"The outdoors has opened her world up."

Exploring the experiences of children with Profound and Multiple Learning Disabilities who access nature spaces and outdoor learning.

Eleanor Rose White Dumbrell

Registration number: 220110460

Research thesis submitted in partial fulfilment of the requirements for the degree of Doctor of Educational and Child Psychology.

The University of Sheffield
School of Education

April 2025

Abstract

Outdoor learning is incorporated into the curriculum of many educational settings, supported by research highlighting numerous benefits this can have for some children and young people (CYP) (Coates & Pimlott-Wilson, 2019; Hussein, 2017a). However, there is currently little understanding of the experience and potential impact of the outdoors for CYP with Profound and Multiple Learning Disabilities (PMLD).

Multisensory experiences have been identified to be a crucial element in the development and wellbeing of CYP with PMLD (Grace, 2018). Separate research identifies the outdoors as spaces in which multisensory experiences can be naturally accessed (Hart, 2003). However, there is again a lack of research investigating the capacity of outdoor environments to create multisensory experiences for CYP with PMLD.

This study aims to add to this understanding by exploring the experiences of CYP with PMLD accessing outdoor spaces. Through a social constructionist approach, ethnographic participant observations were utilised within one Forest School and one Sensory Garden accessed by CYP with PMLD. Interpretations of the experience were developed in collaboration with practitioners who knew the CYP well. Three semi-structured interviews were also conducted with practitioners who facilitate access to outdoor learning for CYP with PMLD.

Field notes and transcripts were analysed using Reflexive Thematic Analysis. Themes highlighted several aspects of the outdoor experience for CYP with PMLD; these include it being a relational space that supports equality and agency, whilst also enabling benefits such as improved communication, engagement, movement, and pain/healthcare management. Multisensory experiences can be accessed outdoors through natural resources, and are felt to be more meaningful than those experienced indoors. The outdoors is also perceived to be a space that CYP with PMLD enjoy being in, helping to change a culture of marginalisation and exclusion. Implications for practitioners, Educational Psychologists, and systemic change are explored, alongside suggestions for future research.

Contents

List of acronyms

SEND – Special Educational Needs and Disabilities

CYP – Child/children and young person/people

PMLD – Profound and Multiple Learning Disabilities

SLD – Severe Learning Disabilities

EHCP – Education, Health and Care Plan

PO – Participant Observation

RTA – Reflexive Thematic Analysis

EP – Educational Psychologist

TEP – Trainee Educational Psychologist

EPS – Educational Psychology Service

LA – Local Authority

DfE – Department for Education

DfEE - Department for Education and Employment

Chapter 1: Introduction

1.1 Personal motivations for this research

My initial motivations to conduct research in this area were based on my experiences prior to transitioning into the world of Educational Psychology, when I worked as a class teacher in a specialist school. For two years in this role, I taught a class of children who could be understood as having Profound and Multiple Learning Disabilities (PMLD). The children shared loves of music, messy play, and Balamory. They each were also wheelchair-users, pre-verbal, and experienced significant healthcare needs.

The school had access to a local woodland where they owned a small hut. Each week, most classes would go on the school bus to this space, where they would enjoy activities such as den-building, pond-dipping, and nature walks, before going back to the hut for hot chocolate, snacks, and stories. It was a fantastic resource loved by both staff and students; however, at the time, my class was excluded from this. Concerns around wheelchair access, risk assessments, and ensuring we were within reach of an ambulance in case of medical emergencies meant that this woodland was considered to be off-limits for children with the most complex needs. There were also low expectations of what my pupils would do if they were able to get there, and if they could benefit from the experience. For my first few weeks in the role, I accepted this as being 'just the way it is', but as I got to know my class better, became more confident in meeting their needs, and understood what they *could* do, I increasingly began to see this as unfair.

We were lucky to have an experienced Outdoor Learning Lead in school, responsible for managing the woodland area and facilitating access to this across different classes. I discussed with her why my class were unable to visit this space and if there was something we could do to rectify this; fortunately, she had been having similar thoughts, and so we began our work together to improve the accessibility of the woodland for our children with PMLD. We were able to overcome barriers by creating in-depth risk assessments, hiring wheelchair-accessible buses, buying waterproof wheelchair-covers, and staying on the edge of the woodland so medical professionals

could easily reach us if required. I was also lucky to be part of a staff team in class who believed in this and were just as motivated as I was to make these changes. Between us, we were able to adapt the standard practice so that our pupils spent time in the woodland every week, just like every other child in school.

In doing this, what we saw was enlightening. The children began to learn the routine of getting ready to go to the woods and would show their excitement about this. Once there, we would share walks around the space to experience nature, listening for sounds and feeling the different surfaces under their wheels. For the children who could get out of their wheelchairs, we would lie down feeling the earth, grass, and leaves beneath us. We would have free play and exploration, sensory stories, and just spend time together. The children appeared more engaged, explorative, interactive, and happy than I had ever seen them within the classroom environment.

They were collectively emotional experiences, mostly in a positive way, but also in eliciting some frustration in me that they had missed out on this for so long. In speaking with colleagues in different settings and being part of networks focussed on PMLD, I also saw that this exclusion from outdoor learning for children with PMLD was not restricted to my school, but appeared to be common practice. I searched for literature in this area and found that it did not yet seem to exist. Searching online to find other schools supporting their pupils with PMLD to access outdoor learning felt like an impossible task. I later discussed this with Educational Psychologists in my placement services, but the concept seemed new to most of them who also expressed feelings of a lack of confidence in the field of PMLD in general. When I was then given the opportunity to complete my doctoral research, I chose to focus on this area for three key reasons: to attempt to answer questions I personally held in relation to outdoor experiences for children with PMLD, to raise awareness of and increase access to outdoor learning for children with PMLD, and to add to understandings of PMLD from the perspective of a Trainee Educational Psychologist.

1.2 Research Questions

Based on the background literature discussed in-depth throughout Chapter 2 and what I perceive can be added to this existing knowledge, my overarching research question is:

1) What are the experiences of children and young people with Profound and Multiple Learning Disabilities who access nature spaces and outdoor learning?

I will also be exploring other aspects of this topic further by considering two more focussed research questions:

2) What is the potential of nature spaces and outdoor learning to create multisensory experiences for children and young people with Profound and Multiple Learning Disabilities?

3) What are practitioner's perceptions of the impact of accessing nature spaces and outdoor learning for children and young people with Profound and Multiple Learning Disabilities?

1.3 Terminology

Whilst understandings of the term 'Profound and Multiple Learning Disabilities' will be considered in-depth within Chapter 2, I wish to firstly clarify what I mean by some of the other language used within my research questions.

'Outdoor learning' will refer to educational provision accessed through and within the school setting. This will at times be used interchangeably with the term 'outdoor education', depending on the context and language used within the literature. 'Outdoor learning' can include structured educational activities in outdoor spaces, as well as broader opportunities for developing skills in areas such as exploration, play, interaction, and problem-solving (Waite, 2007).

I also wished to include the term ‘nature spaces’ in my research questions. The purpose of this is to move some of the focus away from structure and learning to just being able to experience the outdoors and ‘be’ in nature. I have emphasised the ‘nature’ element of these spaces as this will not include urban outdoor spaces, such as within town centres or cities; this will also not include time spent outdoors where there is a separate purpose to this, for example walking to the shop. ‘Nature spaces’ will include parks, woodlands, countryside, gardens, and beaches.

1.4 Outline of this thesis

This thesis will be reported throughout four additional chapters.

Chapter Two presents a thorough review of the literature relevant to my research, including considerations of terminology related to ‘PMLD’, the value of multisensory experiences for CYP with PMLD, the impact of outdoor education, and the role of the EP in supporting specialist schools and CYP with PMLD.

Chapter Three focusses on my methodology. I will first discuss my epistemological and ontological positioning, before detailing my design, analysis, and associated quality and ethical factors.

Chapter Four outlines my interpretations of the data and how I have constructed these into themes. These themes will be discussed in detail alongside existing literature.

Chapter Five proposes some implications for my research, including for Educational Psychologists, for practitioners working directly with CYP with PMLD, and for systemic change. I will also debate the strengths and limitations of my research, and suggest ideas for future research. This chapter will then conclude the thesis with some final personal reflections.

Chapter 2: Literature Review

This literature review will outline the background and rationale of the current research. I will begin by explaining what I mean when using the term PMLD and discuss the research surrounding definitions of this terminology. I will then consider the importance of multisensory experiences for CYP who could be understood as having PMLD, before focussing on how multisensory experiences can be found in the outdoors. Next, I will discuss the current literature around two specific types of outdoor learning - Forest Schools and Sensory Gardens. Following this, I will discuss how this area of practice links to the role of the Educational Psychologist, including how it could be utilised to support their work and relationships with special schools, and in supporting CYP with PMLD directly.

2.1 Profound and Multiple Learning Disabilities

2.1.1 Defining PMLD

Whilst it is argued by some that the use of labels and definitions of disabilities only serve to create subgroups and increase power differentials (McClimens, 2005), others maintain that labels help to develop a shared understanding of need and therefore are important within service planning and knowing how to support those who may fall within that category. This is reflected in a statement by The PMLD Network (2002, p. 6):

> *"Clarity about terminology and definitions should be achieved so that the population of children and adults with PMLD can be counted, and more importantly their needs can be understood."*

I therefore feel it is important to spend some time defining what is meant by 'PMLD' in this study in order to aid clarity.

The term 'Profound and Multiple Learning Disabilities' was first coined in 1987 in an attempt to overcome the issue of there being no clear definition for a group of individuals who experience profound levels of learning disabilities alongside other

severe impairments (Evans & Ware, 1987; Ware, 2004). It is used within the SEND Code of Practice (2015) to describe children who “are likely to have severe and complex learning difficulties as well as a physical disability or sensory impairment” (p. 97-98). Whilst the term PMLD is not a clinical diagnosis, but rather a description of possible needs, some of the definitions can feel medicalised. For example, in line with this initial terminology developed by Evans and Ware (1987), for a person to be identified as having PMLD they must firstly have profound learning disabilities, which is classified by the National Institute for Health and Care Excellence as having an IQ of below 20 (NICE, 2023). In addition to this, the individual will also experience at least one other severe impairment. An impairment can be classed as ‘severe’ when by itself it would act as a significant barrier to learning and lead to additional support and adaptations being required (Ware, 1987).

A range of definitions of PMLD have been proposed by researchers in this area, each of which include what the aforementioned ‘severe impairments’ may look like. Many of these definitions agree on a number of aspects, for example, that a person with PMLD may have limited understanding of verbal language and communicate using primarily non-verbal means (Samuel & Pritchard, 2001; Hogg, 2004; Hinchcliffe, 2022), that they will often have complex health and medical needs (Ware, 2001; Hogg, 2004; Samuel & Pritchard, 2001), that they will often be functioning at the developmental level of someone aged below 2 years of age (Ware, 1996; Hogg; 2004), that they are likely to experience both sensory and physical impairments (Lacey, 1998; Samuel & Pritchard, 2001; Hinchcliffe, 2022), and that they will require high levels of support from others in most or all aspects of their life and care (Samuel & Pritchard, 2001; Hinchcliffe, 2022).

However, there are also some differences between the definitions used by researchers. Lacey (1996) argued that it is not accurate to compare people with PMLD with infants in terms of their cognitive level, as this does not account for their many additional years of life experience. There are also discrepancies between how the communication skills of people with PMLD are described within various definitions and within the experiences of people who know individuals with PMLD well. For example, Samuel and Pritchard (2001) wrote that people with PMLD are likely to have “extremely delayed […] social functioning with little or no apparent understanding of

verbal language" (p. 39). This has been argued against by carers of people with PMLD, who emphasised that communication should not be viewed solely as language but that wider concepts of communication should also be considered, such as eye contact and body language (Bellamy et al., 2010). Grace (2017) suggests that responsibility within communication should not be placed on the person with PMLD to master certain skills, but on the person interacting with them and their ability to listen and communicate responsively.

These important aspects, alongside other common features of the term PMLD, are encompassed in a definition adopted by the Sheffield Joint Learning Disability Service, which was developed by Bellamy et al. (2010, p. 233) through combining commonly agreed upon definitions with feedback from families and carers of those with PMLD:

> *"People with Profound and Multiple Learning Disabilities:*
>
> • *have extremely delayed intellectual and social functioning.*
> • *may have limited ability to engage verbally but respond to cues within their environment (e.g. familiar voice, touch, gestures).*
> • *often require those who are familiar with them to interpret their communication intent.*
> • *frequently have associated medical conditions which may include neurological […] physical or sensory impairments.*
>
> *They have the chance to engage and to achieve their optimum potential in a highly structured environment with constant support and an individualised relationship with a carer."*

This definition is useful as it is less clinical that other definitions discussed and is a general description of what PMLD could or might look like, rather than a list of definitive characteristics; this recognises that people with PMLD are individuals and are unlikely to experience the same difficulties in the same way as anyone else. There is also a focus on what people with PMLD can do rather than solely what they cannot do, whilst emphasis is placed on the impact of a personalised environment and their relationships with others; this highlights the importance of recognising and adapting to

the needs of the individual. For these reasons, this definition of PMLD is the one I will refer to throughout my research.

2.1.1 Current statistics related to PMLD in education

The 2023/24 statistics released by the Department for Education report that there are currently 10,794 CYP aged 0-25 in England that have been identified as having PMLD as their primary need. 10,014 of these CYP have an Education, Health and Care Plan (EHCP). Whilst this places PMLD within the five lowest incidence categories of special educational need identified within UK education, it is clear there are still significant numbers of CYP identified as experiencing this level of need. The majority of these CYP attend special schools, with previous figures by Public Health England (2015) placing this at 81%. This means that almost 20% of CYP with PMLD may be attending mainstream schools, and therefore it is important for all school settings to be aware of the needs of this group and how they can best be met.

2.2. Sensory Experiences for CYP with PMLD

Martin (2017) writes that CYP with PMLD could often be considered to be working at the sensorimotor stage of development as outlined by Piaget (1971), in which they utilise innate skills to learn more about their environment, such as listening, looking, grasping and mouthing (Cherry, 2023). Grace (2018) writes that these individuals could be understood as ‘sensory beings’, who experience and understand the world through sensory experiences in the present moment; they understand the world differently to ‘linguistic beings’, that is, those who have acquired verbal language.

“Sensory-being for sensory beings” (Grace, 2018, p. 1), or accessing meaningful sensory experiences, is vital in supporting the wellbeing and development of CYP with PMLD (Ayer, 1998). There are five basic human senses: taste, vision, touch, smell and sound (Ayer, 1998). More recently, additional human senses have been proposed, such as proprioception (awareness of the body in space), equilibrioception (sense of balance) and chronoception (sensing the passing of time) (Crable, 2022). Something perceived through a combination of these senses can be understood as a ‘multisensory experience’ (Ayer, 1998).

Multisensory experiences help CYP with PMLD to create memories and understand the world around them (Booker & Booker, 2011; Grace, 2014). Appropriate multisensory stimulation for CYP with PMLD can support them to gather information from their environment and increase awareness of changes in their surroundings (Ouvry & Saunders, 1996). Being unable to participate in multisensory experiences can lead to CYP with PMLD developing low mood and learned helplessness (Hayes et al., 2011). Without multisensory stimulation to awaken the senses, CYP with PMLD would find it almost impossible to understand the world around them and begin to learn (Longhorn, 2011).

A strong multisensory stimulus is one that completely engages and demands attention from the sense, with noise, movement, smell, colours, touch and changes in lighting all contributing towards creating a full and meaningful multisensory experience (Grace, 2014). Sensory stimulation must also have intrinsic meaning and be part of an experience in order to support development and the learning process, as opposed to the completion of a sensory activity in isolation within an unrelated environment (Ouvry & Saunders, 1996).

For children with PMLD, multisensory experiences should be a dominant and exciting part of their daily life (Longhorn, 2014). However, as individuals with PMLD often experience physical difficulties that can limit their ability to explore and independently seek out this sensory input, it is important for those who support them, for example within schools, to facilitate these experiences for them (Ayer, 1998). This focus on the importance of sensory aspects of the curriculum is recognised within the practice of many special schools and those who work with CYP with PMLD, for example, through the use of sensory stories (Young & Lambe, 2011).

This is also recognised by the UK Government in relation to the design of special schools. For example, multisensory rooms are commonly found within special schools, in which CYP with PMLD have regular access to enclosed rooms full of sensory-stimulating resources such as fibre-optics, fragrances, music, switches and projectors (Ayer, 1998). The Department for Education (2015) outlined that all special schools should have at least one sensory room to provide adequate provision for those with

complex needs. However, despite this governmental guidance and the widespread implementation of sensory rooms, there has historically been limited evidence related to their effectiveness.

Grace (2019) considered the use of sensory rooms in her research and subsequent book on the topic. Whilst it is emphasised that sensory rooms can be magical places that can transform the education and lives of those that use them, Grace found that there are often practical issues that can get in the way of the rooms being used to their full potential. Often, the rooms are used for other purposes that they haven't been designed for, by staff who have not been appropriately trained in how to use it. Cameron et al. (2020) also conducted a review of the literature around multisensory rooms with mixed findings. For example, whilst Lotan (2006) reported that sensory rooms supported engagement and reductions in behaviour that can be challenging, Chan et al. (2010) found this to be inconsistent and was related to the specific needs of the individual. Linked to this are reports that multisensory rooms are often using with CYP with PMLD for calming and relaxation purposes (Ayer, 1998; Stephenson & Carter, 2011), however Fava and Strauss (2010) found that multisensory rooms are more effective for calming in autistic children and those with moderate intellectual disabilities as opposed to CYP with PMLD.

More positive results were found relating to increased displays of communicative intent following time in the multisensory room (McKee et al., 2007; Chan et al., 2010), whilst Sachs and Nasser (2009) found that families of children with PMLD living in long-term care facilities value multisensory rooms as a place they can be with their child, which fosters a sense of togetherness and promotes sibling relationships.

It is also important to consider that whilst some of these positive findings discuss the possibilities that multisensory rooms have, it does not mean that the rooms are consistently being used in a way that these possibilities become a reality. For example, Grace (2018) discusses that CYP with PMLD are often 'parked' whilst life happens around them and they are left without stimulation; Ayer (1998) relates this specifically to multisensory rooms and worries that they are used as a 'dumping ground' for CYP with PMLD.

The literature discussed here suggests that whilst there are possible positive effects of multisensory rooms for CYP, the evidence is currently mixed and more research needs to be done into their overall impact and effectiveness, and into whether they are being consistently used across schools in an appropriate and meaningful way. This raised my questions around whether the widely-implemented sensory rooms are the best and only environments that can facilitate and encourage multisensory experiences for CYP with PMLD, or if this could be achieved elsewhere.

