not direct.
1.1.27	Cognitive: Connection to outside world	The space has a balcony or portico extending to the outdoor environment.	13} No
1.1.28	Staff Facilities	The nurse station is at the centre such as communal kitchen area.	13} Kitchen but not nurse station.
1.1.29	Staff Facilities	There are storage spaces with the same material or colours of the wall.	10} storage are made of wood material. 3} Storage is made of wood but for storing plates. 4} The storage is in glass material to allow seeing stuffs inside.

1.2 WAYFINDING

No.	Category	Item	Notes
1.2.1	Cognitive: Orientation	There are recognisable wc visible from dayroom threshold. Ensuite wc visible from bed (score ½ for commode)	14} Cannot see restrooms from bed.
1.2.2	Sensory: Sight	There is extensive use of glass to show what is behind the doors and walls to increase visibility.	11} No wall and doors
1.2.3	Cognitive: Functionality	The spaces are recognisable by function (and objects?)	
1.2.4	Sensory: Sight	There are landmark objects such as memorabilia to aid wayfinding. (home-like design features). The space presents clear signage and landmarks as environmental cues.	13} Only room numbers 2} There are visual landmark as horse logo infront of restaurant door.
1.2.5	Cognitive: Orientation	The space uses colour or theme for assisting wayfinding (HousingLIN) – Colour coding within living unit to aid recognition of wcs, bathrooms etc	13} Colour coding at each pavilion 2} theme for decorating
1.2.6	Cognitive: Orientation	There are no two dayrooms with identical building form within living unit (score ½ if identical form but distinct décor)	13} Pavillions are similar as well as the room
1.2.7	Cognitive: Orientation	Doorframe is coloured (ref.) to navigate the residents.	10} No door 3} Door frame as woodedn which arein different colour.
1.2.8	Cognitive: Orientation	The space intentionally has brighter lighting at corners and transitions	10} More lighting because at the corridor there is no light 3} Use only natural light
1.2.9	Sensory: Tactile	VIPs have difficulty locating, identifying and approaching the entrances to public toilets as no specially adapted information is provided (e.g. tactile or audio) to indicate the right direction or location (plain and line levels).	
1.2.10	Sensory: Odour	Odour as sensory cues (fragrance and marketing strategies)	3} No odours from the kitchen.

1.3 DOORS

No.	Category	Item	Notes
1.3.1	Universal: Privacy	Sliding doors are chosen because they provide better access to people in wheelchairs, and they can also be shut and opened to some extent to control visual access and privacy. (connected to the living room) (Van Hoof, 2013)	13} normal doors 14} But opposite to the main bedrooms' door.
1.3.2	Universal: Choice and Control	The door is lockable from inside	
1.3.3	Physical: Health and Safety	The entrance door is closed at nighttime for safety reasons (controllable).	

ID	Category	Description	Notes
2.3.2	Physical: Health and Safety	There are secure handrails to bath, wc, washbasin	
2.3.3	Physical: Health and Safety	Ergonomic fittings to baths, washbasins, wcs (eg flush is lever, large and smooth to hold; taps are cross-top or lever)	
2.3.4	Physical: Health and Safety	Medical fittings in bathrooms are discreet	13} shiny/metal bar handrails.
2.3.5	Physical: Health and Safety	Distance of all toilet fixtures	
2.3.6	Physical: Accessibility	The height wash basin is suitable for wheelchair users.	
2.3.7	Physical: Accessibility	A wall hung or comfort height toilet. The conventional height of a toilet seat is 38 centimeters. The recommend height for toilet seats for people with disabilities is between 43-48 centimeters (Binggeli, 2016).	
2.3.8	Physical: Accessibility	The basin should not be too small (minimum 400mm wide).	
2.3.9	Cognitive: Functionality	Toilet is in the style of the traditional shape of a close-coupled cistern for residents to be able to recognise.	
2.3.10	Cognitive: Functionality	Familiar type of taps and faucets	
2.3.11	Cognitive: Functionality	In male restrooms, sinks do not resemble urinals (Tales et al., 2017)	
2.3.12	Cognitive: Functionality	Use of a lever or spatulate flush handle or automatic flush systems (Tales et al., 2017).	
2.3.13	Universal: Choice and Control	Mirrors have be covered.	
2.3.14	Physical: Independence	There are non-reflective surfaces (Tales et al., 2017)	13} Metal bar

2.4 DECOR

ID	Category	Description	Notes
2.4.1	Universal: Personalisation	Appearance of personal items on walls (different styles of pictures, mirrors, photos etc rather than corporate style)	
2.4.2	Cognitive: Orientation	Reality orientation eg board for large print or pictorial display of day, month, weather	

2.5 SIGNAGE

ID	Category	Description	Notes
2.5.1	Physical: Independence	There is a contrast between the colour and tone of the writing on the sign and the colour and tone of the background of the sign.	
2.5.2	Physical: Independence	There is a contrast between the colour and tone of the background of the sign and the colour and tone of the door/wall.	
2.5.3	Physical: Independence	The bases of all signs offering wayfinding for residents are around 1.2 metres from the ground.	

PART 3: ARCHITECTURAL SURFACES AND FINSIHES

3.1 FLOORING

ID	Category	Description	Notes
3.1.1	Physical: Health and Safety	The space uses carpet to reduce risk of slipping in wet weather (DSDC, 2013). Non-slip floor (carpet or grained floor)	10} use stone (terracotta - reduce slipping) 2} red carpet at the entrance
3.1.2	Physical: Health and Safety	The floor is not dark in colour such as black.	13} light colour wood 3} Brown as wood 2} use material as stone.
3.1.3	Physical: Health and Safety	The floor is the same 'tone' throughout the entrance hall.	2} Red abd beige
3.1.4	Physical: Health and Safety	The entrance zone barrier matting is similar in appearance to adjacent floor finishes.	
3.1.5	Cognitive: Quality of Stimulation	There are no elaborate patterns on the floor, which may be seen to be moving.	3} Dark wood pattern
3.1.6	Cognitive: Quality of Stimulation	There are no speckled, sparkly, or reflective materials (for both flooring and walls) as this may be seen as litter or dirt, or as if it is moving.	
3.1.7	Cognitive: Quality of Stimulation	There are swirls, vertical strips, and complicated patterns in fabrics, which may be misinterpreted.	3} Normal wood pattern - not sure if it causes swirl effect.

ID	Category	Criteria	Scores (Group 1)	Scores (Group 2)	Notes
3.1.8	Sensory: Sight	The floor looks like real wooden oak floor planks and is easy to clean.	0 1 ... 1	0 0 1 0 ... 0	13) laminate? 14) Same tone with the bedroom floor 10) Stone-like 3) stone and easy to clean.
3.2 WALL					
3.2.1	Physical: Health and Safety	The wall is the same 'tone' throughout.	0 1 ... 1	0 0 1 1	13) white 14) Have green tile at the kitchen area (horizontal pattern) 3) different materials and pattern
3.2.2	Physical: Health and Safety	Entrance zone barrier matting similar in appearance to adjacent floor finishes.	0 ■ ... 0	■ ■ ■	
3.2.3	Cognitive: Quality of Stimulation	There are no elaborate patterns on the floor, which may be seen to be moving.	0 1 ... 1	0 0 1 1	10) Green pattern 3) Wood pattern
3.2.4	Cognitive: Quality of Stimulation	There are no speckled, sparkly, or reflective materials (for both flooring and walls) as this may be seen as litter or dirt, or as if it is moving.	0 0 ... 1	0 0 1 1	11) There is some glare 3) Hard to notice what's on the floor. The wooden wall has two mirrors to expand the size of the room.
3.3 CEILING					
3.3.1	Sensory: Sight	A high ceiling with visible rafters (to the aesthetic quality of the space)	1 1 0 ... 1	0 0 0 0	3) Wood rafter 2) very high ceiling e.g. 6 m
3.3.2	Cognitive: Quality of Stimulation	Consideration of acoustic absorbtion treatment to ensure acoustic comfort (DWELL, 2015). High acoustic absorbency, in order to reduce echoes for the benefit of those with hearing impairments (ref.).	0 0 0 ... 0	0 0 0 0	13) no acoustic
3.3.3	Cognitive: Quality of Stimulation	There are no elaborate patterns on the floor, which may be seen to be moving.	0 0 0 ... 0	0 0 1 1	3) Wood rafter pattern
3.4 COLOUR CONTRAST					
3.4.1	Physical: Independence	Columns, handrails, doors, light switches, and other key elements are highlighted. (Emphasis corners of wall)	0 0 ... 0 0	0 0 0 1 ... 0	13) They are all white. 14) Silver handrail 3) Wall and columns are the same material which are light oak. 2) same oak colour throughout.
3.4.2	Physical: Independence	Good colour contrast. Measure by Light Reflectance Value (LRV). If something does not contrast sufficiently, then it is invisible; Avoid black mat on the floor which the brain 'sees' as a black hole	Take photos (all)	Take photos (all)	
3.4.3	Physical: Independence	Different hues, with same LRVs and saturation	0 ? ? ... ?	0 0 0 ... 0	13) Different texture of wood 14) almost same hue
PART 4: BUILDING SYSTEMS AND TECHNOLOGIES					
4.1 LIGHTING (ARTIFICAL AND SUNLIGHT?)					
4.1.1	Visual: Sight	Adequate natural light: minimum average daylight factor 2	1 1 0 ... 1	1 1 1 0 ... 1	13) Access to natural light (one side of the wall) 3) Only natural light are used during the daytime (almost raining). 2) access to skylight
4.1.2	Visual: Sight	Lounges have sunlight: window facing between 45º and 315º	? 0 0 ... 1	■ ■	
4.1.3	Physical: Accessibility	Lighting level satisfactory (ample and no glare)	1 1 1 ...	0 1 ... 1	13) Dark in the evening. But no glare. 3) No glare 2) no glare
4.1.4	Universal: Choice and Control	Resident control of lighting, other than main switch by door (zero if shared)	0 0 0 ... 1	1 1 1 1	
4.1.5	Physical: Independence	The entrance hall is well lit. Appropriated and consistent lighting with no glare	1 ■ ... 1	0 ■	
4.1.6	Universal: Choice and Control	The light can be controlled at night to limit the access.	0 ■ ... 1	0 0 ... 0	
4.1.7	Sensory: Sight	There is downlighting for welcoming mood and tone)	1 1 1 ... 1	1 0	13) only one downlighting at the centre of the room. 3) May be the chandelier. (Mostly the resort uses natural material and different kinds of volume. 6) at the kitchen area
4.1.8	Sensory: Sight	Snoezelen (multi-sensory room with lights, sounds, tactile experiences, soft surfaces)	0 0 0 ... 0	0 0 0 0	
4.1.9	Physical: Health and Safety	Adequate street lighting	0 0 0 ... 0	0 0 ■ ... 1	
4.2 NOISING AND HEARING					
4.2.1	Universal: Privacy	Acoustic privacy in lounge eg sound absorbent surfaces. Use acoustic ceiling and wall panels - Sound / noise absorbance by soft surfaces or acoustics panels	0 0 0 ...	0 0 0 0 ... 0	13) No sound absorbance, but because there are no building nearby.
4.2.2	Cognitive: Quality of Stimulation	Ensuring that rooms are small and quiet (less reverberation). Noise level, not exceed	0 0 0 ... 1	1 1 1 0 ... 0	10) Sound when the door bangs? 3) Can hear sound from the kitchen (e.g. washing dishes).
4.2.3	Cognitive: Quality of Stimulation	Muffling sound of water moving inside pipes by placing them on less acoustically critical wall, and wrapping and resiliently mounting them (Binggeli, 2016).	0 0 0 ... 0	0 0 0 0 ... 0	
4.2.4	Sensory: Hearing	Use masking sounds such as music, fan noises or recirculating fountains (Binggeli, 2016)	1 1 1 ... 0	0 0 1 1 ... 0	13) Fan and aircon noise 14) Fan noise 3) Background music 2) but still hear the construction sound
4.3 AIR QUALITY					

ID	Category	Description															Notes
4.3.1	Sensory: Tactile	Observed air movement and ventilation		1	1	1		1				Quite humid	Quite humid		1	1	1	13} Good flow of ventilation (two choices - fan and air con) 3} Air con and fans (to blow insects)
4.3.2	Sensory: Odour	Means of removing smell (extractor or window) in all wcs and bathrooms with wcs		1	0	0		0				0	0		1	1	0	13} Air/Fan
4.3.3	Sensory: Odour	Scented air sprays (Greed, 2003), or aroma oil		0	0	0		0				0	0		0	0	0	
		4.4 TEMPERATURE																
4.4.1	Sensory: Tactile	Temperature satisfactory		1	1	1		0				1	1		1	1	0	13} Room temperature if turn on the fan.
4.4.2	Sensory: Tactile	Variation in temperature within the room		0	0	0		0				0	0		0	0	0	Fan and air con
4.4.3	Sensory: Tactile	The space has mechanical ventilation systems such as air conditional systems or heaters.		1	1	1		1				0	1		1	1	0	13} No heater 2} fans 6} fans
4.4.4	Sensory: Tactile	Good humidity level.		1	?	1		?				Measure	Measure		Measure	Measure	?	
		4.5 BUILDING TECHNOLOGIES AND SYSTEMS																
4.5.1	Physical: Health and Safety	There are fire safety alarms and smoke detectors.		0	0	0		0				0	0		0	0	0	13} Used to have 3} No fire alarm
4.5.2	Physical: Health and Safety	Emergency call point		0	0	0		0				0	0		0	0	0	
4.5.3	Physical: Health and Safety	The entrance hall a security camera and CCTV to provide reassurance to staff and visitors that the area is being monitored.		1	0	0		0				0	0		■	0	0	
4.5.4	Universal: Privacy	No monitoring eg by glazed panel, spyhole, CCTV in private areas		0	0	0		0				0	0		0	0	0	
4.5.5	Physical: Health and Safety	The entrance has an entry system alert by assistive technologies		0	■	0		0				0	0		0	0	0	
4.5.6	Physical: Health and Safety	Falls will be detected by a smart floor system (vinyl floor with underfloor sensors), of which the technical supplies are designed out of sight to keep the apartment free of excessive visual stimuli.		0	0	0		0				0	0		0	0	0	
		PART 5: LANDSCAPE AND NATURAL ELEMENTS																
5.1.1	Cognitive: Connection to Outside	The space is accessible to view of natural landscape or garden.		1	1	1		1				1			1	0	1	
5.1.2	Universal: Continuity of Lifestyle	There are spaces for gardening.		0	0	0		0				0	0		0	0	1	
5.1.3	Physical: Health and Safety	There are outdoor seatings for vitamin D and sunlight.		0	1	0		0				0	0		0	0	1	
5.1.4	Sensory: Sight	There are natural environment indoor.		1	0	0		0				0	0		0	0	0	
5.1.5	Sensory: Audio	Listening to the birds and music outdoors.		0	0	0		0				1	0		1	0	1	
5.1.6	Sensory: Audio	There are water features.		0	1	0		0				0	0		0	0	1	
5.1.7	Sensory: Sight	Planting emphasises seasonal variation rather than evergreen scheme the same all year round		0	1	0		0				0	0		0	0	?	3} But not evergreen
5.1.8	Sensory: Sight	Outside spaces domestic rather than the corporate landscaping found round hotels and offices		0	0	0		0				Resort-like	Resort-like palm tree		0	0	?	13} Natural rather than domestic arrangement 3} Not domestic, but more natural and tropical. 2} plus natural landscape beyond the site boundary.
5.1.9	Sensory: Sight	The space is designed in organic form (?) - against authoritative form?		0	0	0		0				0	0		0	0	1	
5.1.10	Sensory: Odour	Odour of flowers and plants		0	0	0		0				0	0		0	0	1	
5.1.11	Sensory: Tactile	The space is pet-friendly (what do you mean by that?).		0	0	0		0				0	0		0	0	0	

Design Checklist of an Enabling Environment for Dementia Care

Task	Domains	Architectural Design Items	1) Site Planning?	2) Main Entrance	3) Cafe / Restaurant	4) Commercial Area	5) Public Toilet	6) pavilions to pavilions/ or living spaces	7) Vertical Circulation	8) Quiet Space (7)	Activity Area	9) Activity Area (e.g. swimming)	10) Kitchen (at the pavilion)	dining activities happen at the	12) Living Area? (Common area?)	13) Bedroom	14) En Suite	15) Staff facilities	16) Exterior Space	Comment and Response
		PART 1: LAYOUT AND SPATIAL QUALITIES																		
		1.1 GENERAL LAYOUT																		
1.1.1	Universal: Privacy	There is no open floor plan arrangement. Spaces can be broken up using moveable dividers. Screens and semi-private spaces within (by permeable materials).		0	0	1		0	No vertical circulation				1	1	1	1			0	13} The bedroom is not open floor plan arrangment - more like an L shape (bedroom floor plan as attached) 10} Kitchen Isalnd at the centre 2} The space is not that large for dividing into smaller spaces.
1.1.2	Universal: Privacy	Distance between seating is relaxing place for visitors to wait. There are spaces for private conversation (Van Hoof, 2013) and quiet space (intervals) within public spaces.		1	1	0		0	No vertical circulation				0	1	1	1			0	10} No proper seating area for eating. 6} At the entrance of the pavilion area
1.1.3	Universal: Privacy	There are small and intimate spaces and niches within the public area where individuals and families can gather in relative privacy.		1	1	0		0	No vertical circulation				1	0	1	0			0	3} Seatings are set up in configuration of 2,3, and 4. 10} There is small table at the centre of kitchen space (suitable for 6 people). 11} Only one table for six people 6} At the entrance of the pavilion area.
1.1.3	Universal: Privacy	There is no shared bedrooms. (on one's own, the wish for privacy, and having personal belongings around oneself)							No vertical circulation							1				13} No shared bedroom. The smaller bedroom in the pavilion type is ensuite. Not sure if I can access to see the exact bedrooms. But, the existing storage does not shows that they are enough storage for medical or personal belongings if someone needs to stay as long-stay. (3 cupboards, 1 TV...
1.1.4	Universal: Privacy	There is a generous space of bedrooms. Residents with larger apartments may have better opportunities to have visitors when they want (Van Hoof, 2013)							No vertical circulation							0				13} what is the generous size? Residents in normal size room have a set of table and 2 chairs. Not enough space if their family come.
1.1.6	Universal: Privacy	Restrooms with multiple water closets must have toilets stalls made of impervious materials with minimum clearance dimensions and privacy locks (Binggeli, 2016).							No vertical circulation							0				13} No privacy lock (toilet).
1.1.7	Universal: Privacy	There are no private rooms on public routes (routes from entrances used by people accessing offices, meeting rooms or delivery points)							No vertical circulation							0				13} Private rooms opposite to the public routes. 10} At the pavilion, there is one private room which is at the middle of the pavilion - might be a nurseroom.
1.1.8	Universal: Privacy	There are no door to door bedrooms (cannot see others' rooms and bathrooms) along the double-loaded corridor.							No vertical circulation							0				13} Bedrooms are door to door but as cluster type.
1.1.9	Universal: Privacy	There are transitional spaces (semi-private area/ambiguous transition) before bedrooms and circulation spaces.							No vertical circulation							0				13} No transition
1.1.20	Universal: Personalisation	There are spaces for all residents to store own wheelchairs and for personal items near dayroom and public spaces.		0	0	0		0	No vertical circulation				0	0	0					10} No proper spaces
1.1.10	Universal: Personalisation	There are adequate dressing/closet spaces, display space, and storage for personal items and professional equipment should be provided.							No vertical circulation							0				13} Dressing/closet spaces are made of wood/particle board (cannot see through what's inside. Also, it is next to the main door - ambiguous of public and private spaces).
1.1.12	Universal: Choice and Control	There are choice of locations for daytime activities, excluding dedicated dining rooms (available of pocket spaces in nearby area)	1 (Tour)	1	0			0	No vertical circulation						0				1	12} no proper activities
1.1.13	Universal: Choice and Control	There are free and easy access to outside world which is a safe outdoor space in order for people to choose to go out when they want to (DSDC, 2013).	?	1	0			0	No vertical circulation						1				1	13} The bedroom is not directly connected to the outside spaces (but have wide windows). 10} Not from the kitchen area
1.1.14	Universal: Person-centredness	The space represents the symbol of culture (how?) of the residents.		1	1	1		0	No vertical circulation				0	0	1	0				3} Menus are in German. Cuisine are Western. 13} Seems to be universal by using wood as the main material. Also, there is an image - Japanese style. 4} Selling breads and Swiss cakes. 6} paintings about Thailand 12} painting thailand
1.1.15	Universal: Person-centredness	The space represents the symbol or aspects of ethnicity of the residents, but also diversity?		1	1	1		0	No vertical circulation				0	0	0	0			0	13} as the main ethnicity is German - cannot identify. 4} German language and signage.
1.1.16	Universal: Person-centredness	The space represents the symbol or aspects of spiritual and religious of the residents - Space where religious observances can take place; eg small lounge		0	0	0		0	No vertical circulation				0	0	0	0			0	
1.1.17	Universal: Person-centredness	The space are gender appropriated (how?) such as separated gender of public toilets.		0	0	0		0	No vertical circulation				0	0	0	0			0	3} Unidentified
1.1.18	Universal: Community	The dimension of entrances can specify that it allow public access and are welcoming to visitors: reception or signposting. Main entrance sheltered from sun and rain		1		1		1	No vertical circulation											4} Very high ceiling structure.
1.1.19	Universal: Community	There are public function spaces which are large enough for all residents from all living units to get together.		0	0	0		0	No vertical circulation				0	0						3} Not enough seating for 72 units? 10} Allow public/families/visitors to gather
1.1.21	Physical: Health and Safety	The space has secured and enclosed layout especially garden spaces have safeguards against resident wandering. Route from car park to entrance safe from vehicles entering site and manoeuvring within car park. On public transport...		1				1	No vertical circulation				1	0					1	16} there is a gate next to swimming pool.
1.1.22	Physical: Health and Safety	There are emergency access: doors open out, or minimum room width 1.2m to avoid fallen resident becoming trapped		1	0	1		1	No vertical circulation				1	1		0			1	13} Doors are 90 m. (Wooden wall, not fireproof)., 4} no door
1.1.23	Physical: Health and Safety	The space is followed infection control? Food distribution route (kitchen or servery to dining) does not cross dirty laundry route (bedroom to sluice or laundry)		1	1	1		1	No vertical circulation				1	1						10} Laundry service is in another route.
1.1.24	Physical: Accessibility	There are no grand steps or formal architectural elements such as pillars, solid doors or vestibules to impede ease of access for frail people.		1	0	1		1	No vertical circulation				0	0		0				13} Not sure if the wheelchair can turn around. 3} There are steps at the entrance of the cafe (portico side) 2} Two ways of entrance
1.1.25	Physical: Accessibility	There is 1.3m turning space for wheelchairs.		1	0	1		1	No vertical circulation				1	0		1			1	13} 1.3 m