An alternative environment that this could be achieved in is the outdoors. For example, Grace (2019) writes that one of the key aspects of an effective sensory room is darkness, which supports in maintaining focus and calmness. Whilst Grace (2019) does discuss that 'blackout' can be beneficial, which is likely to be harder to achieve in the outdoors, environments such as forests could be highly useful in providing areas of darkness, and changes in light and shade. Sound and tactile stimulation are also important aspects of sensory rooms (Ayer, 1998), both of which can be found in outdoor environments through different natural materials and sounds such as birdsong and flowing water. Furthermore, multisensory rooms are almost always fully enclosed rooms within a building; whilst this may make access to the room and necessary resources easier, it also limits opportunities for wider exploration and finding new and unknown stimuli that haven't been experienced before. Again, a more open outdoor environment may be better able to provide these opportunities. The next section will look into this further, and explore how outdoor environments have the potential to be multisensory spaces.

2.3 Impact of Outdoor Environments on the Senses

Hart (2003) writes about his experience of how outdoor settings awakened the senses in a group of primary-aged children, recounting how, "We would choose different senses, hearing, seeing, smelling […] I was watching them develop deeper sensitivity to their environment" (pp. 129–130). Similarly, Auer (2008) noted that when working with a group of post-16 young people in an area of woodland, the sensory stimulation of the lighting in the trees, the touch of various natural materials, the smell of flowers, and the sound of birdsong increased students' awareness of their surroundings and created a connection between them and the external world. Nel, Joubert and Hartell

(2017) write that nature is a key component of sensory stimulation where children can experience deeper engagement, discovery and exploration.

Whilst discussing access to natural outdoor environments for CYP with SEND, an occupational therapist stated, “we are looking at meeting that sensory need, the smell, the touch, the sound of the rustling leaf, the feel of water. I've seen they are really enjoying that and those effects on well-being […] Just being outside in the sunshine. Being able to smell the plants, feel them, see them, can make you feel a whole lot better” (Hussein, 2017a, pp. 158-159).

None of these studies focussed specifically on how these outdoor sensory experiences could be facilitated and what the impact may be for CYP with PMLD, and so it is difficult to apply these findings to this specific group of individuals. However, they do suggest that outdoor environments have great potential in providing meaningful multisensory experiences, and as it is known that this is important for CYP with PMLD, it could be inferred that outdoor spaces have the potential to provide this for them.

2.4 Impact of Outdoor Learning Experiences for CYP

Access to outdoor environments and the inclusion of outdoor education within the curriculum has a significant impact on the overall learning, development and wellbeing of CYP (Miller et al., 2021). I will now consider how these benefits link to the specific outdoor settings of Forest Schools and Sensory Gardens.

2.4.1 Forest Schools and their impact

Forest Schools originated in Scandinavia in the 1950s before being developed in the UK and beyond from the 1990s (Dabaja, 2022). There are currently more than 150 established Forest Schools across England, Scotland and Wales, with many more settings utilising their own on-site woodland areas as part of their curriculum (O’Brien, 2020). Typical Forest School activities include exploring nature, telling stories, den-building, crafts, cooking, and walking (Tiplady & Menter, 2021). In 2011, the Forest

School Association (FSA) in the UK set out six key principles and criteria for good practice:

1) *It is a long-term process of regular visits to a woodland or natural environment.*
2) *It supports the development of a connection between the young person and the natural world.*
3) *It promotes the holistic development of all those involved.*
4) *It provides the opportunity for young people to take supported risks appropriate to themselves and the environment.*
5) *It is run by qualified Forest School practitioners.*
6) *It is a child-centred process.*

There is a range of research into the impact of Forest Schools on CYP, which is overwhelmingly positive.

Slade et al. (2013) found that Forest Schools supported independence and the motivation of CYP to challenge themselves, as well as improving child-adult relationships. Coates and Pimlott-Wilson (2019) found that primary-age children attending Forest School developed their play skills and appreciated the opportunities it provided for them to make decisions for themselves, requiring them to evaluate their own limits. This study also found that Forest Schools led to greater academic achievement, particularly within improved vocabulary, problem-solving and more imaginative creative writing. Manner et al. (2021) found that Forest Schools improved mood, resilience, mental wellbeing, and hope in adolescent girls, suggesting that Forest Schools can have positive effects across age ranges. Harris (2021) reported that Forest Schools support the development of a relationship between CYP and nature, whereby they have a greater affinity for their surroundings, are more relaxed in nature and feel a greater desire to protect it. Boileau and Dabaja (2020) showed that CYP had improved physical health following regular attendance at Forest School; however, this study used questionnaires to measure staff perceptions of the children's fitness levels, rather than measuring actual physical fitness.

Whilst these findings do appear to be strong evidence for the use of Forest Schools, it is important to consider whether the improvements found in this range of areas after

attendance can be specifically linked to the Forest School, or if they are actually due to just being in a new environment and outside of the restrictions of the usual classroom. All of the studies discussed above do link their findings directly to factors specific to Forest Schools, such as increased confidence after learning new skills such as making a fire (Coates & Pimlott-Wilson, 2019), developed play skills after learning den-building and applying this play schema to other contexts (Slade et al., 2013), and improved risk management after having the freedom to climb trees (Connolley & Haughton, 2017). Whilst this therefore suggests that Forest Schools do directly link to a wide range of positive outcomes for CYP who access them, it should also be acknowledged that the activities described above would likely be difficult for most CYP with PMLD to access, and so it must be considered how this provision can be adapted to support this group of young people specifically.

There are also several barriers to facilitating Forest Schools and difficulties faced by staff. For example, Boileau and Dabaja (2020) discuss that schools face challenges such as funding and finding appropriate sites which can hinder the development of their Forest Schools. Furthermore, the motivation of the children can be varied, with some children being less willing to get ready for and attend Forest School on cold and rainy days (Friedman et al., 2022). Participants in this study also reported that there can be instances of pupils absconding from the forest area which presents obvious safeguarding issues. Additionally, conflict can arise between peers over certain activities, whilst the success of the sessions was reported to often be contingent on the influence of the adults present, for example in their enthusiasm and their adherence to routines. These difficulties were spoken about particularly pertinently in reference to CYP with SEND.

2.4.2 Forest Schools for CYP with SEND

In relation to children with SEND, Forest Schools have been referred to as “an enabling learning environment for children with learning difficulties, including children who have learning needs of a considerable severity” (Pavey, 2006, p. 18). Forest Schools are becoming increasingly popular within special schools (Bradley & Male, 2017), but despite this, Friedman et al. (2022) wrote that the impact of Forest Schools on CYP with SEND has received very little research attention, which they label a “striking

omission" (p. 2). However, there are some studies in this area, mostly focussing on the impact of Forest Schools on autistic young people or CYP with Social, Emotional and Mental Health (SEMH) needs.

For example, Friedman et al. (2022) found that autistic children attending a special school experienced several benefits of accessing Forest School, including increased positive social interaction and play with their peers, as well as an appreciation of the escape Forest Schools provided from the strict boundaries and norms of the classroom. In a similar study, Bradley and Male (2017) found that Forest Schools enabled autistic children to experience success, take on challenges and engage in appropriate and safe risk-taking.

Tiplady and Menter (2021) researched the impact of Forest Schools on both primary and secondary aged children who had SEMH needs and attended a special school, finding that CYP experienced improvements in their social interactions and relationships, their engagement with school and learning, and their perceptions of self. This particular study is useful as it also directly links these positive effects to elements specific to the Forest School. For example, these benefits were linked to having more opportunities at Forest School to pursue their own interests, be more physically active, and succeed at new tasks, such as den building and lighting fires. Hopkins (2011) has written about how to remove some of the barriers of the woods for children with physical disabilities, however, whilst this provides useful guidance, it does not delve deeper into the impact of this on the CYP.

Sensory benefits of Forest Schools for CYP with some areas of SEND have also been identified. Harris (2017) interviewed experienced Forest School practitioners who worked with a range of children across various schools. They spoke in depth about the potential of the outdoor environment to create multisensory learning experiences and the opportunity it provides for exploring different materials, smells, sights and sounds. It was also discussed that the sensory aspects experienced outdoors were in marked contrast to those available within the classroom.

Additionally, in Friedman et al's (2022) study focussing on the experience of autistic children at Forest School, it was noted that children who frequently self-stimulated

their vestibular system, for example through jumping, clapping and spinning, were able to do this in the Forest School with more freedom and appeared more relaxed, satisfying their sensory needs in a non-stigmatising way. Similarly, the environment provided opportunities for sensory play and exploration, with many children taking their wellies off to walk through the mud, engaging in water play, and trying new foods from the campfire.

Whilst these studies highlight the potential of Forest Schools to have wide-ranging benefits and be incorporated into a multisensory curriculum, none of the research currently available specifically relates to CYP with PMLD, instead focussing on CYP understood to have other areas of SEND such as autism, SEMH needs and learning difficulties, or those without SEND. This means that it is not fully clear what the impact of Forest Schools could be for CYP with PMLD and how they can be utilised in facilitating meaningful multisensory experiences.

2.4.3 Sensory Gardens

An alternative method of including the outdoor environment in the school day is through the use of Sensory Gardens. The Department for Children, Schools and Families (2008) outlined that an accessible outdoor space that prompts sensory experiences is a vital requirement when designing the layout of a special school, specifically referencing the use of Sensory Gardens. Hussein (2017a) describes a number of ways in which this can be achieved, such as choosing a variety of plants that provide opportunities for sensory exploration through textures, scents and colours, as well as providing areas of light and shade. Plants should also create spaces for both openness and spaces to hide and relax, as well as have the ability to encourage habitats for various forms of wildlife. Additionally, trees should be planted that change over seasons and can offer edible fruits to stimulate exploration of taste. Various materials used for seating, decoration and path networks can also provide a range of tactile experiences. Lambe (1995, p. 114) explained that they will have many features and elements of any traditional garden, but that “the only difference in a sensory garden is that all these components must be carefully chosen and designed to appeal to the senses in such a way that they provide maximum sensory stimulation”.

Sensory Gardens are becoming increasingly popular within special schools (Hussein, 2017a) and can have a range of impacts. For example, Hussein (2017a) observed children with SEND, including learning disabilities and visual impairment, accessing Sensory Gardens and reported increased engagement and enjoyment when CYP were able to participate in multisensory experiences such as moving around on the grass, listening to outdoor sounds, rubbing bark, and shaking tree branches and leaves. Similarly, Whitehouse et al. (2001) reported that within the Sensory Garden of a hospital school, children with health needs were fascinated by its features, such as the range of trees, and were able to maintain sustained attention on these. The researchers noted that it provided a sense of calmness and openness. Another study also found how a Sensory Garden supported blind students to navigate outdoor areas, was soothing, and helped them to feel safe in exploring (Jasmin et al., 2023), whilst teachers have reported that their Sensory Garden is helpful in encouraging communication as children are more motivated to request and find items around the garden (Hussein, 2010).

Some research shows that CYP actively seek out these sensory experiences from their environment. Hussein (2017b) compared the time CYP spent in a variety of areas of a Sensory Garden, each of which had been measured in terms of the sensory affordances they were able to provide. It was found that the area with the highest number of sensory affordances better engaged CYP, where they were most likely to stop, spend longer amounts of time, explore more of the features, and repeat their activities.

Whilst the research discussed highlights the range of benefits that Sensory Gardens can have for people with SEND, as with the current literature around Forest Schools, none of this research relates specifically to CYP with PMLD, instead focussing on CYP with learning disabilities and visual impairments, but who are mostly able to independently move around the space and seek out their own sensory input. Lambe (1995) does reference PMLD in their work, however this is focussed on adults rather than young people in school settings. Furthermore, most of the available research into Sensory Gardens is currently dominated by one researcher (Hussein, 2010; 2017a; 2017b), and so may not provide a broad and transferable understanding of the topic. Again, this highlights where new understanding can be added to the literature around

the impact of experiencing outdoor environments, such as Forest Schools and Sensory Gardens, on CYP with PMLD, and how these spaces can be used to facilitate their multisensory experiences.

2.5 Applicability to the Role of the Educational Psychologist

Educational Psychologists (EPs) have a duty to support CYP with the most complex needs and the schools that cater for them (Farrell et al., 2006). However, despite this responsibility, there is minimal research into the role of the EP in working with CYP with PMLD. One study that has investigated this in depth (Winter & Bunn, 2019) explored the perspectives of EPs on their work with special schools and particularly in supporting CYP with PMLD. It found that the range of work carried out was limited, with the primary reason for EPs to work with CYP with PMLD being as part of the statutory assessment process. A recurring theme was the low knowledge, confidence and experience perceived by EPs in relation to the field of PMLD, with some EPs expressing they have “less knowledge than the staff” (p. 62) and feel “not needed” (p. 63). This is also consistent with findings published in ‘Educational Psychology in Wales’ (Welsh Assembly Government, 2004), in which a significant number of EPs highlighted their lack of knowledge and training in relation to PMLD, and in findings from the Department for Education and Employment (DfEE, 2000), in which EPs said they would like to develop more knowledge and confidence to be involved in working with CYP with the most complex needs.

However, this is not consistent with the views of some staff and school leaders working in schools with CYP with PMLD. There is no longer a specialist qualification required for teachers of CYP with PMLD, which some have reported is leading to a generation of teachers who often may not have the specialist knowledge required to effectively support CYP with PMLD, and their needs therefore not consistently being met (Carpenter, 2013; Salt, 2010). Teachers themselves have recognised this, with many reporting that they do not feel adequately prepared to meet the needs of their learners with PMLD (Salt, 2010). This is highlighted by Simmons and Bayliss (2007), who found that staff working within special schools often have significant knowledge of many areas of SEND, including severe learning disabilities (SLD), but not of PMLD. In my own opinion, this is likely to be even more strongly the case within mainstream schools.

Therefore, whilst EPs may feel they do not have as much specialist knowledge in the realm of PMLD as they perceive the school staff to have, school staff can also feel ill equipped to support such complex needs, and report that they value the knowledge and theory that EPs can bring to various situations (Winter, 2017). If neither school staff nor EPs feel they have the specialist knowledge to effectively support CYP with PMLD, then action must be taken to rectify this and ensure the needs of these CYP are met. Winter and Bunn (2019) emphasise that there must be steps to increase this knowledge and self-assurance of EPs when supporting CYP with PMLD, and suggest careful consideration around the value that EPs can add to PMLD settings and where their niche contribution may lie.

Developing this 'niche contribution' when working with special schools is also suggested within the findings of a large-scale study by the DfEE (2000). 50% of special school staff reported said that they felt they had better knowledge of their individual pupils than EPs, and so instead of involvement in casework they wanted EPs to work on more specific projects and support the overall functioning of the school and its provision. This was also reflected in the feedback from Local Authority EP Services and individual EPs, who communicated a desire to be involved in more project work and to be 'agents of change'.

These findings highlight the vital need for more research within the field of PMLD to be completed in a way that can directly link to EP practice. Bridging the gap in the current literature between the recognised importance of multisensory experiences for CYP with PMLD, and the lack of research on how this could be facilitated for CYP with PMLD in outdoor environments, could lead to an increased knowledge base around what supports CYP with PMLD to engage and progress. If currently the majority of EP involvement with CYP with PMLD is related to the statutory assessment process, then EPs must develop this knowledge in order to write appropriate outcomes and recommend associated evidence-based provision. Additionally, completing further research within this area and exploring the potential impact of facilitating these experiences for CYP with PMLD aims to provide a 'niche' project area that school staff and EPs have expressed a desire for, in which EPs could utilise new knowledge and

research findings to support conversations around school-wide provision for multisensory experiences and collaborate in putting this into practice.

2.6 Summary

There is a range of research that emphasises the vital importance of multisensory experiences for CYP with PMLD in supporting them to engage and understand the world around them (Grace, 2018; Longhorn, 2011). This is often supported through the use of indoor sensory activities, such as sensory stories and multisensory rooms (Ayer, 1998; Martin, 2017).

Further research is available that identifies the outdoors as a place in which meaningful multisensory experiences can be facilitated and enjoyed (Hart, 2003; Auer, 2008). This is built upon within research into the impact of Forest Schools and Sensory Gardens, which highlight the sensory and wider benefits that these outdoor environments can have on CYP both without additional needs, and those with some areas of SEND, including autism, SEMH needs, and visual impairment (Friedman et al., 2022; Tiplady & Menter, 2021; Hussein, 2017a). However, there is currently very little understanding of how CYP with PMLD experience these spaces and could be impacted by them.

These areas are therefore where I hope my research can add to this knowledge, through exploring the following research questions:

1) What are the experiences of children and young people with Profound and Multiple Learning Disabilities who access nature spaces and outdoor learning?

2) What is the potential of nature spaces and outdoor learning to create multisensory experiences for children and young people with Profound and Multiple Learning Disabilities?

3) What are practitioner's perceptions of the impact of accessing nature spaces and outdoor learning for children and young people with Profound and Multiple Learning Disabilities?

Chapter 3: Research Methodology

To explore my research questions, participant observations were completed with CYP with PMLD in their outdoor educational setting, alongside support from staff members to develop meaningful interpretations of what was happening. Semi-structured interviews were also conducted with practitioners who support CYP with PMLD to access nature and outdoor learning, to hear their perceptions of the experience for the young people and the impact that this can have.

This chapter will outline in detail the methodological steps and considerations that were taken throughout this research. I will begin by discussing my philosophical positioning, before detailing my qualitative research approaches and the quality and ethical issues that align with this. I will then conclude this chapter with a discussion of the thematic analysis approach taken to data analysis.

3.1 Ontological and Epistemological Positioning

Throughout this research, I have sought to maintain a consistent thread in which my philosophical stance is clear. This is important, as the ways in which my research questions were developed, my methodology designed, and my data analysed and interpreted, were all influenced by my own positionality in relation to how knowledge can be constructed, and experiences and reality understood. This refers to 'epistemology', which focuses on how we can come to know about what exists in the world (Howell, 2016).

This is connected to 'ontology', which refers to the nature of existence and reality, or "the science of what is" (Smith, 2012, p. 47). Historically, research within psychology has often taken positivist epistemological stances within a realist ontology, arguing that knowledge is discoverable and separate from the researcher, and that there is an objective and universal truth that can be accessed and exists outside of individuals' thoughts and perceptions (Howell, 2016; Jenkins, 2010). This approach has been criticised by many researchers for being reductionist, particularly within the social sciences, as it is claimed that this cannot develop understanding around the intricate

and varying actions of individuals or capture the complexities of multiple realities experienced within society (Hasan, 2016).

The idea that there are multiple realities experienced by different people sits at the opposite end of the ontological spectrum to realism, instead aligning with relativism. Relativism proposes that there is no one true and universal reality, but that there can be multiple representations experienced differently by different people, depending on how it has been constructed within their mind (Burr, 2015). Relativist ontology is therefore compatible with subjective epistemologies, such as social constructionism.

3.1.1 Social Constructionism

Burr (2015) writes that social constructionism consists of four key components. Firstly, that a critical view of how the world is understood should be taken. Secondly, that all variations of understanding reality are culturally and historically specific, meaning that understandings are based on where and when one lives in the world and their previous experiences. Thirdly, that knowledge is not discovered, but is constructed between people and sustained through social interactions. And finally, that these varied constructions of the world elicit different responses and social action. Research aligning with social constructionism assumes an interpretivist role of the researcher, where they do not seek definitive answers but aim to reflectively understand subjective meanings and experiences of individuals, whilst acknowledging that their own beliefs and experiences may influence this interpretation (Alharahsheh & Pius, 2020).