Ref	Category	Description															Notes
1.1.16	Physical: Accessibility	The corridor should not longer than 15 m from dayroom.					1	No vertical circulation			1	1		0		0	13} Depends
1.1.17	Physical: Accessibility	There is an adequate space for transfer from wheelchair or hoist, especially when two carers are required.	0	0	0		0	No vertical circulation			0	0		0			13} No hoist 3} There is no hoist at the dining area.
1.1.18	Physical: Accessibility	The clusters layout are arrayed in a back to back manner which allows easy access from a shared elevator and staircase.						No vertical circulation						1			13} Shared kitchen
1.1.19	Cognitive Orientation	There is a loop route within living unit for wandering.						No vertical circulation						1		1	13} circular loop within the pavilion.
1.1.20	Cognitive Normaleness	The therapeutic kitchen or living area is located at the centre of the cluster. Domestic layout: similar to house (dayroom on lower floor, bedrooms above) or domestic building divided into flats.						No vertical circulation			0	1		1			13} but not at the centre. 10} At the side (not at the centre), but they are seemed not used regularly.
1.1.21	Cognitive Normaleness	There are positive risk-taking activities.	?	?	?		?	No vertical circulation			1	?		0		1	13} How? 10} Yes?
1.1.22	Cognitive: Human Scale	Appropriate cluster size. Small houses are home to 6-12 residents. small-scale facilities that are homelike often leads to an architectural template or typology for a dwelling occupied by six to eight people.						No vertical circulation			0			1			13} 12 rooms
1.1.23	Cognitive: Human Scale	The space is double height or high ceiling (approximately 2.6 m) at the public and entrance areas. The entrance hall has double height spaces with skylight to create good atmosphere. Human scale (floor to ceiling height)	1 (or higher)	0	1		1	No vertical circulation			1	1		1			13} High ceiling (2.5 m and 3.1 m) 10} Triple height spaces (2 floors houses) but consist only 1 floor usage). Kitchen is 2.5 m in height. 3} The height is about 3 m in height with rafter (quite grand and luxury). 4} Double height ceiling - about 2.5 m. 11} Double height ceiling (2.5 m)
1.1.24	Cognitive: Facilitation to social contact	The furniture layout incorporates fittings and furniture that will encourage staff and patient interactions. There should be a variety of soft seats, many with high backs and the occasional two seater - choice.	?	0	0		0	No vertical circulation			0	0		0		0	13} Simple hotel/resort layout 3} Depends on the residents - some carers sit that the back (baby seats and wait for the residents and keep distance (Asian residents).
1.1.25	Cognitive: Facilitation to social contact	The entrance hall has magazines shelves or small libraries next to the seating area (activities in the middle).	1				0	No vertical circulation								0	
1.1.26	Cognitive: Connection to outside world	The space has a direct connection to vista and scenery (natural environment).	0	1	0		1	No vertical circulation			1	1		1		1	13} Some trees but not garden. 10} Access to some trees. 3} Have flexible area which connect to the outdoor spaces (however, it allows insects to come in e.g. flies) 2} The seatings are not direct.
1.1.27	Cognitive: Connection to outside world	The space has a balcony or portico extending to the outdoor environment.	0	1	0		0	No vertical circulation			0	0		0		0	13} No
1.1.28	Staff Facilities	The nurse station is at the centre such as communal kitchen area.	0	0	0		1	No vertical circulation			0	0		0		0	13} Kitchen but not nurse station.
1.1.29	Staff Facilities	There are storage spaces with the same material or colours of the wall.	0	0	0		1	No vertical circulation			0	0		0		0	10} storage are made of wood material. 3} Storage is made of wood but for storing plates. 4} The storage is in glass material to allow seeing stuffs inside.
	1.2 WAYFINDING																
1.2.1	Cognitive Orientation	There are recognisable wc visible from dayroom threshold. Ensuite wc visible from bed (score ½ for commode)	1	0	1			No vertical circulation			0	0			0	0	14} Cannot see restrooms from bed.
1.2.2	Sensory: Sight	There is extensive use of glass to show what is behind the doors and walls to increase visibility.	0	1	1		0	No vertical circulation			0	0			0	0	11} No wall and doors
1.2.3	Cognitive Functionality	The spaces are recognisable by function (and objects?)	0	1	1		1				1	1		1	1	0	
1.2.4	Sensory: Sight	There are landmark objects such as memorabilia to aid wayfinding. (home-like design features). The space presents clear signage and landmarks as environmental cues.	0	0	0		0				0	0		0	0	0	13} Only room numbers 2} There are visual landmark as horse logo infront of restaurant door.
1.2.5	Cognitive Orientation	The space uses colour or theme for assisting wayfinding (HousingLIN) - Colour coding within living unit to aid recognition of wcs, bathrooms etc	1	0	0		0				0	0		1	0	0	13} Colour coding at each pavilion 2} theme for decorating
1.2.6	Cognitive Orientation	There are no two dayrooms with identical building form within living unit (score ½ if identical form but distinct décor)	1	0	0		1				0	0		0	0	0	13} Pavillions are similar as well as the room
1.2.7	Cognitive Orientation	Doorframe is coloured (ref.) to navigate the residents.	0	1	0		0				0	0		0	0	0	10} No door 3} Door frame as woodedn which arein different colour.
1.2.8	Cognitive Orientation	The space intentionally has brighter lighting at corners and transitions	0	0	1		1				1	1	0	0	0	0	10} More lighting because at the corridor there is no light 3} Use only natural light
1.2.9	Sensory: Tactile	VIPs have difficulty locating, identifying and approaching the entrances to public toilets as no specially adapted information is provided (e.g. tactile or audio) to indicate the right direction or location (plain and line levels)	0	0	0		0				0	0		0	0	0	
1.2.10	Sensory: Odour	Odour as sensory cues (fragrance and marketing strategies)	0	0	0		0				0	0		0	0	0	3} No odours from the kitchen.
	1.3 DOORS																
1.3.1	Universal Privacy	Sliding doors are chosen because they provide better access to people in wheelchairs, and they can also be shut and opened to some extent to control visual access and privacy. (connected to the living room) (Van Hoof, 2013)	0	0	0						0			0	1		13} normal doors 14} But opposite to the main bedrooms' door.
1.3.2	Universal Choice and Control	The door is lockable from inside	0	0	0						0			1	0		
1.3.3	Physical: Health and Safety	The entrance door is closed at nighttime for safety reasons (controllable).	0	0	0						0	0					

Ref	Category	Description													Notes
1.3.4	Physical: Health and Safety	Good' access for residents with physical or mobility problems including wheelchair users.		1	1	1					0	0		1	1	
1.3.5	Physical: Accessibility	Doors open against the wall into the various rooms providing clues to a particular room's function, by giving an immediate view of the room and its content.		0	0	1					0	0		1	1	
1.3.6	Physical: Accessibility	The minimum doorway width is 0.8m.		1	1	1					0	0		1		13} Door width is 0.9 m.
1.3.7	Physical: Functionality	Height of door handles		0	0	0					0	0				13} 1.03 m from the floor.
1.3.8	Physical: Accessibility	Opening - The entrance hall allows good levels of daylighting to communal spaces (DWELL, 2015) for time orientation.		1		0					0	0				
1.3.9	Physical: Accessibility	Double height entrance foyer with a balcony maximises the distribution of natural light into the public areas of the building (approximately 2.6 m).		1							1	0				2} also use downlighting to create ambience.
		1.4 WINDOWS														
1.4.1	Universal: Privacy	Windows are located horizontally above eye level for privacy.		0	0	0	0				0	0			0	14} eye level but blurred
1.4.2	Universal: Privacy	Windows are double-glazed for noise privacy.		0	0	0	0				0	0		0	0	13} 2 layers for mosquitos net and glass
1.4.3	Physical: Health and Safety	The entrance hall has optimised openings to allow (cross) ventilation, because it is responsible for the 'quality' of the air the occupants breathe (against security fear had prevented from openings to improve cross...		1			0				1	0				
1.4.4	Physical: Health and Safety	The entrance hall has optimised openings for appropriated temperature and humidity.		1			0									
1.4.5	Physical: Health and Safety	Any window has security against intrusion / falling		0	1	0	1				1	1		1	1	13} 0.87 m from the floor. 3} door/window at the same time.
1.4.6	Physical: Health and Safety	Maximum windowsill height 600mm		0	0	0	1				1	1		1	1	13} 0.87 m from the floor.
		1.5 STEPS AND LEVELS + (SECTIONS)														
1.5.1	Physical: Accessibility	Ramps 1:20		1	0	0	0								1	
		PART 2: FURNITURE, FIXTURES, AND DECOR														
		2.1 FURNITURE														
2.1.1	Universal: Privacy	The entrance hall has a rounded reception desk helps to create a welcoming effect.		0			0									
2.1.2	Physical: Accessibility	The desk is at a height suitable for wheelchair users (ref.).		0	1	0	0				1	1		1		2} have smaller table for wheelchair users.
2.1.3	Universal: Privacy	The seating has visual barriers, which is easy to see, comfortable and varied with arms.		0	0	0	0				0	0		0	0	
2.1.4	Universal: Privacy	The seating has choice of styles and heights of chairs / settees in lounges		0	0	0	0				0	0		0	0	13} No choices of style (not customised) 10} Same as the one in the room. 3} Only one type of chair
2.1.5	Sensory: Tactile	Lounges have min 3 natural materials to touch from resident chair: wooden surfaces, furnishing fabrics (unless plastic or wipeclean), plants etc		0	0	0	0				0	0		0	0	3} Two materials (leather and wood)
2.1.6	Cognitive: Human Scale	Decor appropriate in lounges (domestic and appropriately scaled for size of area)		1	0	0	0				1	0			0	3} Look like commercial arrangement
2.1.7	Universal: Personalisation	There are appearance of personal furniture (variety of styles/materials, but have to pass fire regulation)		0	0	0	0				0	0		0	0	
2.1.8	Universal: Personalisation	There are an appearance of personalised fittings, colours or photos on doors to private rooms		0	0	0	0				0	0		0	0	
2.1.9	Sensory: Sight	The seating is made of natural material, which help create a warm, and less clinical environment.		1	1	0	0				1	1		1	1	1} Made of fabric. 3} Made of artificial leather and fabric 2} Fabric and wood
		2.2 FIXTURES (RAILINGS AND CANOPY)														
2.2.1	Physical: Health and Safety	There are railings are at the suitable height (1100mm above the floor).		0	0	0	1				0	0		0	1	16} metal railings
2.2.2	Sensory: Tactile	There are comfortable handrails to give both physical assistance and a sense of direction/distance.		0	0	0	1				0	0		0	1	13} no railing in bedroom.
2.2.3	Universal: Community	There are sheltered canopy at the entrance.		1	1	0	1				0	0		1	0	3} Work as shading devices.
		2.3 TOILET FIXTURES														
2.3.1	Universal: Choice and Control	Choice of bath or shower; domestic or assisted bath				0								0	0	13} only shower