The ontological stance of relativism and the epistemological approach of social constructionism is where I position myself within my research. Creswell (2014) writes that within social constructionism, it is regarded that meanings are constructed by people as they interact with and perceive the world around them. This aligns with research previously discussed in this thesis, which states that individuals with PMLD perceive meaning about their world through multisensory experiences, helping them to create memories and understand their world (Booker & Booker, 2011; Grace, 2014; Longhorn, 2011). Without these multisensory experiences and interactions, the construction of knowledge about their lives and environments would likely be very

difficult for them (Longhorn, 2011), therefore emphasising the importance of subjective experiences in constructing individualised realities.

The realities of CYP with PMLD are not truly accessible to us, aligning with a relativist ontology. One significant factor in the realities of the young people involved in this study being difficult to access relates to the use of language. Social constructionism positions language at the heart of knowledge construction, proposing that understanding ourselves and creating a perception of our world cannot be completed without it, whilst concepts created by people may not actually exist without the use of language to validate them (Burr, 2015). However, the young people I worked with during this research, as well as many other individuals with PMLD, would not be considered “linguistic beings” (Grace, 2018), as they do not always use or understand their world through spoken language, instead developing their meanings through multisensory experiences and communicating via non-verbal cues. When reading about social constructionism, I wondered whether this approach was therefore proposing that these individuals simply cannot construct knowledge about themselves and their world, which is not an argument I would agree with; this was subsequently a key reason for my initial deliberation around whether my positionality did actually align with social constructionism.

Communication does not solely consist of spoken, verbal language; this is an argument that was agreed upon by researchers and stakeholders during the development of the definition of PMLD used within this research (Bellamy et al., 2010). It has also been argued that non-verbal cues, such as facial expressions, body movements, and gestures, not only communicate a message, but in many ways are the “loudest” and “most important” cues; they can convey meaning in ways that verbal forms of communication often cannot, with the message being delivered through multisensory channels rather than just auditory, supporting the construction of deeper meaning (Rapoport, 1990, p. 49). Rapoport (1990) also labels the emphasis that is placed on spoken language in conveying meaning as “unfortunate” (p. 51), as non-verbal communication creates a more universal message that can be interpreted by a greater array of people.

My view aligns with Rapoport's in that non-verbal communication *is* a form of language, and that meaning and knowledge can still be constructed within interactions without the necessity of spoken language, through the use of non-verbal and multisensory communication. Whilst I acknowledge that this may be more difficult to access and interpret than spoken language, and may also require the additional involvement of a close relationship between individuals to be able to garner meaning from it, a subjective meaning is still being constructed through an interaction with another or the environment, and communicated via their individualised form of language. Understanding the communication forms used by the young people in this research was vital in being able to support an interpretation of their experience and begin to develop a possible understanding of their reality. I therefore feel that by applying this argument to my own research, it still aligns with the relativist stance of social constructionism.

An interpretation of what these realities *could* be was formed through social interaction. I completed interactive participant observations with CYP with PMLD in their outdoor spaces, alongside collaborations with practitioners who know them well to create meanings of these observations, utilising them as a proxy voice where thoughts are shared on behalf of another (Santoro et al., 2022). Separate semi-structured interviews were also conducted with staff members to develop further interpretations of what the overall outdoor experience could be like for the young people. I am therefore in some ways attempting to understand someone's experience through discussion with someone else. Due to the difficulties in accessing the true realities of the young people in this research and the social nature of the way meaning was constructed, it is important to regard the interpretations discussed within this thesis as one possible understanding of their reality that may or may not be accurate; in other words, as Burr (2015) explained social constructionism, we must assume that what we have perceived is not necessarily what exists.

Reflection box 1

When considering my ontological and epistemological positionalities, I placed a lot of thought into critical realism. I appreciated that a critical realist approach would not minimise or trivialise the pain and significant impact of profound disability as a social construction, when it exists and is very real to the people that experience it and their families.

However, I also acknowledge that whilst this is real for them, the experience of this will be different for different people. Similarly, whilst I believe that there are barriers to individuals with profound disabilities accessing equal opportunities to non-disabled people, the impact of these barriers can depend on how others interact with and interpret them. From my own experience, I have learned that barriers previously preventing children with PMLD from accessing outdoor spaces *can* be overcome, an understanding which was only emphasised further through my completion of this research. This raises the question of whether those barriers are in fact real, or if they are socially constructed and acted upon differently by different people, lessening or increasing the impact of them.

I therefore felt that whilst I wish to be careful not to reduce the lived experiences of individuals to socially constructed interpretations of an inaccessible reality, I do believe that meanings of these experiences are individualised and only constructed through interactions with the world and people around them. This therefore aligns more closely with a social constructionist approach.

3.2 Participants

My inclusion criteria aimed to identify school settings and practitioners who support CYP with an identified primary need of PMLD to access regular outdoor learning and/or nature spaces.

The definition of “PMLD” that I shared with practitioners during recruitment was that of Bellamy et al. (2010), as previously discussed in this thesis. Whilst the sharing of this definition may not have been wholly necessary due to the CYP they work with having PMLD as a pre-identified primary need, and therefore a subjective view of whether they could be understood in that way was not required, I felt it was helpful in ensuring staff members understood I was coming from a person-centred and strengths-based perspective, which may have helped them to feel more comfortable in volunteering to take part.

“Regular outdoor learning and/or nature spaces” was defined as accessing an outdoor, nature-focussed space at least once per month through their educational setting, either on- or off-site, with the purpose of being or learning outside. Provision examples

of Forest Schools and Sensory Gardens were given to provide potential participants with some context around what this could mean.

From my own experience, I was aware that many CYP with PMLD do not access outdoor experiences due to a range of barriers, and so I acknowledged from the beginning that participant recruitment could be difficult. For this reason, I felt that it would be most effective to take a proactive approach, and conducted some initial research into which schools that support CYP with PMLD advertise their involvement in outdoor learning on their websites and social media. Through this, I created a shortlist of potential schools to approach directly. Two schools responded to me with their interest in taking part, and follow-up conversations were conducted to discuss the research in more detail and ensure they met the inclusion criteria.

Following the sharing of information sheets and consent forms, I then visited both schools to complete participant observations of their outdoor settings. Both schools are specialist settings in the north of England that cater for CYP with PMLD. One has a Forest School a walkable distance from their setting. I spent one hour visiting the setting and the Forest School with one class of CYP with PMLD aged 8-11 years old, alongside their staff members. The second school has an on-site Sensory Garden. I spent two hours in this Sensory Garden with three different classes who attended on a rota, totalling 18 young people. All children accessing the Sensory Garden had a primary need of PMLD and were aged between 8-15 years old.

In addition to these participant observations, I also recruited practitioners to interview about their experiences of facilitating outdoor experiences for CYP with PMLD. One of these interviews was with the Outdoor Learning Lead in the second school described above, at which I visited their Sensory Garden. An interview was also planned in the first setting, with the class teacher of the group I observed in the Forest School; however, this could not take place due to extenuating circumstances on their behalf.

Additional interview participants were recruited through social media advertisement. I was part of a Facebook group for practitioners to share ideas around supporting CYP with PMLD. I posted my recruitment poster (Appendix C) in this group and was later

contacted by three practitioners who were interested in being involved. Following further discussions to find out more about their context, ensure they met the inclusion criteria, and answer any questions they had, consent was obtained, and interviews were conducted with two of these practitioners.

The total sample therefore consisted of participant observations in one Forest School and one Sensory Garden accessed by CYP with PMLD, as well as three practitioner interviews. The practitioners had a combined experience of facilitating Forest Schools, Sensory Gardens, Beach Schools, therapeutic gardening, and accessible camping for CYP with PMLD. Whilst this sample may be considered small, this aligns with a qualitative research approach in which large volumes of rich data should be gathered from a small number of people, in order to ensure key details and meanings are not lost in large participant numbers (Lewis, 2014). This small sample size also allowed me to take a more in-depth ethnographic and participatory approach, which due to the limits and time constraints of this project, would not have been possible with larger numbers of participants.

3.3 Ethnographic Participant Observation

3.3.1 Participant Observation

Participant observation (PO) was utilised to attempt to develop an insider perspective of the outdoor experience for CYP with PMLD. PO is a qualitative method in which the researcher joins in with the lives and activities of their participants to create a deeper level of understanding of their routines, culture, and experiences (Musante & DeWalt, 2010). It aims to ensure that the knowledge created within the research provides an accurate reflection of the context and phenomena being explored (Musante & DeWalt, 2010). Data from PO is usually collected through field notes created by the researcher in the moment, and often provides context for discussion in follow-up interviews (Papen, 2019).

In developing a research design that involves PO, Musante and DeWalt (2010) propose that six key elements must be considered:

1) *A research question drawn from a review of the literature.*
2) *Selection of a site where the research question can be explored.*
3) *Methods of research techniques that can address the research.*
4) *Strategy in the selection of places and individuals to be involved in the research that increases that likelihood of collected data representing the range of variability across settings.*
5) *Strategy for recording data.*
6) *Strategy for analysis and reporting of the data that responds directly to the research questions.*

Elements 1 and 2 were addressed throughout my literature review and via my selection of participants, as previously discussed. The remaining elements will be considered throughout the rest of this section.

In choosing a method to explore my research questions, I decided to incorporate ethnography and PO into my research design as I felt that it may be difficult for me to fully appreciate the nuanced ways in which CYP with PMLD experience the outdoors through only hearing second-hand accounts from the adults who support this; I wanted to view and experience this with the young people themselves. Additionally, as individuals with PMLD are often excluded from being involved in research, I wanted to create a design that would enable them to communicate their experience as directly as possible in their own way, rather than solely having another speak for them. I was worried that I would be telling a story that wasn't theirs. Ethnography and participant observation helped me to try and overcome this.

Subsequently, I initially planned to spend multiple sessions with the CYP and create photographs and video recordings of them interacting with others and their outdoor environment, in the hope that these recordings would capture the subtle and complex nature of their engagement, and enhance the credibility of my interpretations when watched back alongside practitioners. However, this plan required adaptation following initial difficulties in gathering parental consent due to concerns around the creation and storage of visual media. I also considered that to support the development of my overall knowledge around the different experiences that various outdoor settings may provide, it would be helpful to spend time with several CYP in multiple outdoor settings

of different styles, rather than several visits to the same setting. This aligns with Element 4 of Musante and DeWalt's (2010) considerations within PO research, in accounting for variability in different outdoor environments.

In relation to Element 5, data from my observations was recorded through the creation of field notes (Appendices H and I). There is no set way that a researcher should record field notes, with variations including chronological journals, records of events, personal reflections, dialogue, and organisational features. My own field notes consisted mostly of records describing events that I observed or was a part of, followed by dialogue with staff around the collaborated interpretation of that event, alongside some personal reflections. I typed these up from my handwritten notes after the event. This corresponds most with 'impressionist' and 'confessional' styles of field note taking, in which the data is both descriptive and reflective, whilst allowing space for the reader to be pulled into the story to interpret it for themselves (Mulhall, 2003).

3.3.2 Ethnography

PO is a fundamental aspect of ethnographic research, which takes place in the field to explore the realities of everyday processes, practices, and social environments (Howell, 2016). Howell (2016) proposed that there are three types of ethnography: positivist, critical, and constructivist. Positivist ethnography detaches the researcher from the environment, focussing on identifying objective facts that can be generalised to other populations, as determined by the researcher rather than with or alongside participants. This would align with the 'observer as participant' approach (Denzin & Lincoln, 2025).

On the other hand, in line with my own ontological and epistemological positionality and the 'participant as observer' approach (Denzin & Lincoln, 2025), my research sits mainly within constructivist ethnographic research. Through this approach, the researcher aims to 'be' with the participants to develop an interpretation of their reality alongside them. It values the perceptions, feelings, and experiences of participants, recognises that findings are truly subjective, and acknowledges the impact of the researcher and their biases on both the participant experience and the collected data (Howell, 2016). For example, when developing my field notes during my POs, I

decided what was and was not recorded, making these personal decisions fundamental to the outcomes of the research and the way in which the outdoor experience for CYP with PMLD is understood. These observations and notes also fed into discussions within the later interview, and so impacted not only the PO data, but interview data too. Additionally, as my PO style was overt rather than covert, it is possible that my presence alone altered the experience for all involved and led to changes in their usual way of being. It is therefore important to emphasise that this ethnographic research aims to reflect and develop meaning for some parts of the outdoor experience, but not all of it.

There are also some aspects of critical ethnography that I feel align with my research. This approach aims to maintain dialogue between the researcher and 'the researched', which formed an integral part of my methodology. Throughout my POs, I interacted directly with the young people to develop a rapport with them and use this to support my understanding of their experience, as well as collaborating with practitioners to develop my understanding of what was happening for the CYP we were with, by asking them to explain what their vocalisations, gestures, and expressions might mean. Critical ethnography also aims to highlight issues of social justice and inequality, and focuses on the capacity of the research to bring about change, rather than searching for truths (Howell, 2016). One of the key influences on my decision to carry out research in this area was the exclusion from research of people with PMLD; it is clear from my literature review and later interviews with practitioners that CYP with PMLD often miss out on experiencing the outdoors, and so I hope that this research can work towards addressing this inequality by supporting the overcoming of barriers and improving equal access.

Reflection Box 2

My own approach to PO aligned more with 'participant as observer' as opposed to 'observer as participant', in that I fully involved myself in the activities taking place, and directly interacted with the CYP and staff members; this would be seen as a more immersive and ethnographic 'complete participant' approach, beneficial in achieving a real sense of the authentic experience (Denzin & Lincoln, 2025). However, I feel that this is still not completely naturalistic. The mere presence of a researcher or any new person automatically changes the experience for those within it, whilst even momentarily taking field notes removes you from the experience and then requires you to re-immerse yourself. Additionally, I feel some scepticism about how much the other participants viewed myself or any other researcher as a 'complete participant', knowing that I was there for a short amount of time, for a very specific reason. This means that this overt method of observation is open to being influenced by the Hawthorne Effect, where participants may change their behaviour because they know they are being watched.

I have also considered that POs are partly influenced by luck or chance, especially when being conducted for short periods of time as in the current research. I observed and interpreted interactions, reactions, and experiences that just happened to occur during the day and time that I was there. There will be many other events experienced in outdoor settings at other times that I did not observe and therefore did not form part of my field notes or analysis. Whilst this is partly offset by the inclusion of interviews, allowing me to gather more general information about the outdoor experience for CYP with PMLD, this does impact the trustworthiness of the findings. Again, for these reasons it must be emphasised that the outcomes of this research are not claimed to be objective or true.

3.4 Interviews

In addition to participant observations, three interviews were conducted with practitioners who support CYP with PMLD to access outdoor learning and nature spaces to find out more about their perspectives of this provision. Initially, I spent time deliberating between the utilisation of interviews or focus groups. Focus groups are widely considered to be social constructionist in nature, as knowledge is constructed through a process of social interaction and should be interpreted as such (Kristiansen & Grønkjær, 2017); this approach therefore aligns well with my epistemological positionality. Focus groups have also been used successfully with teachers and school staff, including those who support CYP with complex needs (Lopez & Corcoron, 2014; O'Gorman & Drudy, 2011). I therefore felt that in some ways, focus groups could be an appropriate methodology to use within my research.

However, I alternatively decided on the use of interviews for two key reasons. Firstly, following initial discussions with interested potential participants to ensure they fit the inclusion criteria of the research, it became apparent that the types of outdoor experiences accessed and facilitated by these practitioners were very different. Environments ranged from forests and beaches, to camp sites and gardens, each offering very different experiences, impacts, and barriers. Focus groups are most successful when participants have shared experiences that they can discuss and compare (Bohnsack, 2004), and so I began to consider that they may not be the most useful method of data collection in this research.

Secondly, interviews are useful to combine with ethnographic research and participatory observation (Hopf, 2004). This means that researchers are able to spend time with participants in their environment, before interacting with them in the interview stage to find out more about their specific observations. The use of interviews therefore fit with other methodologies used within this research, and allowed me to delve deeper into my observations of the Sensory Garden to develop more meaning from them. This also aligns with social constructionism, as meaning is therefore developed through both the researcher's own experiences alongside others, as well as interacting with them through discussion.

3.4.1 Type of Interview

A semi-structured interview style was used in this research, with ten initial questions developed as a guide (Appendix J). These guide questions aimed to explore key aspects of the research questions, but were not rigid, with flexibility allowed for wider discovery and exploration by following new strands of conversation that may arise, and the interviewee being encouraged to speak freely around the topic (Magaldi & Berler, 2020). With my participants all coming from different contexts, I felt that this flexibility was important to ensure I could find out about their specific and personal experiences without being limited to a strict interview protocol.

Due to this capacity for deep exploration into participant experiences and the building upon of responses by the researcher, semi-structured interviews have "long been recognised as the gold standard method of data collection" (p. 2) in qualitative and

social constructionist research (Scanlan, 2020). Semi-structured interviews are more effective than structured interviews at “knowledge producing”, whilst they guide the conversation more than unstructured interviews to ensure the conversation remains relevant to the research (Brinkmann, 2014).

Three interviews were conducted, through a mix of online and face-to-face means. Both techniques have been shown to be successful data generation methods in research with school staff around the topic of educational provision (Hoke et al., 2022; Buchanan et al., 2023). For participants that were within a commutable distance, I gave them the option of the interview being online or in-person to ensure that they felt as comfortable as possible, which Scanlan (2020) writes is vital for participants to be fully engaged. For participants that I hadn’t already met in the participant observation phase, I also aimed to ensure their comfort by beginning each interview with an introduction of myself, my research, and my background. As my previous experience includes facilitating outdoor experiences for CYP with PMLD, I felt that participants knowing this might help to create a rapport between us. Rapport building is essential in encouraging participants to fully engage and provide more extensive and detailed responses (Horsfall et al., 2021). I also felt that this helped to give me “insider status”, whereby I as the researcher shared common experiences with the participants, supporting them to feel more comfortable and be more open and honest in their responses (Murphy, 2020). Each interview lasted between 40 minutes and 1 hour 20 minutes, approximately aligning with the length recommendation of around one hour (Adams, 2015); these were later transcribed (Appendices K, L and M).

Throughout the interviews and later analysis, I was aware of the intersubjectivity taking place between myself and the participants. Intersubjectivity refers to the interaction between researcher and participant, in which this interaction and the perception of this is shaped and influenced by the actions of each person (Abrams, 2016). Intersubjectivity within research is particularly pertinent in methodologies that involve high levels of interaction and researcher involvement, such as interviews and participant observation, and is impossible to completely control (Futrell & Willard, 1994). Intersubjectivity can influence research in many ways; for example, during an interview where I aimed to use active listening skills, such as head movements and vocalisations, it is possible that participants may have interpreted this in different ways,

with some viewing this as affirmation, whilst others potentially perceiving this as disapproval or judgement. Depending on this perception, the sharing of information would likely be adapted or influenced. Subsequently, had the research been conducted by a different researcher, or with different participants, this intersubjectivity would likely have been very different, as would the information gathered.

Reflection box 3

A similarity that struck me across the interviews was the enthusiasm that the participants exuded in talking about this topic. All participants were volunteers of the study and so naturally had an interest in the area, but I was surprised at how emotionally they spoke about the impact of outdoor provision for their young people; this made me feel more connected to them as I have similar perceptions but have not had the opportunity to discuss this in depth before. This was also a theme that emerged from the practitioners, with all of them expressing in some way how alone they feel in valuing this provision and the sadness they feel about what this means for the missed opportunities for their young people. For me, this highlighted the importance of the research, and I hope that bringing these experiences and perspectives together will help to open up more conversations, support practitioners to feel heard, and increase equal access to these opportunities for CYP with PMLD.

3.5 Pilot Study

Pilot studies are valuable elements of effective research design due to their ability to inform on the credibility and feasibility of the data collection methods (Van Teijlingen & Hundley, 2001). I therefore completed pilot studies for both the PO and interview aspects of my research, the outcomes of which are both included in my final data set.

My pilot participant observation was conducted in the Forest School in the first school setting that I visited. Prior to this, I had completed reading around how to effectively record field notes, and features that should be acknowledged, such as the physical environment, interactions between individuals, and activities completed (Mulhall, 2003; Papen, 2019). I used this PO to practice my recording of field notes and ensure that my style of notetaking was understandable and reflected the story of the experience when reviewed later. Additionally, conducting this pilot PO was helpful in developing my understanding of what is meant by ‘participant as observer’ or ‘observer

as participant' approaches, and enabled me to practice being 'in the moment' with the participants whilst also recording the experience.

My pilot interview was conducted online with a practitioner who had responded to my recruitment advert. I had created a semi-structured interview schedule, and the pilot allowed me to test the usefulness of these questions in generating rich information and reflections. It also enabled me to practice my own interview technique and feel more confident in facilitating this.

Both the pilot PO and the interview went well and generated valuable observations and information that contribute towards answering my research questions. Additionally, I was appreciative of the time that the CYP and practitioners had volunteered and allowed me to spend with them, and I did not want them to feel like a 'test subject' or that their experiences are not valid enough to be included in the research. I therefore decided to include the data collected from both pilots in the final data set.

3.6 Ethical Considerations

Ethical approval for the research was granted by The University of Sheffield in May 2024, before any participant recruitment or data collection took place, and procedures outlined within this application have been adhered to throughout the completion and reporting of my research.

One aspect of this that I wanted to ensure was that the CYP themselves assented to being participants, however I needed to consider the practicalities of this carefully due to their significant processing and communication differences. Due to the increased vulnerability of CYP with PMLD, it is important for them to be around people they know and trust in order to feel safe and comfortable (Goodwin, 2013). I was conscious of placing myself as an outsider into their environment for the gain of my research, without acknowledging the potential impact this could have on their experience.

To maintain their wellbeing and to ensure they were happy to be involved, I worked closely with the adults who know the CYP well and asked them to inform me if a CYP

appeared at all uncomfortable or distressed at any time. If this happened, it was agreed that I would leave the situation, so as to not generate more stress for them as an unfamiliar adult in their vicinity, and would only return once the CYP was calm and staff agreed it was appropriate for me to do so.

Upholding high levels of ethical integrity is particularly pertinent where there is direct involvement between the researcher and participants, such as in both methods used in this research: PO and interviews (Kang & Hwang, 2021). PO in particular raises some ethical questions, as it can lead to confusion in participants as to whether the researcher is there as just an observer and a 'stranger', or as a 'friend' (Jarvie, 1986). These two roles are mutually exclusive, and trying to combine them can lack integrity. If viewed as a 'friend', participants may experience some distress at the completion of the research when the researcher leaves and is not seen again. The researcher must therefore make it clear at the outset of their involvement which of these is their role. This was done through the sharing of the information sheets and in my initial conversations with prospective participants and settings, where I was clear in what my involvement would look like and what the extent of this would be. This was also mitigated by completing only one PO in each setting, meaning that it is unlikely that the adults or young people would have come to view me as a 'friend' in that time.

PO research can also elicit ethical issues related to power. There are concerns that some researchers may privilege their own gaze over that of participants, and come to their own understandings of what is happening in the environment that, when reported, misrepresent the cohort of people they were observing (Watson & Till, 2010). To mitigate against this, I ensured that my meanings were developed in collaboration with others in the field through discussions around what was happening in the moment, rather than taking on the powerful position of PO interpretation independently. I hope that this places some of the power of these interpretations and findings presented in this research in the hands of the participants themselves.

3.7 Research Quality

Quality standards applied within qualitative research often aim to assess the 'trustworthiness' of the research and its outcomes, with overall trustworthiness

comprising five components: transferability, credibility, confirmability, dependability, and reflexivity (Guba, 1981; Stenfros et al., 2020). It is generally considered that measures frequently used to assess the quality of scientific and quantitative research, such as reliability, validity, and generalisability, are unsuitable to apply within qualitative research (Yardley, 2017), with Burr (2015) arguing that these measures are especially inappropriate in research that stems from a social constructionist standpoint, as constructions are not final and can change throughout different histories and contexts. To align with my epistemological position, I will therefore review the quality of my own research through consideration of components of qualitative research trustworthiness as outlined by Stenfros et al. (2020) and Guba (1981).

This study has aimed to explore the experiences of someone else through another, or proxy voice, whereby myself as the researcher collaborated with practitioners to attempt to understand the experiences of some CYP with PMLD. It could be considered that this reduces the credibility of the findings, as it is impossible to know if these interpretations correctly represent the perceptions of the young people. However, I propose that attempting to interpret the experiences of those who may not be able to verbally communicate this themselves is preferable to excluding this cohort of people from research altogether, as long as it is made clear that these interpretations are not necessarily definitive or true. On the other hand, credibility is increased by my collaboration with practitioners in developing these interpretations as opposed to doing this independently, as their understanding of and relationships with the young people mean that their perceptions are more likely to accurately reflect them than if I had done this alone as an outside observer.

Furthermore, in collaborating with practitioners to develop these interpretations, the confirmability of my research is enhanced as the findings are corroborated by others and not solely influenced by my own biases and motivations. This can be a common issue with participant observation research, as the researcher themselves is the test tool and so objectivity is limited (Musante & DeWalt, 2010); my cooperation with practitioners, as well as incorporating interviews to create joint narratives, works to overcome this. Confirmability can also be demonstrated by providing detailed descriptions of how the findings were developed and illustrating this through the use of quotes (Stenfros et al., 2020), and so I will follow this guidance within Chapter 4 of

this thesis. The above aspects of my methodology also support the dependability of my research, as triangulation of data (observation, practitioner collaboration, and interview) improves the consistency of findings and the overall rigor of the research (Zaman & Othman, 2016).

Finally, reflexivity refers to the acknowledgement of your own impact on the research and its findings through your actions and beliefs as a researcher (Korstjens & Moser, 2018). Reflexivity should be indicated through the sharing of written accounts of researcher reflections at various points of the study, as well as consideration of intersubjectivity and bias; by including these aspects I hope that I have demonstrated my reflexivity throughout my research and subsequent report.

Reflection box 4

I believe that reflexivity has been particularly important for me to consider in ensuring my research is trustworthy due to my feelings of being personally connected to my topic and having my own experiences of supporting young people with PMLD to access outdoor spaces. My experience of facilitating this has without question shaped my views on this type of provision due to the wholly positive impacts I believe it had on the young people I worked with. I therefore had to be very careful not to generalise these perceptions onto the young people and practitioners I collaborated with in this research, as their experiences are likely to be very different and have different meanings to my own. Whilst difficult to do so completely, I needed to try and leave my assumptions at the door and go in without any expectations of what I might find. I made a conscious effort to not only look for positive impacts and experiences within the provisions I was observing and discussing, but also elements which are more difficult and less enjoyable for those involved. By doing this, I hope to provide a balanced account of what the experience can be - both good and bad.

3.8 Data Analysis

A range of methods for analysing the information collected within this research were considered.

As I was hoping to find out about a particular experience, I firstly reviewed narrative approaches specific to researching lived experience and life stories, including The Listening Guide and Narrative Oriented Inquiry. However, in my own research, I am attempting to understand the experience of a cohort of young people through

observation, and discussions with a separate group. The accounts created within my interviews are not necessarily lived experiences, but interpretations of the experience of another. The use of these narrative approaches would therefore not align with my research.

Similar concerns were held around another commonly used method in the area of lived experience: Interpretative Phenomenological Analysis (IPA), through which “the researcher is trying to make sense of the participants trying to make sense of their world” (Smith & Osborn, 2015, p.26). This is based on phenomenology, studying the science of experience and first-hand perspectives (Van Manen, 2017), whereas much of my research is based around perspectives of another and the construction of knowledge alongside others. IPA was therefore also discounted from being utilised in this research.

Due to my research aiming to find out about the experiences of young people with PMLD through observation, interviews with others, and interpretation, rather than directly from the young people themselves, I moved away from methods that focussed on lived experience and life stories. This led me to read more about Content Analysis and Hermeneutic Analysis, which focus on what is meant within the written and spoken word, whilst taking into account the social and historical world (Dahlager & Fredslund, 2008). They enable a deeper insight into experience, without this experience having to be a personal and first-hand account (Krippendorff, 2018), which I considered could be applicable to my research. However, I felt that these forms of content analysis could be reductive by transforming the information into quantitative data with a focus on linguistics, potentially leading to some of the meaning and experiential aspects of the data being lost. On the other hand, one element that I did like about these forms of analysis was their capacity to identify common themes from the accounts provided. This led me to more strongly consider Thematic Analysis.

3.8.1 Reflexive Thematic Analysis

Reflexive Thematic Analysis (RTA), developed by Braun and Clarke (2006; 2019), is an approach to extracting meaning from a qualitative data set by identifying, reviewing, and interpreting patterns or themes (Joffe, 2011). It is most commonly utilised to

analyse transcripts from interviews or focus groups, but can also be used to develop meaning from field notes created from participatory observations (Guest et al., 2012). Additionally, whilst RTA is helpful in making meaning of experiences, these do not necessarily need to be first-hand, lived experiences, with the approach successfully used in research aiming to understand perspectives of people who support and advocate for others with additional needs (Bodfield et al., 2023; Hartley & Penlington, 2023; Allam & Martin, 2021).

Whilst it is one of the most widely used methods in qualitative data analysis, it is sometimes viewed as ‘basic’ and unbound by specific philosophical underpinnings (Javadi & Zarea, 2016). However, Braun and Clarke (2019) emphasise that this is a misconception and illustrates a lack of understanding around the approach.

Whilst it is correct that some forms of thematic analysis, such as codebook approaches, can be applied across research from various ontological and epistemological stances, specific iterations of the approach are more theoretically constrained and align with particular paradigmatic and epistemological assumptions about the production of knowledge (Braun & Clarke, 2019; Byrne, 2022). RTA emphasises the impact of the researcher on the production of any knowledge generated within their research. It highlights that the researcher influences not only the gathering of data, but the way in which it is later coded, themed, and understood during analysis. RTA encourages researchers to remain flexible and reflexive throughout the process, recognising that different researchers would be likely to interpret the data in different ways. It is therefore not vital to ensure that analysis is ‘reliable’ or ‘accurate’, but to acknowledge it as an interpretation of one researcher at one moment in time (Byrne, 2022). Addressing this subjectivity and reflexivity should be seen as a commitment to rigour and transparency, rather than as a threat to validity (Braun & Clarke, 2019).

By placing the researcher in a central role of knowledge construction and meaning-making, and acknowledging the subjective nature of this, RTA aligns with relativist research in that it accepts the existence of multiple possible realities and does not posit the outcomes or conclusions of the research as positively true (Tuckett, 2005). Furthermore, it recognises that both the collection of qualitative data and its analysis

are impacted by the intersubjectivity between those involved, as well as their social, cultural and historical biases (Terry & Hayfield, 2020), and is therefore appropriate to use within social constructionist research. Constructionist RTA not only looks at the recurrence of commonalities across data sets, but also the conviction that it is spoken about; the social constructionist researcher must therefore acknowledge the importance of recurrence, but not rely on it, paying attention also to the meaningfulness of the data (Byrne, 2022).

As RTA aligns with my positionality, my research aims, and my methodology, I chose to utilise this approach to develop meaning from the data I had collected. The RTA process consists of six stages (Braun & Clarke, 2006).

1) *Familiarising yourself with the data*
2) *Generating initial codes*
3) *Searching for themes*
4) *Reviewing themes*
5) *Defining and naming themes*
6) *Producing the report*

For a detailed outline of my data analysis process within each of these stages, and my reflections throughout this, please refer to Appendix N.

Reflection Box 5

Whilst my research is grounded in social constructionism and throughout, I have aimed to collaborate with others in developing a shared meaning, I feel aware that the analytical element of my research has been conducted individually. I still recognise the subjective nature of this analysis and do not claim my interpretations to be true, but I wonder if this moves slightly away from constructionism and towards constructivism. Maybe a more social constructionist approach to analysis would have been to conduct the stages of thematic analysis with and alongside the participants; however, within the scope of this study that feels like an unrealistic standard. I will ensure that I share my overall findings and interpretations with the participants of the study and provide space to hear their thoughts and feedback, even if this cannot be included in this written thesis.

Chapter 4: Theme Construction and Discussion

This chapter will outline the themes that I have constructed following the stages of reflexive thematic analysis as set out by Braun and Clarke (2006).

Rather than writing separate results and discussion sections, I have decided to report my theme constructions together with my interpretations and discussions of these, and have situated this alongside how these constructions relate to existing literature. This aligns more closely with social constructionist research, as it emphasises the subjective and interpretative nature of the research and places the researcher in an active instead of passive role in constructing this (Braun & Clarke, 2022). Combining these sections rejects the idea of 'results' being objective and separate from researcher interpretations, whilst embedding discussion of prior literature helps to add to the existing rich tapestry of understanding.

In order to report my constructions, I have created a thematic map (Figure 1). The map outlines themes that relate to my three research questions:

1) What are the experiences of children and young people with Profound and Multiple Learning Disabilities accessing nature spaces and outdoor learning?
2) What is the potential of nature spaces and outdoor learning to create multisensory experiences for children and young people with Profound and Multiple Learning Disabilities?
3) What are practitioner's perceptions of the impact of accessing nature spaces and outdoor learning for children and young people with Profound and Multiple Learning Disabilities?

Each theme will be discussed alongside extracts from my field notes and participant quotes. In alignment with my social constructionist and relativist positioning, I emphasise that no construction is final and that these may change through repeated considerations of and interactions with the data. Whilst I collaborated with practitioners on developing my knowledge around the meaning of my participant observations, themes have been constructed through my personal interpretations of this field note

data and interview transcripts, and I acknowledge that my own experiences and biases may influence this.

In the reporting of these quotes, participants have been given pseudonyms to protect their anonymity. Below are details of the outdoor spaces each participant works in, to provide some further context to their stories:

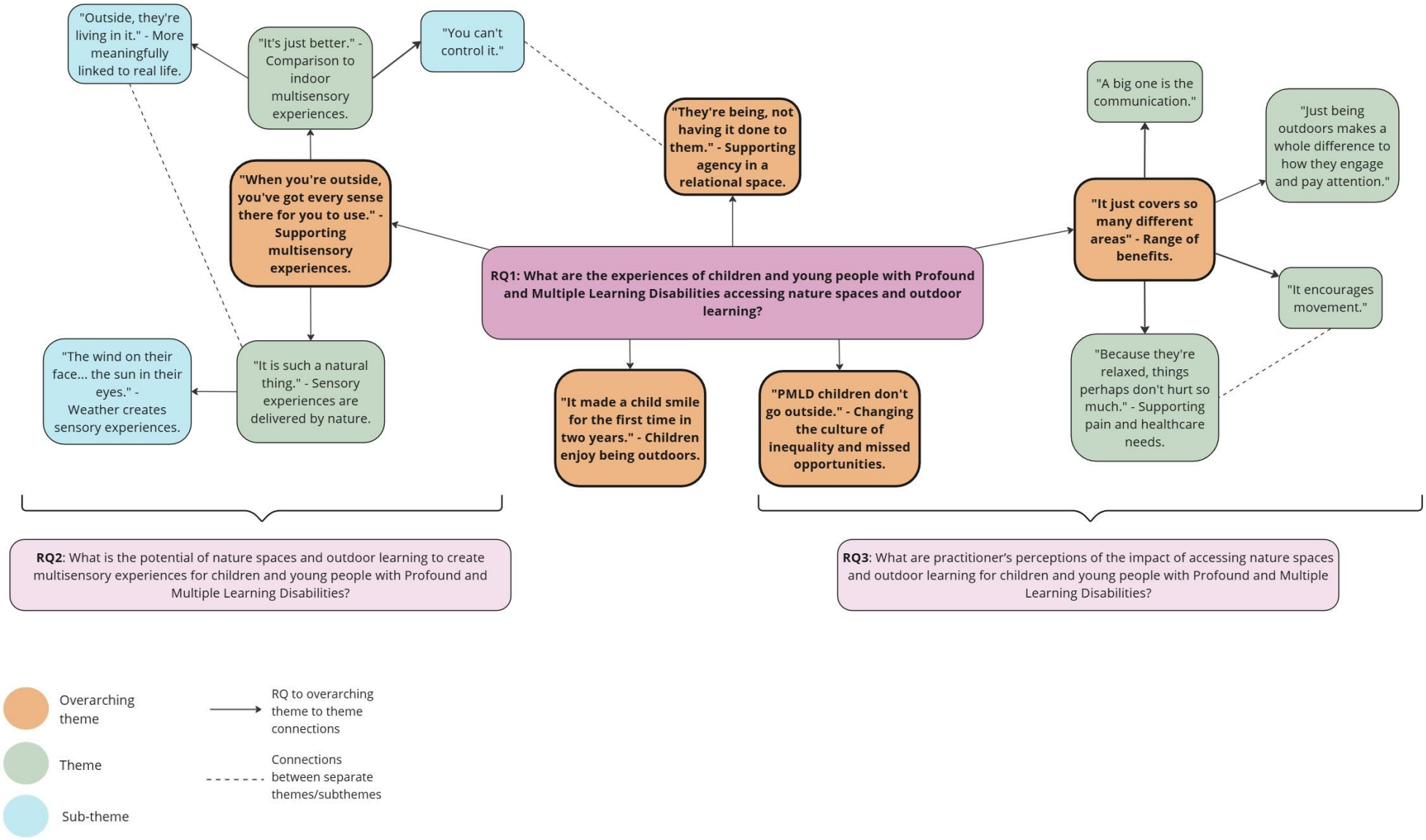
- 'Nancy' works in a specialist school and is the teacher of a class of CYP with PMLD. The class regularly accesses a Sensory Garden on-site at the school. Nancy also works at an accessible campsite designed for CYP with PMLD and their families. This camp enables families to stay in purpose-built, medically equipped tents on the coast so that they can access the specially adapted Beach School, as well as activities such as campfires, sensory stories and animal interactions.