ID	Category	Description										Notes
4.3.1	Sensory: Tactile	Observed air movement and ventilation	1	1	1	1	Quite humid	Quite humid	1	1	1	13} Good flow of ventilation (two choices - fan and air con) 3) Air con and fans (to blow insects)
4.3.2	Sensory: Odour	Means of removing smell (extractor or window) in all wcs and bathrooms with wcs	1	0	0	0	0	0	1	1	0	13} Air/Fan
4.3.3	Sensory: Odour	Scented air sprays (Greed, 2003), or aroma oil	0	0	0	0	0	0	0	0	0	
		4.4 TEMPERATURE										
4.4.1	Sensory: Tactile	Temperature satisfactory	1	1	1	0	1	1	1	1	0	13} Room temperature if turn on the fan.
4.4.2	Sensory: Tactile	Variation in temperature within the room	0	0	0	0	0	0	0	0	0	Fan and air con
4.4.3	Sensory: Tactile	The space has mechanical ventilation systems such as air conditional systems or heaters.	1	1	1	1	0	1	1	1	0	13} No heater 2} fans 6} fans
4.4.4	Sensory: Tactile	Good humidity level.	1	?	1	?	Measure	Measure	Measure	Measure	?	
		4.5 BUILDING TECHNOLOGIES AND SYSTEMS										
4.5.1	Physical: Health and Safety	There are fire safety alarms and smoke detectors.	0	0	0	0	0	0	0	0	0	13} Used to have 3} No fire alarm
4.5.2	Physical: Health and Safety	Emergency call point	0	0	0	0	0	0	0	0	0	
4.5.3	Physical: Health and Safety	The entrance hall a security camera and CCTV to provide reassurance to staff and visitors that the area is being monitored.	1	0	0	0	0	0	■	0	0	
4.5.4	Universal: Privacy	No monitoring eg by glazed panel, spyhole, CCTV in private areas	0	0	0	0	0	0	0	0	0	
4.5.5	Physical: Health and Safety	The entrance has an entry system alert by assistive technologies	0	■		0	0	0	0	0	0	
4.5.6	Physical: Health and Safety	Falls will be detected by a smart floor system (vinyl floor with underfloor sensors), of which the technical supplies are designed out of sight to keep the apartment free of excessive visual stimuli.	0	0	0	0	0	0	0	0	0	
		PART 5: LANDSCAPE AND NATURAL ELEMENTS										
5.1.1	Cognitive: Connection to Outside	The space is accessible to view of natural landscape or garden.	1	1	1	1	1	1	1	0	1	
5.1.2	Universal: Continuity of Lifestyle	There are spaces for gardening.	0	0	0	0	0	0	0	0	1	
5.1.3	Physical: Health and Safety	There are outdoor seatings for vitamin D and sunlight.	0	1	0	0	0	0	0	0	1	
5.1.4	Sensory: Sight	There are natural environment indoor.	1	0	0	0	0	0	0	0	0	
5.1.5	Sensory: Audio	Listening to the birds and music outdoors.	0	0	0	0	1	0	1	0	1	
5.1.6	Sensory: Audio	There are water features.	0	1	0	0	0	0	0	0	1	
5.1.7	Sensory: Sight	Planting emphasises seasonal variation rather than evergreen scheme the same all year round	0	1	0	0	0	0	0	0	?	3} But not evergreen
5.1.8	Sensory: Sight	Outside spaces domestic rather than the corporate landscaping found round hotels and offices	0	0	0	0	Resort-like	Resort-like palm tree	0	0	?	13} Natural rather than domestic arrangement 3) Not domestic, but more natural and tropical. 2) plus natural landscape beyond the site boundary.
5.1.9	Sensory: Sight	The space is designed in organic form (?) - against authoritative form?	0	0	0	0	0	0	0	0	1	
5.1.10	Sensory: Odour	Odour of flowers and plants	0	0	0	0	0	0	0	0	1	
5.1.11	Sensory: Tactile	The space is pet-friendly (what do you mean by that?).	0	0	0	0	0	0	0	0	0	

ID	Category	Description	Notes
3.1.8	Sensory: Sight	The floor looks like real wooden oak floor planks and is easy to clean.	13} laminate? 14} Same tone with the bedroom floor 10} Stone-like 3} stone and easy to clean.
3.2 WALL			
3.2.1	Physical: Health and Safety	The wall is the same 'tone' throughout.	13} white 14} Have green tile at the kitchen area {horizontal pattern} 3} different materials and pattern
3.2.2	Physical: Health and Safety	Entrance zone barrier matting similar in appearance to adjacent floor finishes.	
3.2.3	Cognitive: Quality of Stimulation	There are no elaborate patterns on the floor, which may be seen to be moving.	10} Green pattern 3} Wood pattern
3.2.4	Cognitive: Quality of Stimulation	There are no speckled, sparkly, or reflective materials (for both flooring and walls) as this may be seen as litter or dirt, or as if it is moving.	11} There is some glare 3} Hard to notice what's on the floor. The wooden wall has two mirrors to expand the size of the room.
3.3 CEILING			
3.3.1	Sensory: Sight	A high ceiling with visible rafters (to the aesthetic quality of the space)	3} Wood rafter 2} very high ceiling e.g. 6 m
3.3.2	Cognitive: Quality of Stimulation	Consideration of acoustic absorbtion treatment to ensure acoustic comfort (DWELL, 2015). High acoustic absorbency, in order to reduce echoes for the benefit of those with hearing impairments (ref.).	13} no acoustic
3.3.3	Cognitive: Quality of Stimulation	There are no elaborate patterns on the floor, which may be seen to be moving.	3} Wood rafter pattern
3.4 COLOUR CONTRAST			
3.4.1	Physical: Independence	Columns, handrails, doors, light switches, and other key elements are highlighted. (Emphasis corners of wall)	13} They are all white. 14} Silver handrail 3} Wall and columns are the same material which are light oak. 2} same oak colour throughout.
3.4.2	Physical: Independence	Good colour contrast. Measure by Light Reflectance Value (LRV). If something does not contrast sufficiently, then it is invisible; Avoid black mat on the floor which the brain 'sees' as a black hole	Take photos
3.4.3	Physical: Independence	Different hues, with same LRVs and saturation	13} Different texture of wood 14} almost same hue
PART 4: BUILDING SYSTEMS AND TECHNOLOGIES			
4.1 LIGHTING {ARTIFICIAL AND SUNLIGHT?}			
4.1.1	Visual: Sight	Adequate natural light: minimum average daylight factor 2	13} Access to natural light {one side of the wall} 3} Only natural light are used during the daytime (almost raining). 2} access to skylight
4.1.2	Visual: Sight	Lounges have sunlight: window facing between 45° and 315°	
4.1.3	Physical: Accessibility	Lighting level satisfactory (ample and no glare)	13} Dark in the evening. But no glare. 3} No glare 2} no glare
4.1.4	Universal: Choice and Control	Resident control of lighting, other than main switch by door (zero if shared)	
4.1.5	Physical: Independence	The entrance hall is well lit. Appropriated and consistent lighting with no glare	
4.1.6	Universal: Choice and Control	The light can be controlled at night to limit the access.	
4.1.7	Sensory: Sight	There is downlighting for welcoming mood and tone)	13} only one downlighting at the centre of the room. 3} May be the chandelier. (Mostly the resort uses natural material and different kinds of volume. 6} at the kitchen area
4.1.8	Sensory: Sight	Snoezelen (multi-sensory room with lights, sounds, tactile experiences, soft surfaces)	
4.1.9	Physical: Health and Safety	Adequate street lighting	
4.2 NOISING AND HEARING			
4.2.1	Universal: Privacy	Acoustic privacy in lounge eg sound absorbent surfaces. Use acoustic ceiling and wall panels - Sound / noise absorbance by soft surfaces or acoustics panels	13} No sound absorbance, but because there are no building nearby.
4.2.2	Cognitive: Quality of Stimulation	Ensuring that rooms are small and quiet (less reverberation). Noise level, not exceed	10} Sound when the door bangs? 3} Can hear sound from the kitchen (e.g. washing dishes).
4.2.3	Cognitive: Quality of Stimulation	Muffling sound of water moving inside pipes by placing them on less acoustically critical wall, and wrapping and resiliently mounting them (Binggeli, 2016).	
4.2.4	Sensory: Hearing	Use masking sounds such as music, fan noises or recirculating fountains (Binggeli, 2016)	13} Fan and aircon noise 14} Fan noise 3} Background music 2} but still hear the construction sound
4.3 AIR QUALITY			