- 'Valerie' was previously a teacher for children with SEND, and now works for a charity supporting children and adults with disabilities to access gardening and horticulture. As part of this role, she facilitates weekly outdoor Therapeutic Gardening sessions in a specialist setting for CYP with PMLD.

- 'Rachel' is a class teacher and Outdoor Learning Lead at a specialist school specifically for CYP with PMLD. The school has a newly built Sensory Garden which is regularly accessed by all young people at the school.

- Rachel's setting and Sensory Garden was also the site of one of my participant observations. The other participant observation I completed took place in a Forest School which was local to a specialist setting and accessed by CYP with PMLD.

Figure 1: Thematic Map



4.1 Overarching theme: "They're being, not having it done to them." - Supporting agency in a relational space.

I have constructed that participants consider the outdoor environment to be a relational space that supports agency for CYP with PMLD, by them having opportunities to 'be' rather than 'have done to'.

This overarching theme was developed from patterns relating to inequality, agency, power, and culture of practice. Throughout my literature review, I noted how individuals with PMLD had often been excluded from research related to both outdoor experiences and educational psychology. This could be linked to the lives of individuals with PMLD historically being viewed as less valuable than others, with Samuel and Pritchard (2001) labelling them 'The Ignored Minority'. Their right to equal personhood is often still denied through their marginalisation, lack of agency, and exclusion from certain opportunities and provisions (Hogg, 2007).

However, practitioners involved in the current study indicated that they felt the equality of CYP with PMLD can be supported by enabling them to access outdoor learning and nature spaces. This is highlighted in an idea shared by Nancy:

> *"I think it gives them that equality, just in access and self, because when they're outside there is no barrier. What we're experiencing is the same, but they just happen to be in a piece of equipment. They're feeling that same weather. They're hearing those same sounds. They're still seeing the sights… It gives that."*

I interpreted from this that Nancy feels that the barriers often in place that reduce the equality of CYP with PMLD are less evident or impactful when in outdoor spaces. I have constructed that one of the key contributing factors to this is the capacity of outdoor learning to enable child-led experiences.

The fundamental principles of Forest School and other outdoor learning provisions include that it should be child-led, child-centred, and child-initiated (Knight, 2009a; Conway, 2008). Enabling child-led and child-initiated experiences provides CYP with agency through the elements of control, participation and willingness (Baker et al.,

2023). Having agency, or the opportunity to make choices and act upon them, is fundamentally linked to equality due to one having the same rights and power as others to make a difference to their life.

However, individuals with PMLD are often deprived of this opportunity. Goodwin (2019) writes that there are significant barriers to enabling agency and child-led experiences for CYP with PMLD, for example in their capacity to move towards certain spaces or objects, and communicate their wants and needs; this leads to a risk of these activities replicating most other areas of their lives where they have little or no control. Mercieca (2013) writes that agency is not even considered in much 'knowledge' around people with PMLD, as it is often assumed that they are unable to have any.

Rachel was open about this being the case in her classroom, but felt that the outdoors can provoke a different approach:

> *Rachel: "Yes, it's more child-led [outside]. Whereas I think [...] inside, with some pupils, you generally sort of go, oh, we're going to get this out. And whatever you're putting out is what they like […] but it's your choice and not theirs. Whereas outside, when you take away all the toys and stuff, it's very much just them being outside and experiencing it, something that we don't control. And you can't control either, which I guess is quite a nice thing for them. We're all equal. So it's definitely more [...] child-led outside and you're more responsive to what they're doing."*

I gathered from this that inside the classroom, whilst practitioners do their best to target their activities to what they feel the likes and wants of the child are, they are still very much adult-controlled and adult-directed, whereas outdoors, the control that can be had by staff is minimised and CYP are therefore more able to initiate and explore, making the experience more child-led.

I noticed this child-led nature of the provision during one of my participant observations, and noted differences in what 'child-led' might look like depending on the needs of the young person:

Sensory Garden PO extract: Many of the activities that have been taking place are child-led rather than designed by adults, in particular for those who are able to be on the floor out of their wheelchairs. They are left to explore their environment and staff build on these explorations by commenting and joining in. For the children remaining in their wheelchairs, it is slightly more adult-led due to staff choosing the items to go on their trays or laps rather than them being able to explore independently, however they are still free to engage with their surroundings through sight, smell, and sound, and pay attention to what they choose. Staff pay attention to what the children appear to be drawn to and work hard to support them to access this in ways they are able to.

From this observation and the above quote from Rachel, I feel that a significant factor in enabling agency in the outdoors for CYP with PMLD is the responsiveness of the adults supporting them. It does not necessarily mean that CYP will have complete independence and control, but adults must take a step back and pay attention to what the CYP appear to be most drawn to, and respond to this in a manner that enables them to engage with it in a way they want and are able to. Rachel and Valerie discussed what this looks like in their practice:

Rachel: "The staff are quite child-led and will look at their gaze and movement and noises to see where to go with it next or what they're responding to."

Valerie: "I like to see where the eye gaze rests, where the hand reaches out, and that's where we stop and just let things happen."

I felt that both practitioners here were describing attunement. Being attuned to a CYP with PMLD would mean having an awareness of their emotions, wants, and needs through understanding their non-verbal cues, and then reacting and responding to this in an empathetic and supportive way; in other words, "reading the rhythms of the child" (Perry, 2000, p.20). Sturges and Steel (2023) write that being closely attuned to a child can be translated to supporting their agency, due to their right for their thoughts to be heard and acted upon being met. This is also discussed by Goodwin and Taylor (2013), who considered that when supporting CYP with PMLD, their agency is increased through this attunement, or otherwise described as 'interdependence', whereby practitioners utilise responsiveness and human connection to co-construct experiences for the young people. This notion rejects the traditional importance placed on 'independence', instead embracing the fact that many individuals with PMLD

cannot be completely independent in their lives and care, and therefore puts high value in partnership and co-construction. These nurturing relationships support equality and children's rights by limiting the authority of the adult (Jerome & Starkey, 2022).

School staff are better able to be attuned to their pupils and become a part of their world in partnership in the outdoors, when they are no longer constrained by the adult world of test results, lesson plans, and 'institutional busy' (Foran et al., 2021). The outdoors enables adults to finally "see" the children, and in turn strengthens their relationship and ability to engage *with* them in a child-centred way, as fundamental in achieving interdependence (Foran et al., 2021; Goodwin & Taylor, 2013).

However, often, people supporting individuals with PMLD do not acknowledge this interdependent relationship, instead just assuming a lack of independence, and therefore will do things for them and to them, rather than stepping back to see what they can and will do on their own (Goodwin & Taylor, 2013). Practitioners in the current research spoke about the outdoor space as one in which CYP with PMLD may be able to momentarily escape this reality:

> *Rachel: "They're being, not having it done to them, and that whole premise of like that's all you have to do, if you're with that child and you're just chatting away to them and you're engaging with them, that's massive, that's really beneficial to them."*
>
> *Rachel: "Yeah, just sit next to, not even necessarily engage with them directly, just be safe because I'm here with you and let's just sit and look at the clouds or look at the trees."*
>
> *Valerie: "I'm not expecting anything of anybody. I just want them to be."*

I have constructed that these thoughts describe the outdoors as a 'place for being', where CYP with PMLD are able to break free from 'having done to' and instead just get to 'be'. Titman (1994) recognised this, writing that the outdoors is a space for children "to be" themselves and be individual. This is particularly pertinent in Rachel's quote around "not even necessarily engag[ing] with them directly", as Sturges and Steel (2023) found that one of the things children value most about being outdoors is just being in the non-human interaction with nature.

I observed an example of when a practitioner was ‘doing and being with’ a young person with PMLD in their outdoor space, during a child-led experience where they were interacting with the natural world:

> *Sensory Garden PO extract: Another of the children has been supported out of their wheelchair and is on the floor by the planters, feeling the dirt with their fingers and digging their nails into it. A staff member sits with them and does the same thing, but doesn’t say anything or directly interact, they are just with each other.*

This notion of just ‘being with’ and not ‘having done to or for’ relates to the Social Discipline and Relationship Windows (Wachtell et al., 2009; Vaandering, 2016). Doing ‘to’ and ‘for’ can be dominating, punitive, and permissive; it reduces equality, does not nurture healthy relationships, and can diminish the individual’s sense of worth as a human being. These approaches turn people into objects who are acted upon, without giving them agency to achieve what they want to. On the other hand, doing or being ‘with’ is reciprocal, restorative, and relational. It unconditionally accepts people as human beings and treats them with warmth and care (Vaandering, 2016).

From my observations and conversations with practitioners, I therefore see the outdoors as a relational space that may enable experiences for CYP with PMLD of ‘being’ and ‘being with’. Outdoors, the relationships between child and practitioner are strengthened and maintained through attunement, which is in turn supported by being outside away from the constraints often associated with the educational environment. Whilst outdoors, staff are better able to relinquish their control and take a step back to see what the child can and will do, without enforcing their own expectations of this (Foran et al, 2021; Perry, 2000). By no longer having ‘done to’ or ‘done for’, young people with PMLD can co-construct their experiences through an interdependent relational approach (Goodwin & Taylor, 2013); in this way, outdoor experiences for CYP with PMLD can be child-led, child-initiated, and child-centred, supporting both their agency and equality.

4.2 Overarching theme: "When you're outside, you've got every sense there for you to use." - Supporting multisensory experiences.

This overarching theme links to discussions and observations of how the outdoor environment supports multisensory experiences for CYP with PMLD.

Outdoor multisensory experiences were a prominent theme within my participant observation field notes and my interviews with practitioners, both when I asked about this directly as part of exploring Research Question 2, and throughout more unstructured conversation. As we know, multisensory experiences are a vital part of the lives of individuals with PMLD. They are fundamental in helping CYP with PMLD to understand the world around them, create memories, and maintain positive wellbeing (Booker & Booker, 2011; Grace, 2014; Hayes et al., 2011).

I felt that participants viewed outdoor spaces as somewhere that can be supportive of CYP with PMLD accessing multisensory experiences in a unique way:

> *Nancy: "When you're outside, you've got every sense there for you to use."*

> *Nancy: "It just gives them that sensory input that you can't get anywhere else."*

This links to previous literature detailing the impact that the outdoors and nature can have on the senses. For example, Mindrescu et al. (2002) describes outdoor education as "an experiential way of learning that involves using all senses" (p. 2). Participants discussed both how the outdoors is successful in creating these multisensory experiences, as well as how these compare to those which can be accessed indoors.

4.2.1 Theme: "It is such a natural thing." - Sensory experiences are delivered by nature.

Multisensory experiences can be delivered by nature when spending time in outdoor environments.

Participants discussed that just being in nature and around natural resources was enough to stimulate each of the five primary senses of touch, taste, sight, hearing, and smell for CYP with PMLD. Most of the examples discussed will include the use of more than one sense, hence it being a multisensory experience; however, during multisensory experiences there is often one dominating sense depending on the stimuli and activity (Hecht & Reiner, 2009). I have therefore identified what I feel was likely to have been the dominating sense in each experience or topic of conversation, in order to structure this theme and discuss the outdoor experience of each sense in detail.

Touch

Touch has a unique role in supporting us to feel 'present' in the world; it can help to stabilise us whilst providing important information on tactile features of objects surrounding us (McLinden & McCall, 2016). Incorporating touch is an important part of effective learning; it supports the long-term memory of experiences (Novak & Schwan, 2021) and enables understanding around abstract concepts (Zacharia, 2015). Barnes and Hewitt (2015) also write that as many individuals with PMLD must endure high levels of touch from others throughout their lives as they rely on them for most aspects of their care, it is important to facilitate as many different touch experiences for them as possible to enable them to become used to the various feelings and sensations, and subsequently be able to tolerate and accept the feel of touch from others.

It was identified through my observations and in discussion with participants that in their outdoor spaces, natural resources were utilised to facilitate these touch experiences, including specific tactile plants and fallen leaves:

> *Nancy: "We use 'feely' plants."*
>
> *Valerie: "So I mean a lot of touch, feeling lots of different plants. So things that are soft, things that are a little bit prickly, they feel differently. We might be rolling up and down fingers and hands and arms sometimes."*

> *Sensory Garden PO extract: They also sang about Autumn leaves, and picked up lots of leaves that had fallen to the ground from the trees above and placed them in the laps of each child. Some children immediately reached out and grabbed the leaves and began to crunch them [...]. Others did not or were not able to do this, and so staff members picked them up and tickled their hands and face with them.*

I saw that participants value the importance of touch and make a conscious effort to include this when engaging in outdoor multisensory experiences with their young people. Touch is particularly pertinent in facilitating effective learning experiences for CYP with PMLD, as visual impairments are common in this cohort of people (Hodges & McClinden, 2015); in the absence of vision, touch provides vital multisensory information about their environment that would otherwise be inaccessible, helping them to learn about the world around them (McClinden & McCall, 2010).

As well as touch experiences being facilitated by staff, we often have an innate drive to touch the things around us (Kearney, 2021). During my visits to the Forest School and Sensory Garden, I observed this urge in the young people to explore the nature around them through touch without relying on staff involvement:

> *Forest School PO extract: There are trees and bushes on either side of the path and a child moves their hand out to touch the leaves as they pass by.*

> *Sensory Garden PO extract: As they reached out to touch them [flowers], their hand brushed past the angel wings. They moved back to touch these again, suggesting that they liked the soft texture of them.*

These observations showed me that for some children, specific touch activities do not necessarily need to be facilitated by staff, as CYP will be drawn to engage in this independently if they have the opportunity to do so. This also links to the concepts of agency as discussed previously, as through being outdoors the children here were able to interact with the stimulus around them that they wanted to, and in a way that they chose to. The outcome that children chose to do this through touch shows that this form of multisensory experience is important to them and helps to meet their sensory needs.

Hearing

Sound is fundamental in captivating the attention and engagement of individuals with PMLD (Francis, 2011). When CYP with PMLD are exposed to different sounds, they are more likely to alter their facial expressions, show extended concentration, initiate interactions with others, and communicate their emotions (Ellis, 1996). For these reasons, sound is an important component of a meaningful multisensory experience (Zacharov, 2018).

Valerie spoke about how she has noticed the young people that she supports responding to the natural sounds around them whilst they are outdoors:

> *"And sometimes, we'll sit in one area and just ask everybody to be quiet. And it's quite interesting, they really do pay attention to the sound of the wind moving the grasses, or the trees, or birds. Any sounds that they make then are very gentle and really toned down, like they're mimicking or just relaxed."*

Whilst Valerie is clearly referencing how outdoor sounds can grab the attention of CYP with PMLD, I also wondered if the way she spoke about the young people adapting their own expressions to align with what they were hearing was describing another form of attunement. Hughes (2022) discussed similar thoughts, writing that being in nature heightens our sensory perceptions of the environment around us and in turn supports our attunement to our surroundings; this attunement is important as it restores, enhances and maintains our sense of self. Sun et al. (2024) also talk about 'soundwalking', where participants walk through nature whilst paying close attention to the sounds around them; this helps to attune the senses and develops a relationship between the body and environment. This aligns with Grace (2014, p. 67), who writes that encouraging an experience of "auditory sensory-being" for people with PMLD is not achieved by providing specific sound stimuli, but through inspiring their interest in their environment by facilitating them being in a sound-rich space, such as the outdoors, where the individual can tune in to the noises around them. This could suggest a crossover between the attunement of CYP to their environment being supported by the previously discussed attunement of staff to CYP, so that these meaningful sensory experiences can be effectively facilitated.

Exposure to natural sounds in the outdoors is associated with several benefits, with one of these reflected in my field notes from my time in the Forest School, where I noted how the natural sound I could hear contributed to a calm and relaxing environment:

> *Forest School PO extract: We are within a small woodland area. The space is calm and quiet, with the sound of the distant traffic heard from school no longer apparent. The only sounds are the wind rustling through the leaves on the trees, and some gentle birdsong.*

Many more benefits are outlined by Ratcliffe (2021), who highlighted that 'acoustic experiences of nature' are restorative, improve mood, support cognitive performance, and create positive, semantic associations with nature. Additionally, hearing nature sounds creates a place attachment, supporting a positive relationship and feeling of comfort in the individual towards the natural environment (Franco et al., 2017). Nature sounds can also decrease perceptions of feeling crowded and therefore increase tolerance levels for interpersonal connections (Franco et al., 2017).,

This highlights the importance of facilitating opportunities for CYP with PMLD to listen to nature sounds in their natural, outdoor environment, both to support their attunement to their environment as well as enabling meaningful multisensory, acoustic experiences.

Sight

Sight is considered by many to be the most valuable sense (Enoch et al., 2020). Accessing visual sensory input enhances experience by creating and eliciting memories (Conway, 2009), supporting the processing of incoming information (Adaval et al., 2019), and understanding our spatial surroundings (Tatler & Land, 2011). Outdoors, watching nature improves mood and can support physical health; this is likely to be linked to the colours often observed in nature, such as blues and greens, being linked to restoration and relaxation (Franco, 2017).

Staff showed an awareness of this importance of visual sensory experiences and supported this for CYP with PMLD in their outdoor spaces by utilising specific plants for their visual properties:

> *Nancy: "We use more colourful plants in this [planter], for looking."*

Whilst blues and greens are supportive of calmness, bright and contrasting colours are useful in grabbing the attention of CYP with PMLD, and supporting them to look at the stimuli to ensure they are using their visual capacities (Male, 2015). However, accessing visual experiences can be difficult for some CYP with PMLD, many of whom have ocular or cerebral visual impairments (McLinden et al., 2017). For these young people, it is important to take visual sensory experiences back to the earliest stages of development, where children are most drawn to pink and red colours due to this being the first colour they are exposed to in the womb (Grace, 2014). I saw these colours to be engaging for the young people in the outdoor environment:

> *Sensory Garden PO extract: A child near the planters turned their head and appeared particularly drawn to the brightly coloured pink flowers.*

These examples illustrate that plants and flowers in outdoor spaces can be effective in stimulating visual sensory experiences for young people with PMLD, and potentially including those with visual impairments. In addition to this, the visual stimuli that can be accessed outdoors can also move in unpredictable ways, for example when sharing the space with animals:

> *Forest School PO extract: I notice one of the children looking up into the trees and follow their gaze. There is a squirrel above running along the branches, and their eyes are tracking its movements.*

As different parts of the eyes are responsible for registering shape, colour, and movement, observing and tracking a moving object compared to a static one provides additional sensory stimulation and therefore tends to be visually more interesting and engaging (Grace, 2014). Also, for some CYP with PMLD who have visual impairments stemming from specific conditions, shape and colour may be difficult for them to see, whilst following moving objects would be easier for them (Grace, 2014). The visual

stimulation received outdoors could therefore be likely to be more impactful than the often predictable and static visuals within a classroom, due to the greater capacity for unexpected movements delivered by winds and animals.

Watching animals in nature also helps the development of a feeling of relatedness and affinity towards them, which in turn supports feelings of calm, relaxation, and meaningfulness of being in the world (Vining, 2003; Curtin & Kragh, 2014; Halm, 2008); this is particularly pertinent for children, deemed the child-animal connection (Melson et al., 2025). Outdoor visual sensory experiences can therefore not only have implications for supporting sight and its associated benefits, but also have the potential to create positive impacts for emotional wellbeing.

Smell

The world around us is consistently emitting a range of aromas, many of which are not acknowledged due to the dominance of our other senses (Chiang, 2008). However, smells serve an important function of alerting us to what is happening around us (DeVere & Calvert, 2011), and when paid attention to, can cue important memories (Willander & Larsson, 2006), elicit strong emotional responses (Mastinu et al., 2023), support cognition, attention, and motivation (Baron & Kalsher, 1998), and support relaxation (Vora et al., 2024).

Within the practice of the participants in the current study, olfactory stimulation for CYP with PMLD was discussed to be supported in the outdoors, through interactions with plants that have a particularly pungent smell:

Nancy: "You have the smelly plants in another [planter]."

Whilst perceptions of smell are subjective, natural smells in outdoor spaces, such as grass, flowers, soil, and shrubs, are often viewed to be pleasurable and relaxing (Franco et al., 2017). Natural smells support 'nature connectedness' which supports wellbeing and is correlated with mindfulness, happiness, and reconnecting with the inner self (Pálsdóttir et al., 2021). In fact, smell plays a fundamental role in the multisensory experience of 'forest bathing', popular in Japan, whereby individuals are

immersed in meditation experiences within forests of conifer and pine trees, chosen specifically for their distinct and powerful smell (Tsunetsugu et al., 2007).

One plant in particular that is often associated with smell in the literature of Sensory Gardens is lavender, which was also planted within the garden in my PO. The below observation highlights how smell can stimulate responses from CYP with PMLD:

> *Sensory Garden PO extract: Next to this was the lavender. They brushed their hand through it and a scent was released. The child pulled their head back at this smell and made a deep vocalisation. The staff member built on this, asking them, "What do you think of that?"*

Valerie also discussed experiencing this, as well as how these responses can be used by CYP with PMLD to show their preferences:

> *"Smell obviously, and there are often very clear indications of whether somebody enjoys a smell or not, sometimes there's quite a sustained sniff, and other times it's like they pull back and the hand will come out to push it away."*

This aligns with research by Fitzsimons (2021), who found that for CYP with PMLD, being exposed to a variety of smells is particularly useful in provoking a range of observable responses, including mouth and tongue movement, nostril movements, head movement towards the source, and hand movements to either reach out or push away.

This highlights the subjective nature of smell perception; I have therefore constructed from my own research and surrounding literature that outdoor smell experiences for CYP with PMLD can not only be helpful in facilitating multisensory stimulation and positive emotional and physiological wellbeing, but also in developing an understanding of their sensory profile and eliciting their voice around their sensory likes and dislikes. Outdoor smells are usually judged to be more tolerable than indoor ones (Pálsdóttir et al., 2021), and so, as many individuals with PMLD may experience sensory sensitivities including a hypersensitivity to smell (Rees, 2024), beginning to build this olfactory sensory profile outdoors would be a good place to start.

Taste

Taste is not only about flavours, but also the texture and physical sensations emitted by objects in the mouth that provide information about its properties (Smith, 2013). McCorkindale (1992) argues that taste experiences are required to develop social, cultural, and individual identities, whilst taste experiences in childhood are likely to contribute to how we experience and respond to various tastes throughout the rest of our lives (Grace, 2018). As many people with PMLD do not eat orally and are instead fed through gastrostomy tubes, it is of even higher importance that they are enabled to have their gustatory sense stimulated through experiences other than eating and drinking (if it is safe for them to do so).

Participants discussed that such experiences are possible through interaction with natural elements outdoors, as I also observed:

> *Valerie: "I mean everything tends to get mouthed. So for sure I have to make sure all plants are non-toxic."*
>
> *Nancy: "And the fruit trees and things, like the ones that can go up and feel it and pick it and if they can eat it, they eat it."*
>
> *Sensory Garden PO extract: Some children immediately reached out and grabbed the leaves and began to crunch them and put them in their mouths.*

These examples show that outdoor spaces are helpful in facilitating sensory taste experiences for CYP with PMLD. Mouthing is a key feature of the sensorimotor stage that many individuals with PMLD could be understood as being in (Martins, 2017). It is a technique utilised by people in this stage of development as a way of using gustatory senses to explore objects and the world around them (Juberg et al., 2001). Taste also aids the recall of memories and a sense of belonging and familiarity in a particular environment (Núñez-Jaramillo et al., 2010; Verbeek & Van Campen, 2013). Taste is therefore not only a physical sensory experience, but an affective one too. By exploring objects with their mouths in their outdoor spaces, CYP with PMLD are therefore able to develop a deeper understanding of their surroundings and a sense of where they are in the world, as well accessing opportunities that support emotional experiences and improved wellbeing.

Whilst exploring objects with their mouth is therefore important for CYP with PMLD, this isn't always possible due to safety reasons, for example depending on the swallowing capabilities of the young person, as well as being able to ensure all materials are non-toxic, as indicated by Valerie. However, to counter this, participants also discussed how the outdoors can provide gustatory stimulation without the need to have a physical object in the mouth:

> *Nancy: "One boy in particular, as soon as we hit outside […] he sticks his tongue out because it's just fresh air. The staff members were like, I've never seen him do that. I was like, no, he doesn't do it in class. But for some reason he goes outside and that is his response. It's got to be the feel and the taste of the air."*

In this interaction, Nancy herself was developing interpretations of what this reaction seen in her student could mean; I feel that she concluded that the outdoors elicits new responses not seen in other, indoor situations, due to some specific sensory input that can be felt on the tongue only being available outside. This is consistent with observations by Hussein et al. (2016), where a young man with complex needs in a Sensory Garden was seen for the first time to open his mouth and raise it to the sky in order to taste the falling rain. New taste experiences can therefore elicit these stronger and more individualised responses.

4.2.2 Sub-theme: "The wind on their face... the sun in their eyes." - Weather creates sensory experiences.

Participants discussed the effect that the changing weather has on creating and adapting outdoor multisensory experiences for CYP with PMLD:

> *Valerie: "It's a different sensory experience, isn't it, in different weather. That's part of it. They're being exposed to different things and feeling different things."*

> *Rachel: "Outside, because there's that wind on their face that they're turning to, or the sun in their eyes that they have to squint to [...], there's just much more that they're able to give a reaction to."*

Weather adds new and engaging elements to the sensory experience that cannot be accessed indoors, such as cold winds, sunshine, and rain (Allen-Collinson, 2018). We don't only see weather, but we hear, feel, and smell it too (Ingold, 2005). As Rachel stated, these weather features mean there is more sensory stimuli that can be given a reaction to; this was also observed during my visit to the sensory garden:

> *Sensory Garden PO extract: A child sat in their wheelchair is watching a few birds in the trees above us, hopping between branches and singing. […] At one point, a beam of sunlight comes through the branches and shines on their face; they initially react by squinting and turning away, before turning back to face the light. They close their eyes and sit with the sun on their face. A staff member notices and asks them if that "feels nice and warm".*

It can be taken from the above observation that weather elements can elicit different responses from CYP with PMLD, influencing engagement with various stimuli. Rooney (2018b) writes that weather shapes our encounters with the world, particularly for children, who are more likely to explore the weather and curiously engage with it. This can also have affective impacts for them, eliciting excitement, fear, and wonder (Rooney, 2018b). The emotional impact of weather is also evident in my observation; in my interpretation of what was happening for the young person in that moment, their sensory weather experience seemed to be supporting relaxation and a connection to feelings of the natural world. Weather not only impacts the way a person feels, but also changes the environment around them, for example by introducing new colours and reflections, creating puddles and muddy bogs, and emitting new smells after rainfall (Allen-Collinson et al., 2024). These all create new and exciting experiences for CYP to engage in.

Weather can naturally only be part of the multisensory experience outside. This leads into the next theme, which is centred around participants' discussions that compared the outdoor sensory experience to that which can be accessed inside.

4.2.3 Theme: "It's just better." - Comparison to indoor multisensory experiences.

Participants discussed comparisons of outdoor multisensory experiences to those which can be experienced indoors.

It is not new information that multisensory experiences are important for individuals with PMLD, and traditionally, these are often delivered inside, for example through the use of sensory rooms as outlined within my literature review. This raises the question of why supporting multisensory experiences outdoors is important if there is already a tried and tested way of facilitating this indoors. However, as I discussed, sensory rooms are not the perfect setting, often being used as spaces where CYP with PMLD are merely 'parked' and with inconsistent findings around their impact (Grace, 2018; Cameron et al., 2020).

All participants compared their perceptions of the outdoor versus indoor multisensory experience, with the predominant message being that they prefer the outdoor setting:

> *Valerie: "I mean, it's great to have alternatives indoors for when the weather's really bad and you can't get outside, like with sensory rooms and stuff, but I always push for outside even if it's a little bit nippy, it's just better."*

> *Nancy: "I prefer outdoor sensory experiences. [...] Outside there's no limit, you can do whatever you want as long as you've got the imagination and willingness to do it."*

I interpreted that practitioners felt the outdoor multisensory experience could be more varied, without being limited to the restrictions of a sensory room:

> *Valerie: "I think there's merits for both, but I mean, obviously I think the outdoor environment is just so great for children. The opportunities are very different and it's that rhythm of nature, the fact that the things are seasonal, there's so many different tactile things for them to experience. Many things to see. Many things to smell. And you have an opportunity to slow everything down."*

> *Nancy: "In a sensory room you're just limited to what a sensory room can do."*

> *Nancy: "Sensory rooms are good if they're used right […] but it's quite artificial. […] It's people knowing how to use it and why you're using it."*

This is helpful in beginning to understand that sensory rooms may not always be the most effective environment for meaningful multisensory experiences. Further common patterns were identified across my interviews with practitioners which developed my

understanding around the specifics of *why* outdoor sensory experiences for CYP with PMLD could be understood to be more effective, accessible, and preferable to indoor ones. I have constructed these into individual sub-themes focussed on lived experience and the ability to control the stimuli.

4.2.4 Sub-theme: "Outside, they're living in it." - More meaningfully linked to real life.

In well-meaning attempts of practitioners to facilitate the multisensory experiences that are known to be vital for CYP with PMLD, the young people are often exposed to multisensory stimulation that is unrelated to the real life that is happening around them, such as in standalone sensory activities within classrooms or sensory rooms; this is not enough to hold intrinsic meaning and support sensory learning and understanding (Ouvry & Sanders, 1996). Participants alluded to the importance of lived experience in ensuring multisensory experiences are meaningful:

> *Nancy: "Whereas in a sensory room [...] it's not like real life. Like outside they're living in it, whereas often inside it doesn't really mean much to them a lot of the time."*

> *Rachel: "I think it's so easy inside to think, oh, we're doing about, like, weather so we'll just put it on the screen and [...] watch a little video and that's that. Whereas actually outside people are thinking, how can we make the noise of different weathers? How can we look at the colours and the images it makes and things like that? How does it feel? [...] If you put a lot of our people round the screen, it doesn't mean anything to them. But actually outside they've got that like, lived experience to go, oh, I notice that and I understand that and I'll remember that. It just gives more value to what they're doing."*

I construed that participants here are reflecting that outdoor multisensory experiences are often more meaningful than indoor, artificial multisensory experiences due to the sensory stimulation received outdoors being explicitly linked to what is really happening in the world around them, rather than being experienced in isolation in an unrelated environment. For example, when they hear a bird sing outside, they are not just listening to a sound, but are better able to understand where that sound is coming from to develop their knowledge of the world around them. This was reflected in a

study by Adams & Beauchamp (2021), who found that children achieved more intrinsic meaning and a heightened sensory awareness from activities with natural resources outdoors, than they did from similar activities inside, with teachers commenting: “It made it real for them” (p. 47). This aligns with the work of John Dewey (1938) and the value he placed on experiential learning, proposing that children learn best through first-hand interactions with their environment, supporting their understanding of the world they live in.

This is also supported by work from Orr et al (2016), who found that having multisensory experiences in nature enriched everyday life and supported a sense of self and ‘being’ by stimulating real memories of people, places, and past experiences in a way that remaining indoors could not.

Thorburn and Marshall (2014) framed this as the outdoors supporting embodied experiences and lived-body consciousness, where the sensory and spiritual engagement with the natural environment enhances our “sense of being-in-the-world” (p. 130). When linking this concept to the consideration that multisensory experiences are the most vital ingredient to supporting individuals with PMLD to begin to learn and make sense of the world around them (Ayer, 1998; Longhorn, 2011), it could be concluded that outdoor environments may be the most powerful spaces in which to enable this.

4.2.5 Sub-theme: "You can't control it."

Participants discussed the element of control that can be held over multisensory input in different environments, and talked about how the capacity to control this is less outdoors, making outdoor multisensory experiences more unpredictable than those which may be experienced indoors:

> *Rachel: “It’s very much just them being outside and experiencing it, something that we don’t control. And you can't control it either, which I guess is quite a nice thing for them.” (repeated quote)*

> *Nancy: “Yeah, you obviously can't predict it. [...] You also can't really limit which senses are being used, […] and it builds on everything really.”*

Nancy: "It's more natural. It's more unpredictable."

During these conversations, I interpreted that practitioners perceived this lack of control of sensory input in the outdoors as a positive thing, although this does not necessarily align with previous literature. Unwin et al. (2022) and Haig and Hallett (2023) found that being able to control the sensory environment, as is more possible indoors, led to benefits for those with SEND who were accessing it, including an increased sense of empowerment, and improved attention and regulation. Unwin et al. (2022) wrote that one reason for this was that many individuals with SEND thrive in a predictable and structured environment, which is not supported if the sensory input cannot be controlled.

I wondered why the practitioners I worked with in this research may have a different view to this, and surmised that a significant factor in the concept of control is *who* is doing the controlling. In both of the above studies, the young people themselves had control over the sensory input that was coming into their environment by being given access to the equipment controls, rather than these being managed in the usual way by staff members. They were therefore able to influence the sensory environment in a way that they needed or wished to in that moment.

However, many individuals with PMLD are unlikely to possess the cognitive and motor skills to be able to control technical equipment within a sensory room. This means that when they access these spaces, the sensory input is most likely to only be controlled by adults supporting them, rather than the young people themselves. I feel that if anything, this could lead to the opposite effect of that found in Haig and Hallett's (2023) study and reduce the sense of empowerment felt by CYP with PMLD, as again they are having things 'done to' them and are not experiencing agency in their environment.

The outdoors removes the control that anybody can have over the sensory input around them, and so CYP with PMLD are equal to anyone else in that space in their level of sensory agency. As alluded to in Rachel's above quote, I feel that *this* is empowering.

4.3 Overarching theme: "It just covers so many different areas" - Range of benefits.

Participants spoke about how they consider the experience of being in outdoor spaces to have a wide range of benefits for CYP with PMLD; this directly relates to my Research Question 3, as well as helping to develop further understanding of what happens within these outdoor experiences for the young people. I have constructed the impacts discussed by participants into four individual themes below.

4.3.1 Theme: "A big one is the communication."

Participants discussed that the communication of CYP with PMLD is supported in outdoor environments.

Many individuals with PMLD would not typically be understood to be 'linguistic beings', meaning that they have often not acquired verbal language and so do not communicate through these means (Grace, 2018). Instead, they may communicate through vocalisations or non-verbal methods such as eye-gaze, body language, and gestures, which can often be understood effectively by people who know them well (Karas & Laud, 2015). The use of these strategies by CYP with PMLD is evident when they are in their outdoor spaces, as referenced by practitioners during interview:

> *Rachel: "And then another big one is the communication, choosing between different things, particularly for those who aren't mobile, for them to be able to express non-verbally to say, "I'm enjoying this or actually, no, I don't want to do this." […] Which is quite a big thing and again, something they don't often get in school or at home."*

> *Nancy: "Encouraging them to use their eyes or gesture where they want to go to try and find something."*

There are different functions of communication, with one being the expression of an individual's wants and needs of various items or activities (Diekhoff, 2019). This is the function that is described by practitioners above, where the outdoors is a space that

encourages CYP with PMLD to express their preferences and make choices through non-verbal forms of communication.

Another common function of communication is in the expression of emotions (Diekhoff, 2019). During my participant observation, I was able to see how the children used their individualised forms of communication to share how they were feeling in those moments, and have this understood effectively by the staff who support them:

> *Sensory Garden PO extract: The child suddenly makes multiple loud and high-pitched vocalisations. I ask what this means, and the staff member tells me that they are showing they are having a good time.*
>
> *Sensory Garden PO extract: The child blows some raspberries. Staff members tell me that this is their happy noise, but that they don't hear it very often. I ask if they have heard it before outdoors and they tell me that it is one of the only places they do hear it. I continue to be with the child feeling the soil for a while, blowing raspberries together.*

Not only do these observations highlight how being in outdoor spaces can facilitate the communication of emotions for CYP with PMLD, but it is also suggested that for some children, the outdoors is one of the only environments in which they are able to do this. Children being able to communicate their feelings is vital in them developing skills in identifying and regulating their emotions, as well as seeking help from others (Zeman et al., 2006). This is also important for staff, as being able to understand and respond to the emotions of a child you are supporting is key in developing and maintaining a trusting relationship with them (Gus et al., 2017).

This theme of the outdoors supporting communication and connections with others is also evident in the way the young people interact with each other:

> *Valerie: "And sometimes they interact with each other, which they don't often do within the classroom setting."*
>
> *Rachel: "It's so hard to do more than one class in a classroom, but you want to have that real like community feel to what you're doing. […] But you can outside, and interact with more and different people."*

I interpreted from these quotes that being outdoors is more effective than being within the classroom in supporting communication and interactions for CYP with PMLD in a way that builds connection and community with those around them. This is also reflected in a study by Clarke (2007), who found that children have more interactive social spaces outside than they do inside, with these spaces supporting their play and communication. Factors that make the outdoor experience a particularly effective enabler of communication, connection, and community include a sense of escapism and 'getting away from it all', feelings of regulation and calmness, enabling teamwork, having shared goals and values, and greater capacity to just 'be' with and be attuned to each other (Breunig et al., 2010; Harun & Salamuddin, 2014; Blades & Bester, 2013). This suggests that being outdoors also supports a third function of communication: engaging in social interactions (Diekhoff, 2019).