Ref	Category	Description															Notes
2.3.2	Physical: Health and Safety	There are secure handrails to bath, wc, washbasin											1	1			
2.3.3	Physical: Health and Safety	Ergonomic fittings to baths, washbasins, wcs (eg flush is lever, large and smooth to hold; taps are cross-top or lever)											0				
2.3.4	Physical: Health and Safety	Medical fittings in bathrooms are discreet											0				13) shiny/metal bar handrails.
2.3.5	Physical: Health and Safety	Distance of all toilet fixtures											0				
2.3.6	Physical: Accessibility	The height wash basin is suitable for wheelchair users.											0				
2.3.7	Physical: Accessibility	A wall hung or comfort height toilet. The conventional height of a toilet seat is 38 centimeters. The recommend height for toilet seats for people with disabilities is between 43-48 centimeters (Binggeli, 2016).											1				
2.3.8	Physical: Accessibility	The basin should not be too small (minimum 400mm wide).											1				
2.3.9	Cognitive: Functionality	Toilet is in the style of the traditional shape of a close-coupled cistern for residents to be able to recognise.															
2.3.10	Cognitive: Functionality	Familiar type of taps and faucets															
2.3.11	Cognitive: Functionality	In male restrooms, sinks do not resemble urinals (Tales et al., 2017)															
2.3.12	Cognitive: Functionality	Use of a lever or spatulate flush handle or automatic flush systems (Tales et al., 2017).															
2.3.13	Universal: Choice and Control	Mirrors have be covered.											0	0			
2.3.14	Physical: Independence	There are non-reflective surfaces (Tales et al., 2017)											0	0			13) Metal bar
		2.4 DECOR															
2.4.1	Universal: Personalisation	Appearance of personal items on walls (different styles of pictures, mirrors, photos etc rather than corporate style)	0	0	0		0			0	0		0	0	0		
2.4.2	Cognitive: Orientation	Reality orientation eg board for large print or pictorial display of day, month, weather	0	0	0		0			0	0		0	0	0		
		2.5 SIGNAGE															
2.5.1	Physical: Independence	There is a contrast between the colour and tone of the writing on the sign and the colour and tone of the background of the sign.	0	0	0		1			0	0		1	0	0		
2.5.2	Physical: Independence	There is a contrast between the colour and tone of the background of the sign and the colour and tone of the door/wall.	0	0	0		1			0	0		1	0	0		
2.5.3	Physical: Independence	The bases of all signs offering wayfinding for residents are around 1.2 metres from the ground.	1	0	0		1			?	0			0	0		
		PART 3: ARCHITECTURAL SURFACES AND FINSIHES															
		3.1 FLOORING															
3.1.1	Physical: Health and Safety	The space uses carpet to reduce risk of slipping in wet weather (DSDC, 2013). Non-slip floor (carpet or grained floor)	1	0	0		0			0	0		0	0	0		10) use stone (terracotta - reduce slipping) 2) red carpet at the entrance
3.1.2	Physical: Health and Safety	The floor is not dark in colour such as black.	1	1	0		1			1	0		1	1	1		13) light colour wood 3) Brown as wood 2) use material as stone.
3.1.3	Physical: Health and Safety	The floor is the same 'tone' throughout the entrance hall.	0				1								1		2) Red abd beige
3.1.4	Physical: Health and Safety	The entrance zone barrier matting is similar in appearance to adjacent floor finishes.	0				0								1		
3.1.5	Cognitive: Quality of Stimulation	There are no elaborate patterns on the floor, which may be seen to be moving.	1	0			1						0	0	1		3) Dark wood pattern
3.1.6	Cognitive: Quality of Stimulation	There are no speckled, sparkly, or reflective materials (for both flooring and walls) as this may be seen as litter or dirt, or as if it is moving.	0	0			1						0	0	1		
3.1.7	Cognitive: Quality of Stimulation	There are swirls, vertical strips, and complicated patterns in fabrics, which may be misinterpreted.	0	0			1						0	0	1		3) Normal wood pattern - not sure if it causes swirl effect.

IV. Autoethnographic Sketches (during the research process)
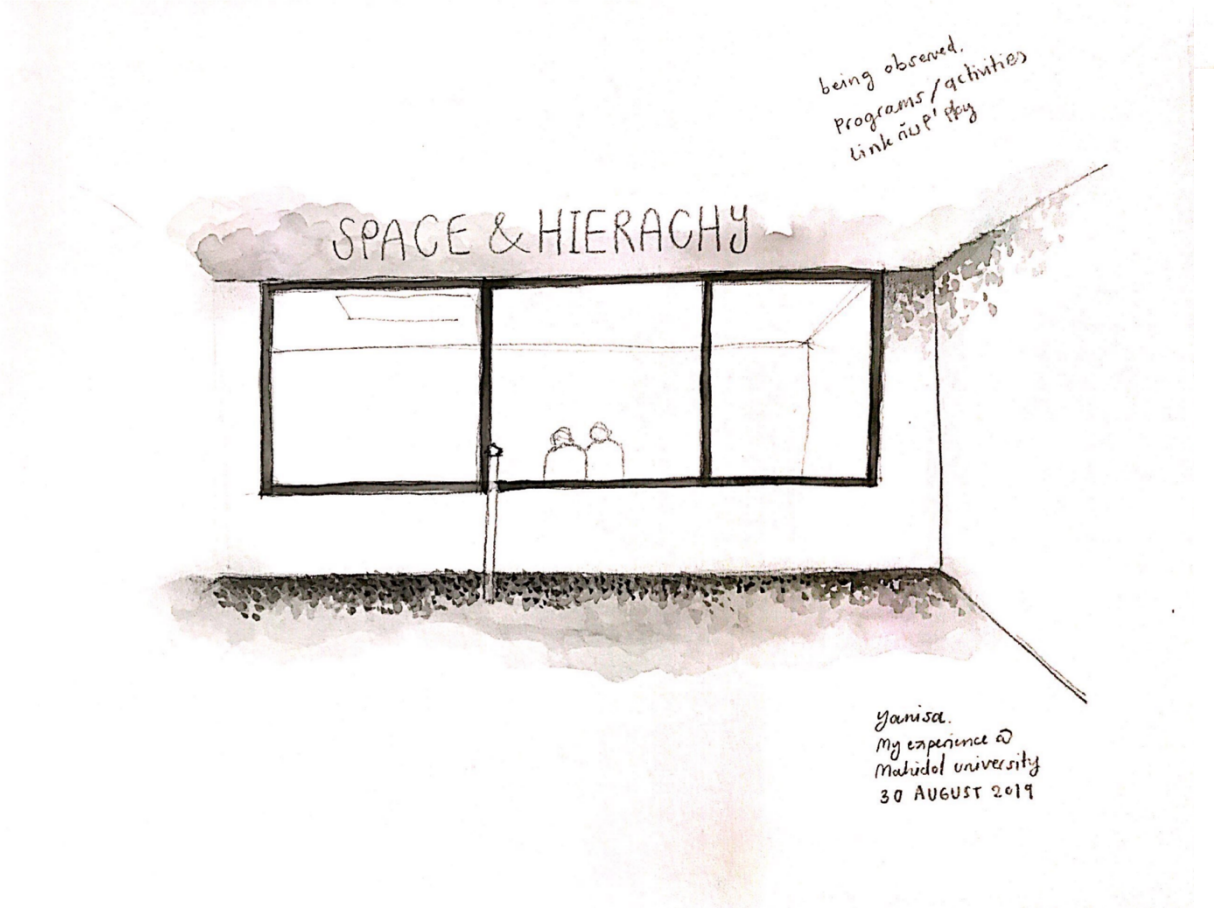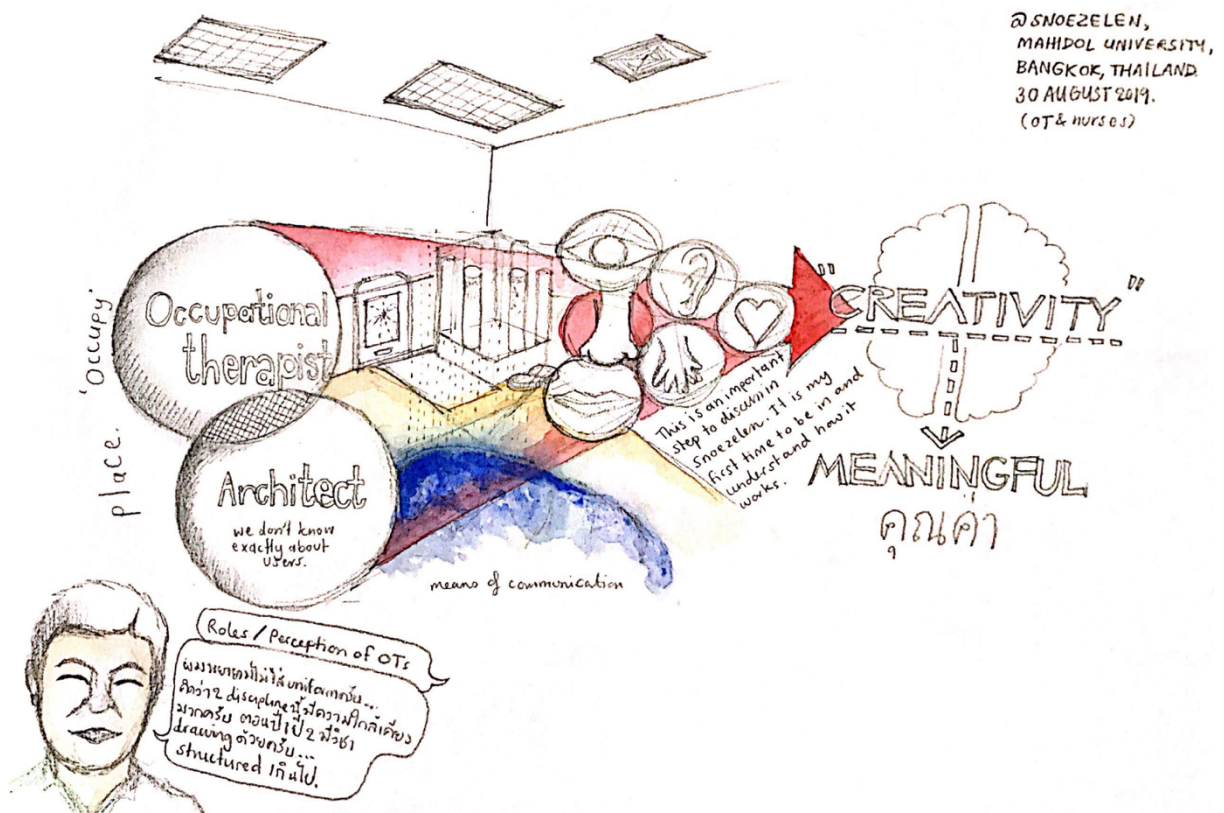
4 บิ๊กใน วงการ์ (ผู้ประกอบการ)

OT and PT ~ ชีวิตประจำวัน
ไปปรับร่างวัลด้วยกันมา

+ KPN developer.

Mahidol Hospice

oims and how to control?

โรคลอจ์

รัชานคพ เทค

OPIUM

meesuk society

รศ.พทุ ศิวาพร ในๆอัครฯ

พ.ญ.นาฎ ฟองสัมุทร.

collaborate and design
Phase 2 of Sawangkaniwes.

Based on medical model + structured

Aj.ไพรรัตน์ในทุกฯ

yanisa
17/9/201ๆ

NURSE & BUSINESS

Vaccuum? compand.
state? { utopian(?)
↳ only ผ่าวาง

feeling
out of place
somehow.