For CYP with PMLD more specifically, one strategy that supports the development of communicative intent and relationships is Intensive Interaction, where communication is adapted to meet the child where they are at; it uses techniques such as mirroring, copying and adapting vocalisations and movements, and sharing physical touch (Hewitt, 2012). When utilised with CYP with PMLD, Intensive Interaction increases their sociability and engagement, and reduces communication frustrations (Weedle, 2016). I observed several instances of Intensive Interaction happening between staff members and the children during my visits to their outdoor settings:

> *Forest School PO extract: A staff member interacts with a child by gently tickling their cheek with a branch and leaves, before stopping. The child makes a quiet vocalisation and the staff member says, "again?" before tickling their cheek again. The child again vocalises and turns their cheek closer to the branch, which the staff member mirrors.*
>
> *Sensory Garden PO extract: Another staff member begins to crunch the leaves near a young person's ear. The child alerts to this and turns their head to face them, smiling. The staff member smiles back. They stop crunching the leaves and the child stops smiling. The staff member also stops and asks, "more?" and then waits a few seconds. The child makes a quiet vocalisation, and the staff members copies this and begins to crunch them again. The child again smiles showing that they liked it.*

These instances were lovely to watch and I got a real sense of care, respect, and connection happening between the children and the staff members. It emphasised to me how embracing these ‘unconventional’ forms of communication upholds the rights of the child by enabling them to be part of interactions and have their ‘voice’ heard and valued. The use of natural resources in the outdoor environment also appeared to be a strong motivator for the children to engage in communication. This could be because young people generally tend to be more motivated, excited and engaged by outdoor activities and experiences (Maynard et al., 2013).

In summary, it is constructed from my discussions with participants and my own observations that enabling CYP with PMLD to be in outdoor spaces supports their communication skills through facilitating space for them to make choices and communicate their wants and needs, providing experiences that enable to them to express their emotions, and implementing the appropriate support and encouragement for them to interact with others and create social connections.

4.3.2 Theme: "Just being outdoors makes a whole difference to how they engage and pay attention."

Participant observations and interviews with practitioners highlighted that being outdoors supports the attention and engagement of CYP with PMLD.

Being able to sustain attention is one of the most important factors in engaging in activities, facilitating learning and determining outcomes of success (Taheri, 2020). However, due to their complex learning needs, some individuals with severe or profound learning and sensory disabilities may have challenges in being able to notice, attend to, and engage with specific stimuli (Imray et al., 2024). Difficulties in attention and engagement are linked to repetitive negative thinking, low mood, slower social development, and lower attainment due to reduced intentionality and goal-driven behaviours (Yip et al., 2023; Spira & Fischel, 2005). Therefore, enabling CYP with PMLD to develop their attention skills is vital in supporting their holistic progress and wellbeing.

During my observations, I noticed several occasions where elements of nature had grabbed the attention a young person with PMLD, for example:

> *Forest School PO extract: I notice one of the children looking up into the trees and follow their gaze. There is a squirrel above running along the branches, and their eyes are tracking its movements. (repeated quote)*

Sometimes, attending to stimuli was facilitated by a staff member, which in turn led to increased engagement and involvement from the young person:

> *Sensory Garden PO extract: The staff pick up lots of the Autumn leaves around them and place them in the laps of the young people. Some reach out to touch them, whilst others don't. For one child who hasn't looked at or interacted with the leaves, the staff member picks them up and throws them up into the air so that they fall around them. The first time, nothing happens. She does it again and makes a 'oooooh' sound, and this time the child looks up and sees the leaves falling, following them with their eyes down to the ground. The staff member does it a third time and again the child watches. The staff member then places the leaves back into the child's lap, and they immediately pick one up and press it into their face.*

In addition to my own observations, all participants also discussed how they have recognised instances of increased attention and engagement outdoors:

> *Nancy: "Just being outdoors makes a whole difference to how they engage and pay attention."*

> *Valerie: "One student in particular, she's always very engaged in anything that's offered to her outside, very keen to touch and hold. But I've noticed in the classroom setting, she'll just hold her herself back and not really pay much attention to you."*

It can be interpreted from these statements that there are clear differences in how the CYP present in the two environments, with the outdoors being a more effective space than within the school building for enabling greater attention and engagement for CYP with PMLD.

This aligns with a wide range of research illustrating similar perspectives. For example, nature-based preschools support children to have better attention, increased

engagement, and a greater curiosity to attend to a range of stimuli than indoor or urban settings, effectively preparing them for a more formal learning environment (Burgess & Ernst, 2020; Ernst & Burcak, 2019; Fyfe-Johnson et al., 2019). This has also been shown to be similar for children who have neurodiversities; for example, children with attention deficit hyperactivity disorder (ADHD) have been found to be better able to concentrate and be more effectively engaged in a task whilst in nature compared to in a classroom (Van den Barg & Van den Barg, 2011). Kuo and Faber Taylor (2004) also reported similar findings, labelling this 'attention restoration' in nature.

I have considered why being in nature has these positive effects on attention and engagement, specifically for CYP with PMLD. For some children, for example those with ADHD, this could in part be due to them experiencing more freedom of movement and physical exertion whilst outdoors compared to in school, which is known to support the cognition and learning of people with ADHD (Kuo & Faber Taylor, 2004); however, this is not necessarily relevant for CYP with PMLD due to the physical disabilities they often face. Another explanation is that if children have been found to be better able to attend, focus and concentrate in the outdoors, then staff may also be feeling these same effects. This could create a positive cycle, enabling them to create a more regulated and calm environment where they are better able to attune to and be with their students, in turn supporting them to notice and engage with what is happening around them.

Finally, a third thought links to a quote from Rachel, who told me that whilst outside, the young people she supports are more regulated and less overwhelmed, which means:

> "*They quite happily sit there and just watch the world. But actually, how amazing is that, to pick up on those things [...] the more they can notice and engage and interact with it. It's not an overwhelming sensory experience outside, just a calm and natural one.*"

This suggests that because the young people are less likely to be experiencing sensory overwhelm whilst outside, they are more able to notice and focus on the more subtle aspects of nature happening around them. This, likely alongside other contributing factors, means that the attention and engagement of CYP with PMLD can be supported in the outdoor environment.

4.3.3 Theme: "It encourages movement."

Participants discussed that being in outdoor spaces can support and encourage movement for CYP with PMLD.

The majority of individuals with PMLD experience some physical disabilities that can significantly affect their mobility (Roberts, 2010). A large proportion of people with PMLD are wheelchair users, and also access specialist equipment such as walkers and standing frames to help them to walk or support their weight (Mencap, n.d.). Many individuals with PMLD will have some movement in their hands, arms, and head, however for some people this can be difficult, painful, and require considerable physical exertion (Roberts, 2010). If not fully supported, these physical difficulties can mean that the independence, wellbeing, engagement, and exploration of many individuals with PMLD is significantly affected. It is therefore important to identify environments that can effectively support these movement skills and opportunities.

Participants discussed that being outdoors supports opportunities and motivation for increased movement for CYP with PMLD:

> *Rachel: "But physically as well it encourages movement in touching different things. [...] And obviously physicality is quite a big thing.*
>
> *Nancy: "One that's just started walking will only crawl about in the classroom, but will walk outside."*
>
> *Nancy: "So, the more we've done the [outdoor] sessions, the more some have tried to get themselves out. So, if they've got a self-propelling wheelchair, they might not do it around school, but they will do it out of the classroom door."*
>
> *Nancy: "Also they've actually got more mobility time as well because when in the classroom you can't always have them in the walkers."*

Whilst this partly seems to be due to the limited space available indoors making it difficult for classes to be using multiple pieces of walking equipment at the same time, it also appears that CYP experience a greater motivation to use this equipment or move independently when they are outdoors compared to within the classroom.

I feel that some of these quotes refer to an increased motivation to move outside in order to explore the environment around them, whilst there is also a suggestion that CYP with PMLD may move independently in a desire to leave the classroom and spend time outdoors. This aligns with previous research showing how time outdoors influences movement levels. For example, Gray et al. (2015) found a strong positive correlation between time spent outdoor and number of movement behaviours. Also, Pierce and Maher (2020) found that teachers in special schools found Forest Schools useful in encouraging their pupils with SEND to be physically active. Brodin and Lindstrand (2006) wrote that this is a common pattern due to the outdoors promoting imaginative play, a natural form of movement. However, whilst this highlights how the outdoors encourages movement in general, most of these studies relate to children who do not have a physical disability, rather than supporting understanding around why those who do may be better enabled to move outdoors.

I feel that Rachel's quote could help to explain this, in its links to concepts of curiosity. Outside, there is usually a wider range of materials, objects and spaces that are often novel and invite this curiosity to touch and find out more about them, as opposed to the static and predictable classroom environment (Tovey, 2007). This in turn stimulates movement for children by them being more motivated to be outside and move around these natural spaces to satisfy their curiosity and innate need to explore (Zamani, 2016).

Additionally, most of the children referred to in the above quotes are wheelchair users who, whilst outdoors, have the space and desire to move either more independently or with specialist equipment such as walkers. I have considered that this could be a prime motivator of these young people wanting to move more outside, as it places a separation between them and their wheelchair. Sometimes, a wheelchair is seen as part of them as though they are conjoined to it, rather than just some equipment that they use (Robert, 2010); by enabling them to be out of this, their sense of self and freedom can be supported, alongside recognition that they are an individual.

The outdoors therefore motivates CYP with PMLD to move as independently as they are able to, and provides the space for them to do so; this in turn supports their physical skills, curiosity, exploration, independence, and autonomy. Higher levels of movement are associated with greater physical and health fitness, positive mental health, and

improved learning and executive functioning skills (Savina et al., 2016; Lubans et al., 2010). There is also a close relationship between movement and pain, which is pertinent for many CYP with PMLD. For many young people with physical disabilities and healthcare needs, moving can cause them to feel pain, and so they are discouraged from doing so (Roberts, 2010). For movement to be supported for CYP with PMLD it is therefore also important to consider healthcare and pain management, as discussed in my next theme.

4.3.4 Theme: "Because they're relaxed, things perhaps don't hurt so much." - Supporting pain and healthcare needs.

It was discussed during interviews with participants that spending time outdoors can positively impact on the management of pain and healthcare needs for CYP with PMLD.

A large proportion of individuals with PMLD will experience significant and complex healthcare needs, including epilepsy, respiratory conditions, and specific feeding requirements (Slade et al., 2023; Bellamy et al., 2010). Many CYP with PMLD are also faced with life-limiting illnesses (Male, 2015). Because of the complexity of these physical and medical needs, individuals with PMLD are at an increased risk of experiencing pain (Petigas & Newman, 2021; Roberts, 2010). Chronic pain and illness significantly reduce an individual's quality of life, and impact on a range of daily functions such as sleep, engagement with activities, and capacity to communicate. They negatively affect mental health and interfere with social relationships (Turk et al., 2016; Hadi et al., 2019). Children with such medical needs are deprived of a range of opportunities, such as accessing education and going on holidays or to a friend's house (Dyke et al., 2009; Gabbay et al., 2000). This can lead to children with complex health needs experiencing a sense of unfairness, isolation, and ultimately disengagement and disempowerment (Anderson & Coyne, 2013; Bluebond-Lagner, 2020; Sinha et al., 2021).

Participants discussed that these needs often act as a barrier to CYP with PMLD accessing outdoor experiences:

Nancy: “And some staff think, "They're really poorly. You can't take them outside."”

Valerie: “The medical stuff […] gets in the way of being a child and having fun.”

Nancy: “They’re seasonal children. […] They think that the fresh air will make them poorlier.”

Nancy: “Some stay in because of parental preference … these are the same children that don't go on school trips because they'll be with the public and germs.”

Rachel: “Health more so than anything. [...] I spoke to his parents and they were like, “Oh yeah, we would never go outside. He could get poorly”.

The above quotes suggest that a key factor in CYP with PMLD and associated health needs is fear, from both staff and parents. This aligns with the literature, for example, Castarlenas et al., (2015) found that school staff are likely to experience high levels of concern and anxiety when supporting children with chronic pain and illnesses. Furthermore, parents of children with chronic illnesses also experience higher levels of fear and anxiety around the safety of their child than parents of healthy children, significantly impacting their own mental health (Cohn et al., 2020). This can lead to an overprotective approach where they keep their child within an insular environment that they perceive to be safe (Celik et al., 2014). Parents also manage these emotional burdens by constructing rigid routines and rituals around the care of their child (Crespo et al., 2013). All of these findings align with outcomes from Sterman et al. (2016), who reported that concerns around safety and ensuring medical care and routines are adhered to were key factors in parental decision-making around disallowing outdoor access.

However, during interview, participants discussed that when the young people are able to spend time outdoors, they see positive effects on the impact of their pain and/or healthcare needs:

Valerie: “One student in particular, she’s always very engaged in anything that’s offered to her outside, very keen to touch and hold. But I've noticed in the classroom setting, she'll just hold her herself back. And I think she's in quite a lot of pain. I mean, it struck me the other day how difficult it must be to manage

pain for them. For them not to be able to say when pain is particularly bad, but you can see sometimes that she's feeling very uncomfortable at the very least. But if we manage to get her out into the outdoors, she's like a different person. [...] She'll sort of hold her face up to the sun or a breeze and listen to the birds, and there's just this gentle contented noise that she makes. And I think what a difference to the young lady that I saw when I came into school today."

Nancy: "Because you often see a child that genuinely does look really poorly in the classroom, but you get them outside and it just seems to perk them up, like the fresh air. And they seem happy and engage with you, and then that lasts for the rest of the day then, that effect. But if we just stay in cause we think they're too poorly then you don't see that difference."

I found this conversation emotive and the phrase *"she's like a different person"* particularly stood out to me here; Valerie's and Nancy's words were powerful in illuminating to me just how much of a difference being outdoors can have in the lives of some children and young people. Whilst I do not want to be idealistic and minimise this significant issue by proposing that just being outside can solve the problem of pain and illness, there is evidence that it can make some kind of difference.

Patberg and Rasker (2002) found that people suffering with rheumatoid arthritis experienced less pain following increased time outdoors, whilst Serrat et al., 2022) reported that individuals with fibromyalgia experienced greater pain reduction when their therapeutic programme was conducted outdoors. Rappe et al. (2006) suggested that this is linked to the outdoors promoting general overall wellbeing which supports people to better cope with the pain. In relation to the impact on illness, Andersen et al. (2021) reported that increased exposure to nature strengthens the immune system, whilst Söderström et al. (2013) found that children spending more time in high-quality outdoor environments was positively correlated with better health outcomes. Moreover, McQuid (2017) wrote that when people with chronic illnesses have opportunities for a range of experiences, such as ocean swimming and being in nature, they are better able to view their body as something other than 'sick', improving their perceptions of their illness, giving them a sense of agency, and improving their overall wellbeing and quality of life.

Valerie provided a possible explanation for why she feels this could be:

> *"That's my primary motivation, I think, is for them to have fun because it then affects the rest of the day, doesn't it? At least that day, they've had a nice time, they've enjoyed something, they feel happy. And because they're relaxed, things perhaps don't hurt so much. […] When you're laughing and being silly, it's quite a mindful activity. You're not thinking about anything else. And I think that all helps."*

I feel that Valerie here is suggesting that whilst outside, the pain experienced by the young people is better managed because they are having fun, which helps their bodies to relax and serves as a distraction for them. This idea is reinforced by the literature in this area; for example, in a systematic review, Persson et al. (2008) found that relaxation is an effective treatment for chronic illness, in reducing pain intensity, improving emotional wellbeing, and developing coping strategies. Endorphins play a key role in this, as they block nerve cells from receiving pain signals (Tse et al., 2010). Not only are endorphins released during fun and relaxing activities, aligning with Valerie's thoughts above, but they are also released when spending time in nature, meaning that fun experiences outdoors could have a double impact on supporting chronic pain and illness (Schwartz, 2022).

Whilst this is a positive notion, it is essential that those who support CYP with PMLD do not apply this as a blanket practice for all young people without first considering their individual differences. Different conditions will lead to different experiences which will be supported by different strategies (Perquin et al., 2000). For example, whilst certain temperatures may be supportive of some conditions, it may be exacerbating for others (Hedelin et al., 2012; Patberg & Rasker, 2002). Practitioners should therefore ensure they pay close attention to the needs and communication of the CYP they support in determining whether certain outdoor environments will be supportive and suitable for them.

4.4 Overarching theme: "It made a child smile for the first time in two years." - Children enjoy being outdoors.

When reflecting on the experience of CYP with PMLD in outdoor spaces, practitioners indicated that they consider this to be something that the young people they support enjoy and want to be a part of.

> *Nancy: "The kids want to be [outside]. You can see that they do."*
>
> *Valerie: "They definitely enjoy being out there."*

This acknowledgement of the enjoyment that outdoor experiences bring for young people with PMLD was also noted within my participant observation:

> *Forest School PO extract: Whilst still in the classroom, the teacher plays forest sounds through the interactive whiteboard as a sound signifier to let the children know that it is time for Forest School. The young person that I am engaging with notices this and turns their head towards the speaker. A staff member sees them do this and jokes with them that it is their "favourite time".*

This doesn't come as a surprise, as it aligns with a wide range of literature reporting that children with or without identified SEND have positive experiences and attitudes towards the outdoors. For example, Clarke (2007) gathered the views of young children on their outdoor spaces, and reported that access to the outdoors was important to them and are often their favourite places to be. In a similar Icelandic study, Norðdahl and Einarsdóttir (2015) found that children have a desire to be outside as they want to explore the space and "enjoy beautiful things in the outdoors" (p. 161). Other studies have shown that autistic young people and CYP who experience SEMH needs find significant enjoyment in the outdoors compared to being within the classroom environment (Fahy et al., 2021; Bassingthwaighte, 2017). Furthermore, Fasting (2019, p. 6) writes that, "Children love being outdoors: they are designed to be outside and their bodies, minds and spirits need them to be there."

However, this is the first time that it has been reported that specifically CYP with PMLD enjoy being outdoors. Nevertheless, it is important to note that many of the findings above were developed from directly gathering the views of the children themselves,

whilst the theme developed within my own research stems from staff interpretations of what the young people think and feel. Staff members had also volunteered to take part in this research and so were likely to have a predisposition towards valuing outdoor learning, and therefore could be more likely to perceive that the young people themselves also enjoy it as a confirmation bias.

It was therefore interesting to hear how the practitioners had developed this perception of enjoyment through their observations and interactions with the young people and sometimes, their families:

> *Nancy: "You usually get the facial expressions or just body language… Some that vocalise will do their happy vocalisations."*
>
> *Valerie: "So sometimes it's the way they were before I started the session. So this week I had somebody lying on a mat rocking, almost crying. And she ended up harvesting for the whole session. Putting the carrots back in, and taking compost out, putting it back in and completely engaged. Smiling, laughing, shrieking."*
>
> *Rachel: "You can see with some of the *PMLD class name* kids, the fact that they've actually just sort of stopped and paused and they're sort of listening to what's going on, [...] whereas then some other classes you obviously get more sort of open vocalisations and you can see they're enjoying it."*
>
> *Nancy: "You get family feedback and they'll say yeah they really enjoyed that."*

These interpretations were therefore mostly developed through an understanding of the non-verbal cues and behaviours of the young people, rather than the direct sharing of their views. Knowing whether an individual with PMLD is enjoying something or not is often dependent on the relationship one has with them, and the capacity of being able to understand their, sometimes nuanced, forms of communication (Goodwin, 2013). All of the practitioners that contributed to this research had worked with the young people that they were supporting or discussing for at least several months, and so I felt that they were able to develop a trustworthy interpretation of their feelings and views.