AREA: 20 Rai.

EMAIL:

COMPLIMENTARY

ROOM 1101

RECEPTION
Khun Ple

โรงแรม เรา
INTERNA-
TIONAL มาก.

→ พออรนfree ไป่ในมก.
แไม่อยากกันข้าง → service
(ไม่รู้ต้องเนยวไง) base

→ ห้องเสียวกัน~type เอ่ะเอ๋กึ

"เกรงใจ"
"ทานข้าวก่อนน.ครับ"

⬇

as guest.
(พักร่อบๆตลอด
เวลา) + Rules

อึดอัด
- Being served
all the time
- การแสดง?
↳ หรือชอบ?
All inclusive
กลับไปเที่ lifestyle.
ๆ อีกครั้งได้.

30 mins (drive)

GERMAN
CLASSES

VivoBene
Village
(Swiss colony)?

BoI
100%
🇨🇭

Utopian
adjective - modelled on or aiming for
a state in which everything is
perfect; idealistic
- Autonomous
- Relating to or aiming for a perfect
society in which everyone works well
with each other and is happy.

Dystopia(?) - some that I didn't see(?) e.g. sexual abused
- Imagine living there for real (This is only 6 days)

CASE 1 - ORGANIZATIONAL CULTURE → Findings : สิ่งที่ค้นพบในsite.

Swiss arrived

I'm Thai. — ยินดีครับ — I'm Thai — complimentary dink — → another guest? (complimentary vi?)
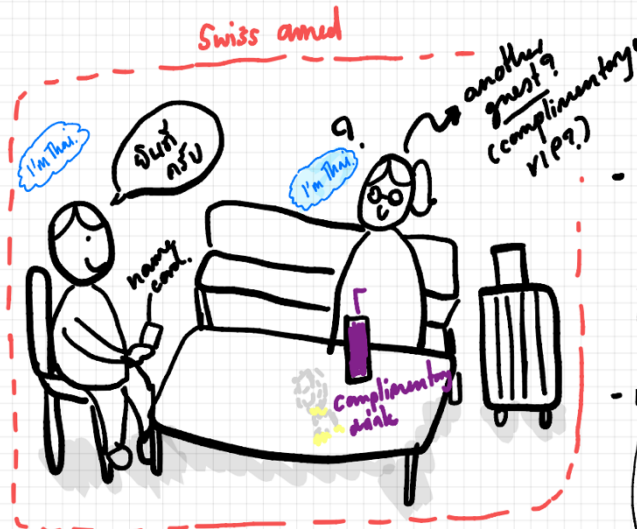
- First impression of introducing myself and how/which aspect I am going to focus on.
- แต่ละคนต่างชาติ เยอะมาก

เดินเป็นคู่ๆ.
ใช้ researcher ชาวไทย. — Savior.
แต่ก็เป็น business แล:
สนับสนุนโดย รบ.

- design ก็ไม่ใช่ประเด็นว่าใครของอยู่ที่ แต่เป็นเรื่องของ care. (หมายถึงคน)
- Why design like this? └ สิ่งที่ใน com ... ว่าไม่เห็นด้วย.

ให้รับเสร็จ มันเหมือนเร่งๆ   by managers

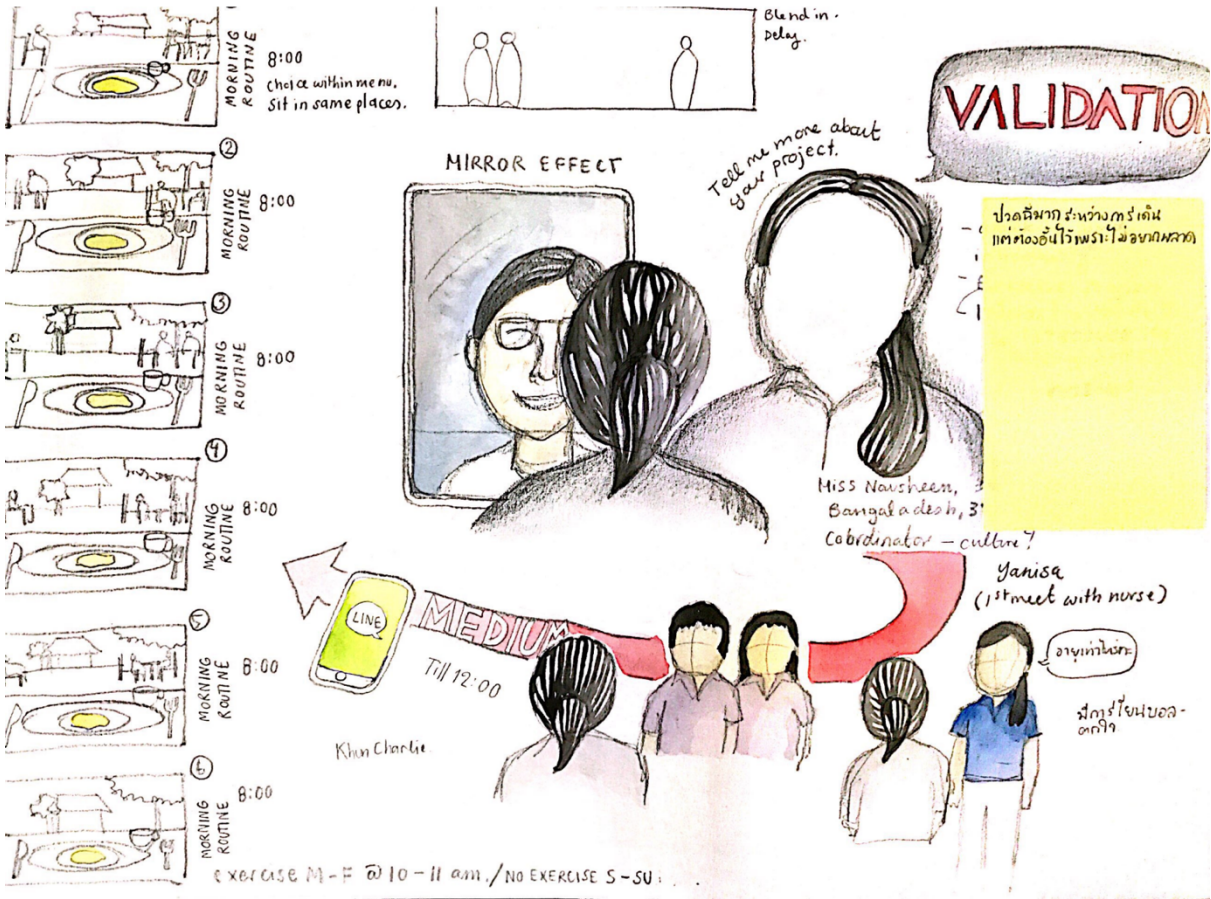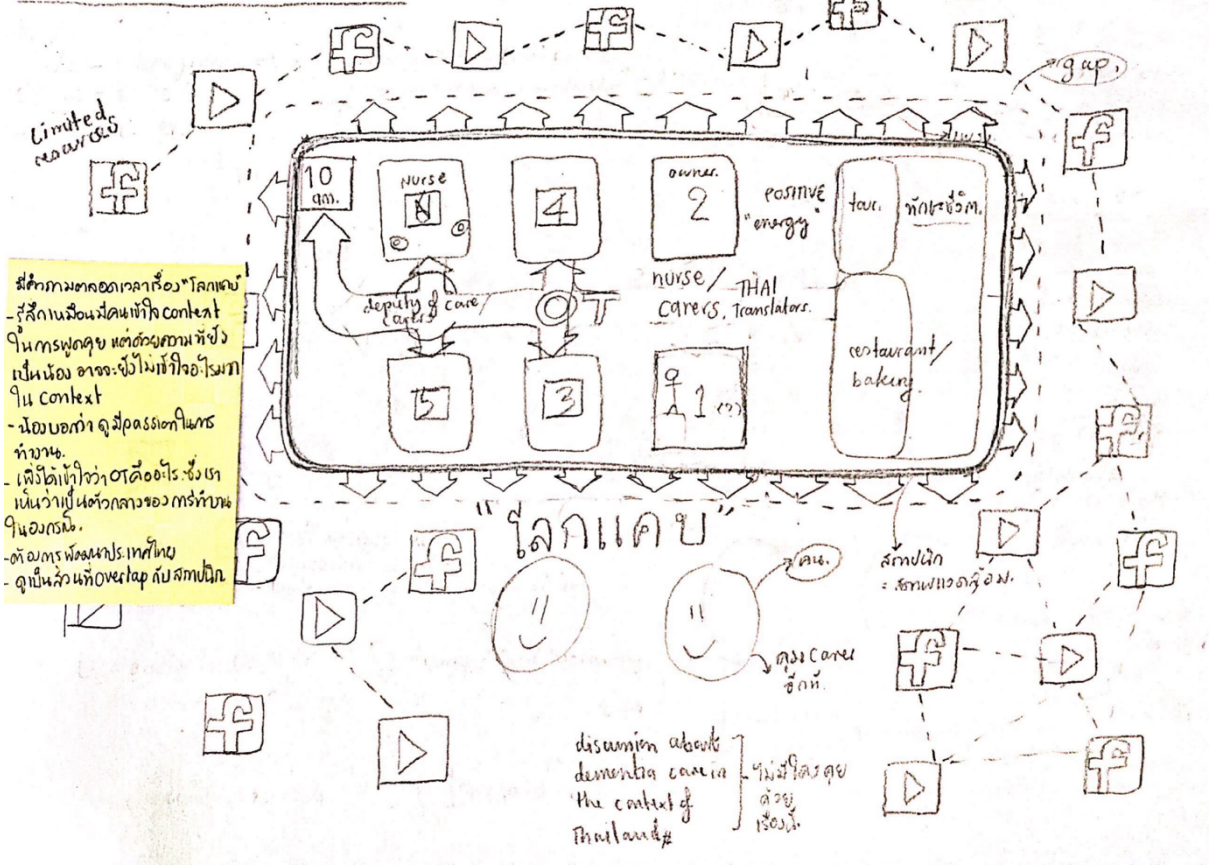It is quite dependent experience. This might be because that I am Thai researcher in the foreign owned property in the context of Thailand. What are the main intention? — to help?
— compliment? Why? If Thai ถ้ามาเอง / ไม่ค่อยหรือเยอะ.

Dementia รึเปล่า.

News / Media Vacuum. Compound

cost of living.   power relation เค้าได้เปรียบ   Food   Limit your autonomy
Thai researcher   Services

→ Research. 'greng-jai' 'เกรงใจ'

They can control.

ฮั้ออก ในนายตัว?

2 July 2011.
after visiting
↓
personal experience.
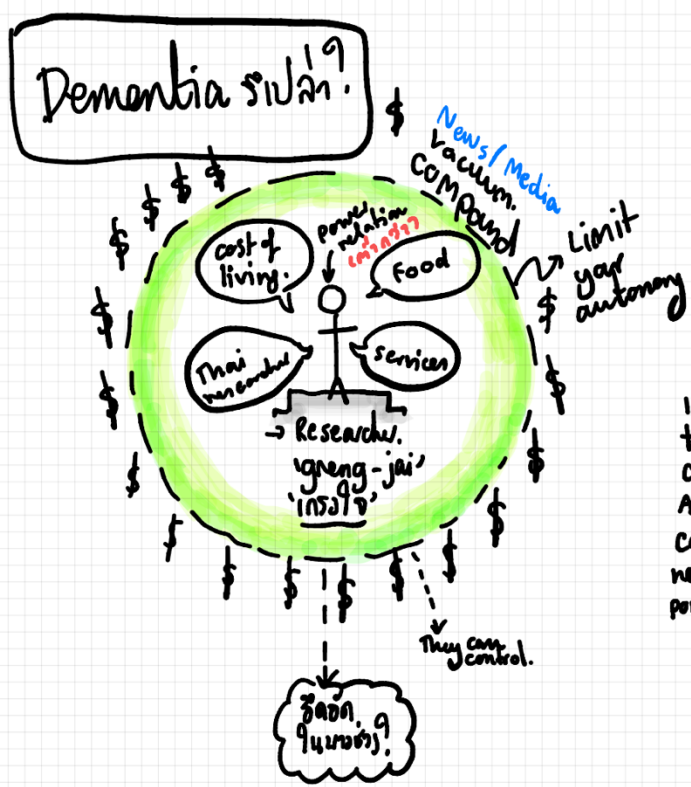
It seems to be the community without cash (เป็นแบบจ่ายไปแรกรวม) Autonomy of the researcher? Can it be discussed with neocolonialism? power relation — researcher/capital.
21:30
2/7/2019.

871

Vivo bene Village

site boundary.

Social Reproduction?
if security guard had learned about.

quality of care.

Zoning /Separation.
Memory care unit.

The diagram — as my sign
Diagram & semiotics
is desire to make meaning.

Peirce's semiotics concentrate on
the meaning of diagrams as a tool
for gaining new knowledge.

DESIGN: world of Meaning (??)

12·02·20
yanisa.

DE-CONSTRUCT SOCIAL CONSTRUCT.
(MIRROR EFFECT)

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Top diagram (CS 2):

CS 2
• Selfhood (routines)
สิ่งที่ทำให้เกิด
ขึ้นน้อย
(motivation)

environmental factors
Enabling environment
Environment
spirit of place
spiritual forms
Preferences
social inclusion
Sensation
Aesthetics
Present spaces
Routine
Aesthetic
Selfhood.
(change to routines)
Routine → Routines/ Person.
Function
Security

• motivation?
• use Routines?
Routine/

Bottom diagram (CS 2):

CS 2
• creative functionality

programmes
เกณฑ์แต่ละข้อ → security
• Creative functionality
Eg (design?)
• Aspects of security
Education
Knowledge
Surveillance
Concept
concept
(creative functional arts)
Aesthetics
Programme
Narratives
Learning environment
Flexibility
Variety & Activities

ขอ perception?
เพื่อ security?

ขอ security มาทำ เพิ่อ:
- education/concept
- knowledge /surveillance
- สิ่งข้อ เป็น sub-theme
(ภายใน programmes)
- Aspects of security
- No selfhood domain.
จึงเกิดจาก User Interest.

CS2
• security

self-flowing

Enriched care → Health → Security

Sense of place

Person-centred care

Families

Signs Cues

Trust   Surveillance

Creative functioning

มากกระดาษของโหมพยะ:
สีดำ (code grey)

CS2
• self-esteem.

Recognition

Identity   National character.

Self-environment

Respect

Dignity

Self Esteem.   Freedom   Ego

• Freedom / dignity /
  self-environment.
  มี selfhood blend
  เชื่อมกับ self-esteem

• ไม่มีส่วนของสีเขียว

security   security

CARE STAFF · COMMUNITY · EXPECTATIONS · RELATIVES

VALUES

HEALTH PROMOTION SETTING — (65+) What is old? ↳each is different ↳Fit/not Fit (not homogeneous)

CARE MANAGER

SOCIAL NORM · P-E FIT · ABSTRACT / CONCEPT

(relating to society)
Design · Social · Care
· social Recognition
   ↳comfort? what is comfort?
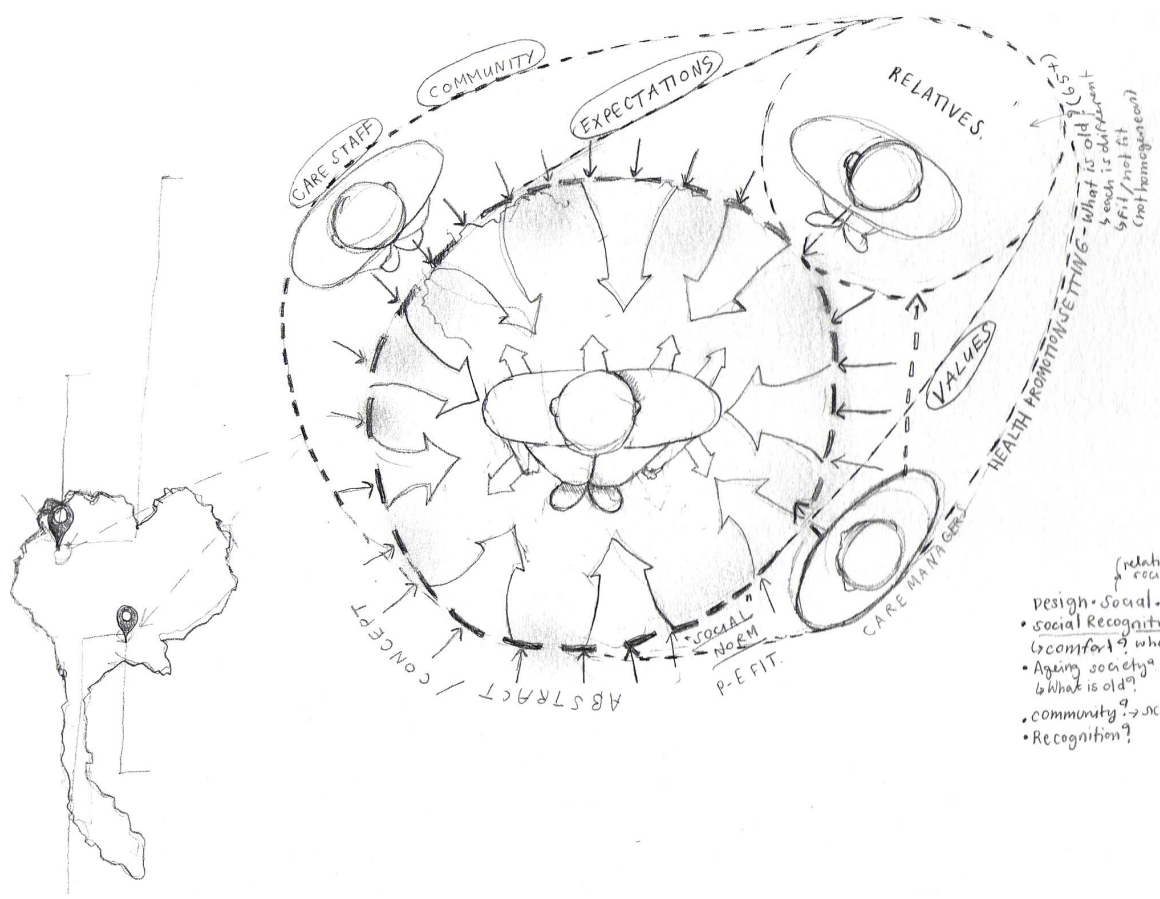· Ageing society?
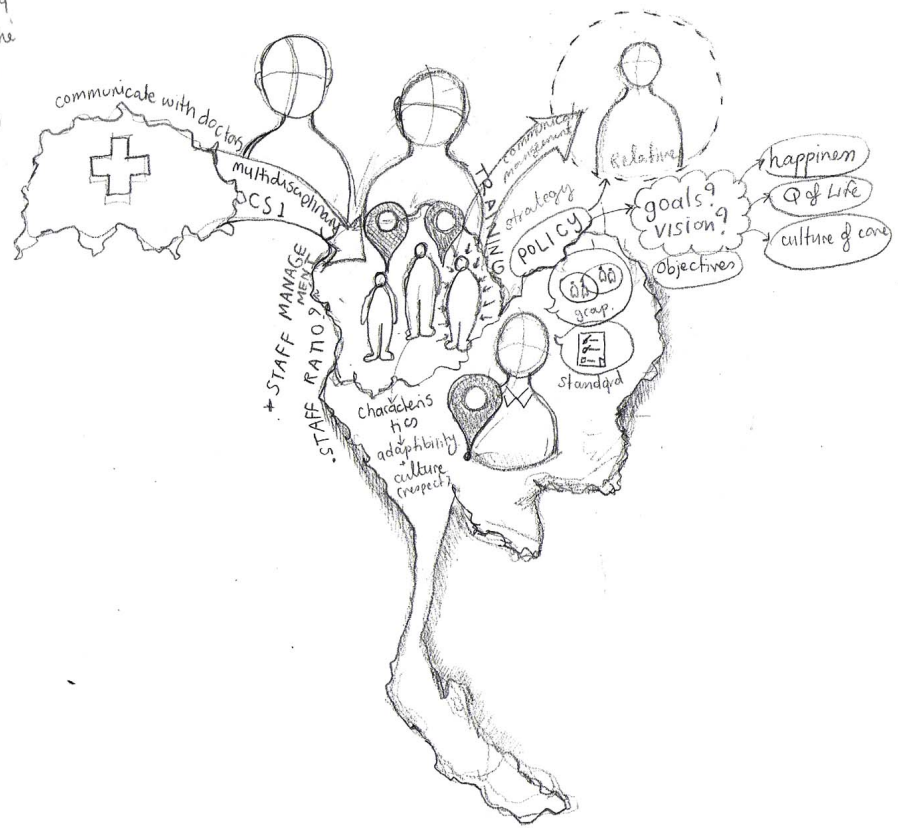   ↳What is old?
· community? → sick/not sick.
· Recognition?

medical model?
management is the administration of an organisation ↳selling the strategy of an organisation to accomplish its objective.

communicate with doctors
multidisciplinary
CS1
STAFF MANAGEMENT
STAFF RATIO?
characteristics
adaptability
culture (respect?)
TRAINING
strategy
communication management
POLICY
Relative
goals? Vision?
objectives
standard
group
happiness
Q of Life
culture of care

V. Co-design workshops

Co-design
workshop
Planning

Design and Assessment Tools for an Enabling
Environment for Dementia Care

Setting

Participants

facilitatorx1   assistant x1   caregivers x2-3   nurse x1   OTx1   managerx1

Plan

FACILITATOR YANISA
PARTICIPANT#1
PARTICIPANT#2
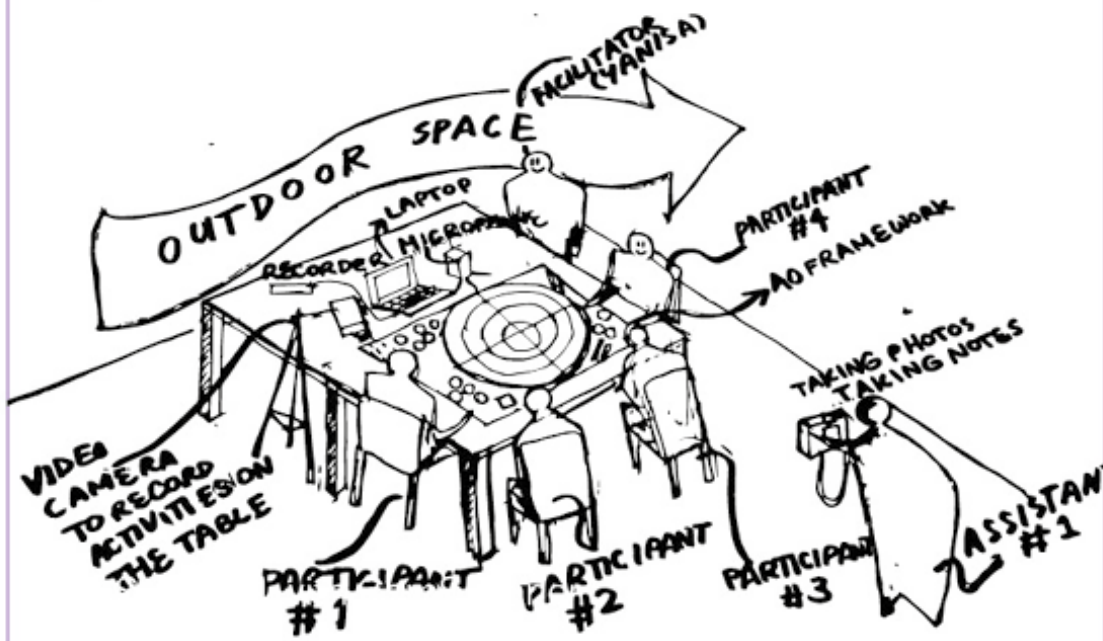PARTICIPANT #3
PARTICIPANT #4
ASSISTANT #1
PARTICIPANT #5
PARTICIPANT #6

Equipment

Camera x 2
Tripod x1
Microphone x1
Recorder x1
Notepad x 1
+
Print out materials

Perspective

OUTDOOR SPACE
FACILITATOR (YANISA)
LAPTOP
RECORDER MICROPHONE
PARTICIPANT #4
A0 FRAMEWORK
TAKING PHOTOS TAKING NOTES
VIDEO CAMERA TO RECORD ACTIVITIES ON THE TABLE
PARTICIPANT #1
PARTICIPANT #2
PARTICIPANT #3
ASSISTANT #1

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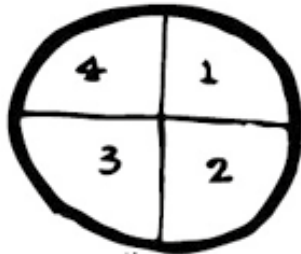# Day 1 - instruction
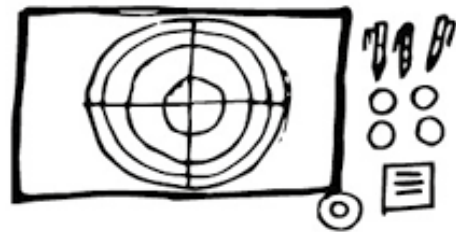
Setting

Explain objectives

Findings and concept

Equipment

Day 1- workshop

Part 1

9:15 - 10:00 am

15 min - Break

10:00-10:15 am

Part 2

10:15 - 10:45 am

Discussion / Conclusion

10:45 - 11:00 am

Day 2 - workshop

Part 3   Part 4

9:00 - 10:00 am

15 min - Break

10:00-10:15 am

Comparison

10:15-10:45 am

Conclusion

10:45-11:00 am

Day 3 - workshop

Room and Building Layout
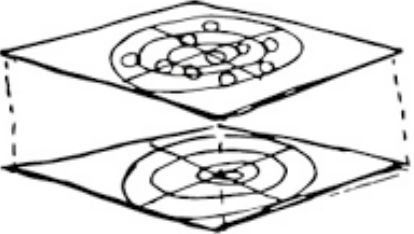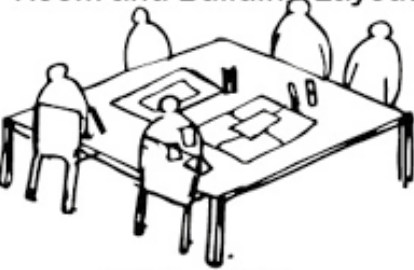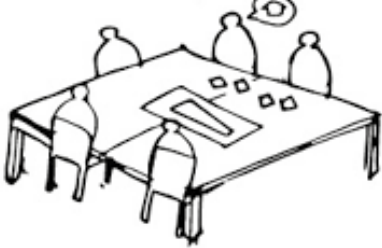

9:15 - 10:15 am

15 min - Break

10:15 - 10:30 am

Community Layout

10:15 - 10:45 am

Discussion / Conclusion

10:45 - 11:15 am

Non-Attachment ความไม่ยึดติด	**Non-Self** ความไม่ยึดติด	**Flexibility** ความยืดหยุ่น	**Absolute Freedom** เสรีภาพอย่างแท้จริง	**Physical Health** สุขภาพกาย
Emotional Health สุขภาพทางอารมณ์	**Variety of Activi-** ความหลากหลาย ของกิจกรรม	**Levels of Care** ระดับของการดูแล	**Comfort** ความสบายใจ	**Narratives** เรื่องเล่า
Disorientation ความงุนงง	**Healthy Environment** สิ่งแวดล้อมที่ดีต่อ สุขภาพ	**Sensory Abilities** ความสามารถทาง ประสาทสัมผัส	**Brain Learning Capacities** ความสามารถในการ เรียนรู้ของสมอง	**Self-Identity** อัตลักษณ์ตนเอง
Personality บุคลิกภาพ	**Caring Background** พื้นหลังการดูแล	**Flexible Spaces** พื้นที่ยืดหยุ่น	**Atmosphere** บรรยากาศ	**Spaces for Activities** พื้นที่สำหรับทำกิจกรรม
Care Needs ความต้องการในการ ดูแล	**Objects** วัตถุ	**Privacy** ความเป็นส่วนตัว	**Ambience** บรรยากาศ	**Personality** บุคลิกภาพ
Hospitality การต้อนรับขับสู้	**Social Hierarchy** ลำดับชั้นทางสังคม	**World** โลก	**International Styles** สไตล์นานาชาติ	**Training** การฝึกอบรม
(Unbound) Form of Attachment ความไม่ยึดติด	**Aesthetics** สุนทรียศาสตร์	**Authenticity** ความถูกต้อง	**Sense of Place** ความรู้สึกของสถานที่	**Sensation** ความรู้สึก

Spiritual Forms รูปแบบจิตวิญญาณ	**Security** ความปลอดภัย	**Homeliness** ความเป็นบ้าน	**Creativity** ความคิดสร้างสรรค์	**Sustainability** ความยั่งยืน
Spirit of Place วิญญาณแห่งสถานที่	**Air quality** คุณภาพอากาศ	**Touch** สัมผัส	**Sound** เสียง	**Scenery** ทิวทัศน์
Metaphors คำอุปมา	**Gestalt** ความยืดหยุ่น	**Transitional** เฉพาะกาล	**Face and Voice Bonding** พันธะใบหน้าและเสียง	**Enclosure** การปิด
Open spaces เปิดช่องว่าง	**Spaces to Express** ความยืดหยุ่น	**Spaces for Action** พื้นที่สำหรับการดำเนินการ	**Diversity** ความหลากหลาย	**Nature** ธรรมชาติ
Availability of spaces พื้นที่ว่าง	**Vernacular** ภาษาพื้นถิ่น	**Cost Planning** การวางแผนต้นทุน	**Geographical Variations** ความแปรปรวนทาง ภูมิศาสตร์	**Division of Labour** กองแรงงาน
Location Proximity ความใกล้ชิดของสถานที่	**Cultural Landscape** ภูมิทัศน์วัฒนธรรม	**Spaces for Detachment** การปลดปล่อยตนเอง	**Enabling Environment** การเปิดใช้งานสภาพ แวดล้อม	**Universal Language** ภาษาสากล
Lifestyles ไลฟ์สไตล์	**Trust** เชื่อใจ	**Healing Programmes** โปรแกรมการรักษา	**Knowledge** ความรู้	**Concepts** แนวคิด

Selfhood ความเป็นตัวเอง	**Self-Environment** ตัวเอง-สิ่งแวดล้อม	**Person-centred care** การดูแลที่เน้นบุคคลเป็นศูนย์กลาง	**Social Inclusion** การเข้าสังคม	**Identity** ตัวตน
Preference ความพึงใจ	**Emotional Health** สุขภาพทางอารมณ์	**Physical Health** สุขภาพทางกายภาพ	**Activities** กิจกรรม	**Personal Spaces** พื้นที่ส่วนตัว
Self-esteem ความนับถือตนเอง	**Aesthetics** สุนทรียภาพ	**Dignity** ศักดิ์ศรี	**Sense of Place** ความรู้สึกที่มีต่อสถานที่	**Sensation** ความรู้สึก
Spiritual Forms รูปทรงที่สื่อถึงจิตวิญญาณ	**Respect** เคารพ	**Freedom** ความเป็นอิสระ	**Sustainability** ความยั่งยืน	**Spirit of Place** จิตวิญญาณแห่งสถานที่
Creative Functionality การใช้งานอย่างสร้างสรรค์	**Stimulation** การกระตุ้น	**Flexibility** ความยืดหยุ่น	**Learning Environment** สิ่งแวดล้อมที่เอื้อต่อการเรียนรู้	**Narratives** เรื่องเล่า
Absolute Freedom ความเป็นอิสระ	**Variety of Activities** ความหลากหลายกิจกรรม	**Levels of Care** ระดับการดูแล	**Comfort** ความสบาย	**Programmes** ความยั่งยืน
Environment สิ่งแวดล้อม	**Security** ความรู้สึกปลอดภัย	**Enabling Environemnt** สิ่งแวดล้อมที่เอื้ออำนวย	**Knowledge** ความรู้	**Recognition** การยอมรับ

Design Framework for an Enabling Environment for Dementia Care