In addition to discussing that the outdoors was enjoyable for CYP with PMLD, Valerie also shared her thoughts around why this is:

> *Valerie: "I think because everything is relaxed, we have time to have fun. And I think that as I said at the very beginning, it's something that can get overlooked because there's so much serious stuff going on around medical needs that sometimes we forget what it is just to be a child and just to have fun and be silly and playful and joyful."*

I interpreted from this that the enjoyment and supported wellbeing that can be felt by CYP in outdoor spaces may be a rare occurrence when compared to experiences in aspects of their otherwise stressful lives. This aligns with an array of research showing that being in nature reduces stress responses (Kondo et al., 2018), supports mindfulness (Howell et al., 2011), can calm and soothe dysregulated children (Hanscom, 2016), and increases relaxation (Pfeifer et al., 2020). Hordyk et al. (2015) suggest that this is because nature acts as a buffer against children's life stressors; this aligns with the Stress Recovery Theory (Ulrich et al., 1991), which posits that being in nature helps to restore positive psychological wellbeing and aids recovery from stressful experiences.

This was further highlighted by Nancy in a powerful story she shared about an experience of hers when supporting a young person at Beach School through the use of an adaptive ocean wheelchair. The young person had a degenerative condition and had not shown enjoyment through smiling in a long time:

> *Nancy: "And we were like, "Do you want to go in the sea?" [...] And she didn't really answer us. So we thought, [...] "we'll take her up right to the edge so she just gets it on her feet." And she just smiled. And mum and dad were just like, "We have not seen her smile in two years." And we were just like, wow. So it's just like, the outdoors has opened her world up and just given her back to them for a bit. It was just mad that just putting her toes in the freezing cold sea with the waves made a child smile, for the first time in two years. She's not done that for ages."*

I have taken these stories to mean that some CYP with PMLD may not always access many opportunities where they can feel and show their enjoyment, but that the outdoors is one setting that can particularly support this. It is vital that all people are enabled to experience enjoyment and happiness as an essential component of a balanced and meaningful life (Hernik & Jaworska, 2018). Enjoyment fosters

relationships, connection, and a sense of belonging, and evokes positive memories (Nguyen, 2023; Hernik & Jaworska, 2018), whilst for children in educational settings it supports wellbeing, learning, achievement, and motivation to engage (Hagenauer & Hascher, 2014).

I initially wondered *why* the outdoors could particularly enable CYP with PMLD to experience enjoyment more so than other environments. However, following my development of this chapter, I feel that this is now clear. The outdoors is a space where young people with PMLD can experience increased equality and agency, access multi-sensory experiences that are fundamental to their sense of being, and experience opportunities that foster their wellbeing, movement, engagement, communication, and connections. I feel that it follows naturally that this would therefore be enjoyable for them.

4.5 Overarching theme: "PMLD children don't go outside." – Changing the culture of inequality and missed opportunities.

Participants talked about a pattern of CYP with PMLD being excluded from accessing outdoor spaces. Again, this aligns with considerations I wrote about within my literature review, where I highlighted a lack of current research exploring outdoor experiences for CYP with PMLD. My own experiences told me that this may be due to the minimal access to the outdoors that individuals with PMLD have, therefore meaning there is not an extensive field for research to be conducted within. Practitioners within the current research acknowledged similar perceptions:

> *Rachel: "Because you don't tend to find many people that are like, outdoor and PMLD together, it's usually just one or the other. Like they're mutually exclusive."*
>
> *Nancy: "Generally the child with PMLD won't be the one that goes anywhere."*
>
> *Valerie: "You don't see my students out and about because it's just too difficult to get them from here to there. You don't see them at the pantomime, or the shops, or the park. And it frustrates me that they are excluded from so much."*

As well as reducing the equality of people with PMLD, I feel that this has subsequently led to participants also feeling alone, as they do not have access to other practitioners who facilitate outdoor learning for CYP with PMLD in order to create a community around this:

> *Valerie: "Which is hard cause you feel alone a lot of the time in this, cause not many people do it."*
>
> *Nancy: "It's hard cause it doesn't happen a lot so you can be alone sometimes."*

This clear lack of outdoor practice for CYP with PMLD gives me a sense that there are general assumptions held by some that CYP with PMLD should not or do not access outdoor spaces, and need to stay inside. Whilst this is likely to link to poor disabled accessibility creating physical barriers in many outdoor spaces (Groulx et al., 2009), I feel that a key factor in this issue is the societal expectation of what people with complex disabilities should and should not do.

Part of this is shaped by 'anticipated barriers', for example, people who support individuals with PMLD and have the power to facilitate their experiences will often choose not to take them outside as they have a preconception that the space will not be accessible for them, regardless of whether this is accurate or not (Horton, 2007). Another 'anticipated barrier' is the anxiety felt by practitioners or families around the judgement and discomfort that they may feel in outdoor spaces when the disability of the person they are supporting is noticed by people around them, creating feelings of unsettlement and a sense of being 'othered' (Sterman et al., 2016; Horton, 2007). Many people supporting CYP with complex needs experience feelings of "dread", "hopelessness", and "failure" when considering attempting to access outdoor spaces with them, and as a result avoid this altogether (Horton, 2007). Misconceptions also exist that people with disabilities do not enjoy the same recreational and outdoor experiences as people without disabilities, or want to access these for similar reasons and benefits (Burns & Graefe, 2007); therefore, their access to these spaces is reduced by those who can exert power over them without fully taking their voice and feelings into account. These factors, aligning with a social model of disability, suggest that many people with PMLD are excluded from accessing outdoor spaces due to the

perceptions of others and ableist attitudes, rather than due to their own disability and any limitations that may be associated with this.

These attitudes and misconceptions have, over time, created a culture where individuals with complex disabilities are significantly less likely than a non-disabled person to access outdoor spaces (Sterman et al., 2016). This leads to a lack of equal opportunities for individuals with PMLD, where they are denied access to equal spaces and are marginalised from the rest of society.

This culture and expectation that individuals with PMLD don't want to, don't need to, or just won't access the outdoors, means that a vicious cycle is created. If it is not felt that it is needed, then the infrastructure, the accessibility, the funding, the staffing, and the belief won't be there to support it; this then means that people with PMLD *cannot* go outside. Subsequently, not seeing individuals with PMLD in outdoor spaces only reinforces the perception that 'going outside just isn't something that people with PMLD do…'.

However, in the current study, discussions were held around how practitioners are aiming to change this culture by leading the way in supporting CYP with PMLD to access the outdoors:

> *Nancy: "Because for so long, there's been a culture of, 'PMLD children don't go outside'… we're changing that culture."*
>
> *Nancy: "We might have some that do get to adulthood, but a lot that go through our class, they might not. And I just think, 'do it'… Let them do whatever they can while they can."*

I feel that Nancy's message of *"Let them do whatever they can while they can"* is one of noticing and helping to realise the true potential of the individual, rather than restricting this by grouping and discriminating them into a category of disability. The outdoors is an ideal place in which to achieve this, with time spent outside and in nature repeatedly associated with better developmental, physical, cognitive and psychological outcomes (Fermin et al., 2024).

I also construed a sense of hope within Nancy's statements that this culture can be changed, in comparison to the frustration and helplessness communicated by Valerie earlier in this theme. Clearly, from my own experiences, my observations, and my interactions with practitioners throughout this research, it is possible for CYP with PMLD to access outdoor spaces, and so I can also see hope that one day this will become the norm. These children are breaking the mould and pushing back against their exclusion and marginalisation with the support of adults who believe in them and their capacity to thrive in these spaces. This is summarised in a quote by Burns et al. (2009, p. 403), who stated that, *"Through engagement with the outdoors, disabled people are challenging normative constructions of who they are."* The more CYP with PMLD are enabled to access the outdoors, the more likely it will be that this becomes the new norm and the less stigmatisation they will face. However, for the whole culture to change for all individuals with PMLD, this message needs to be communicated more widely to the people who have the power to make these changes.

Chapter 5: Implications, Limitations, and Future Research

5.1 Summary of Research

This research aimed to explore the experiences of outdoor learning and being in nature for children and young people with Profound and Multiple Learning Disabilities. My understanding of these explorations was developed through participant observations of CYP with PMLD in a Forest School and a Sensory Garden, alongside collaboration with staff members who knew the young people well. Due to the communication needs of the young people, I attempted to understand their experiences through hearing the perceptions of practitioners who worked closely with the young people in these spaces, utilising them as a proxy voice. Three semi-structured interviews were also conducted with practitioners who regularly facilitate outdoor experiences for CYP with PMLD. From a social constructionist positionality, themes were constructed through my interpretation of the data using Reflexive Thematic Analysis.

These themes highlighted several aspects of the perceived experience of the outdoors for CYP with PMLD. Firstly, it is suggested that being in nature and accessing outdoor learning supports the agency and equality of CYP with PMLD, reducing their marginalisation and enabling them to ‘be’ and ‘be with’ rather than ‘have done for or to’. The outdoor environment is also able to create natural multisensory experiences, which are considered to be vital to the learning, development and wellbeing of people with PMLD. Practitioners communicated preferences for these outdoor multisensory experiences compared to those that can be achieved indoors. It was also emphasised that the young people experience enjoyment from being outdoors and want to access these spaces.

The research identified several areas of impact that CYP with PMLD can benefit from when they are supported to access outdoor learning and nature spaces; these included greater opportunities for communication and connection, improved attention and engagement, the encouragement of movement, support for pain and healthcare needs, and positive emotional wellbeing. Facilitating access to outdoor learning and nature spaces for CYP with PMLD also works to stop the current vicious cycle of

inequality, and changes the existing culture of these individuals being excluded from these opportunities.

5.2 Implications

Following my interpretations of the data collected within my research, I have identified several implications of this on societal and professional practice. I have categorised these below as systemic implications, implications for school staff, and implications for Educational Psychologists (EPs).

5.2.1 Systemic implications

Firstly, I have identified some systemic implications focussed on the design and accessibility of outdoor spaces for individuals with PMLD, as well as other disabilities.

Improving outdoor design and accessibility

This research has shown that having access to nature spaces and the outdoors has wide-ranging benefits for individuals with PMLD. However, these spaces are often inaccessible to this cohort of people. Studies into the accessibility of nature spaces have identified several barriers that preclude individuals with physical disabilities and medical needs from spending time in them; these include environmental hazards such as high kerbs, narrow pathways, uneven surfaces, and steep gradients (Dropkin & Smith, 2021; Kapsalis et al., 2024), and a lack of facilities such as disabled parking and toilets (Nielsen, 2024; Perry et al., 2018). In relation to outdoor learning, school grounds infrastructure is cited to be a key barrier to school staff effectively delivering sessions in these spaces (Waite, 2020). This could be due to a combination of several factors, including a lack of awareness or thought around disability during design, complex terrain making adaptations difficult, and a lack of connection between those in charge of outdoor spaces and disability advocates (Roaming the Paths, 2024; Every Body Moves, 2024; Sluimer, 2020). This research therefore highlights the need for changes in the design and accessibility of outdoor spaces to ensure they are fully inclusive of individuals with PMLD and are utilised to their full potential.

As part of this, it would be ideal for terrain around parks, beaches, and woodlands to be adapted and maintained so that they are fully accessible for wheelchair users; however, as mentioned above, some terrains can be complex to adapt safely. Instead, this could be overcome by the availability in these environments of equipment that can improve access to existing spaces, rather than adapting the nature itself. For example, all-terrain power wheelchairs provide off-roading capabilities to move over surfaces that would usually be inaccessible to someone using a standard wheelchair (Podobnik et al., 2017). Whilst it is possible to rent these privately, this is usually at high costs, making it unobtainable for many families. This equipment would also be applicable to beaches, as pushing wheelchairs on the sand can be almost impossible due to them sinking into the surface (Kim & Kim, 2019). However, in the current study Nancy spoke about her experiences of providing children with adaptive ocean wheelchairs so they could go into the sea, sometimes for the very first time, whilst 'sand chairs' have also been developed to improve beach access for people with physical disabilities (Darcy et al., 2023; Verdonck et al., 2023). By outdoor services having a small selection of this specialist equipment, alongside a mobile hoist, available to book for free or a small cost, individuals with PMLD and other physical disabilities would be able to visit these previously inaccessible outdoor environments to enjoy new experiences and the wider associated benefits that this research has been able to highlight.

Furthermore, this research has shown that the outdoors is an effective space to provide vital multisensory experiences for CYP with PMLD, and so outdoor spaces such as parks and gardens being developed within school settings and in the community should be designed with optimal sensory stimulation in mind. Through both observation and collaboration with participants, this research has identified several important features that should be considered when designing outdoor spaces to have sensory benefits for individuals with PMLD. These include:

- Plants with a range of tactile features such as soft leaves or spiky stems.
- Visually appealing plants, such as those with bright and contrasting colours.
- Plants with distinctive smells, such as lavender.
- Non-toxic, edible plants and fruits.
- Running water to touch and listen to.

- Trees at a higher level to support visual stimulation such as sunlight shining through from above, and providing a space for animals such as birds and squirrels.
- Wind chimes to provide sound stimulation.
- A variety of surfaces and terrain of different textures.
- Areas of light and shade.
- Items such as planters and water features to be at a lower level so they are accessible to wheelchair-users.

Developers of outdoor spaces should consider these features in their designs to ensure they are stimulating for individuals with disabilities. In addition, they should also work closely with those who will be using the space to find out what they want and need from it, to ensure that it is individualised to meet their specific needs; this could be supported by better links between disability charities and advocates, and outdoor developers. It will also be important for these discussions to be incorporated into the planning phases of specialist schools' development and building so that these settings have useable and beneficial outdoor sensory spaces

Ensuring these changes and improvements to accessibility would support the place of individuals with PMLD as valued members of society who deserve to experience the benefits of the outdoors like everybody else.

5.2.3 Implications for school staff and practitioners supporting CYP with PMLD

I also hope that this research will add to the knowledge of school staff working directly with CYP with PMLD to support them to consider the value of outdoor spaces for their students. For this to have further impact, I have identified more specific implications and applicability of my research.

Adapting practice to include more outdoor provision

The importance of multisensory experiences forming a significant part of the lives and curriculum of CYP with PMLD is already acknowledged, and often implemented

through the use of indoor activities such as sensory rooms and sensory stories (Longhorn, 2014; Ayer, 1998; Young & Lambe, 2011). However, this research has illustrated that multisensory experiences do not only have to take place inside. Being outdoors and in nature has been shown in this research to provide CYP with PMLD with meaningful experiences of multisensory input linked to all five primary senses through activities such as listening to the birds, watching the breeze and sunlight through the leaves, and exploring plants and flowers through touch, taste and smell. Participants preferred these outdoor multisensory experiences over those within indoor spaces due to them being less overwhelming, more unpredictable and engaging, and better linked to their real life.

It would therefore be beneficial for school staff to think more creatively about how they are facilitating multisensory experiences for the CYP with PMLD they work with, and to recognise the advantages of moving this outdoors. The same could also be said for activities that are designed to promote the development of other skills that this research has shown to benefit in the outdoors, such as communication, engagement, movement, and pain management. This research suggests that by increasing access to nature and outdoor learning for CYP with PMLD, staff could expect to see significant progress and developments in a wide range of areas, sometimes at a more effective level than what may be seen indoors. School staff working with CYP with PMLD should therefore adapt their practice to ensure the outdoors and nature is incorporated as a fundamental part of their curriculum. Focus should also be paid to allowing the children to just ‘be’ in outdoor spaces, rather than planning adult-led activities, to support their agency and interdependence.

However, in order to support this, staff must first develop the confidence and skills in how to do so. A lack of confidence has previously been shown to have an impact on outdoor learning; for example, Walshe et al. (2023) and Oberle et al. (2021) found that outdoor opportunities for children are diminishing due to low staff confidence in supporting these activities, questions around the value of outdoor provision, and their own motivations and confidence to be outdoors. Furthermore, I previously reported the findings of Salt (2010) and Simmons and Bayliss (2007), that many staff working in specialist schools do not feel adequately trained or prepared to meet the needs of CYP with PMLD. If you add to this an environment that staff do not feel comfortable in

themselves, then it could be assumed that this confidence would decrease even further.

This therefore highlights the requirement to first support school staff to feel confident outdoors and have a thorough understanding of its multisensory and wider benefits, before they can then support better access to this for CYP. One consideration around this would be to increase access to training; however, difficulties with this are discussed in more detail within the following implication.

Outdoor Learning Leads to improve access to training and support

Whilst there are several training options available to support staff development of outdoor learning skills and knowledge for children without SEND, to my knowledge, there is currently only one training course that is specific to supporting young people with PMLD to access outdoor learning. This course only runs once per year for up to twenty people, and is very expensive compared to mainstream outdoor training. This means that the current training arrangements are largely inaccessible for most practitioners, and so they must develop their own ideas around how to facilitate this whilst not having opportunities to create a support network with other practitioners in similar roles.

This raises the question of how training specific to supporting CYP with PMLD outdoors could be made more accessible. Firstly, I considered the possibility of incorporating outdoor learning into initial teacher training courses, which in other countries has been shown to improve creativity, confidence, collaboration, and willingness to be involved in outdoor education (Wolf et al., 2022). However, I have identified two barriers to this in relation to the field of PMLD. Firstly, some participants in the current research discussed that they had already accessed some mainstream outdoor training, but felt it was irrelevant and unadaptable for their students with PMLD. When there is not currently a specific training qualification to become a PMLD teacher in the UK (Salt, 2010), it is unrealistic to expect all trainee teachers to learn how to facilitate outdoor learning specifically for CYP with PMLD, when the majority will go on to work in mainstream settings. Secondly, most staff supporting CYP with PMLD in schools are not teachers, but are teaching assistants. This means that even

if outdoor learning was embedded into initial teacher training, most of the staff facilitating it would not have accessed this. It could be argued that this could also be incorporated into teaching assistant training, however the same issue of the specificity of supporting CYP with PMLD applies.

Another possibility could be to ensure that every specialist school has an Outdoor Learning Lead. As I mentioned at the beginning of this thesis when outlining my personal motivations for the research, having an Outdoor Learning Lead that I could collaborate with to overcome barriers was a significant influence in me being able to facilitate outdoor learning for my class of CYP with PMLD for the first time. In the current study, only one school had implemented this role, whilst in others outdoor learning was just overseen by individual teachers, creating inconsistency across classes.

Whilst it is not realistic for all practitioners supporting CYP with PMLD to attend the one, largely inaccessible training course currently available, it could be more manageable for one member of staff per school to access this as the Outdoor Learning Lead, before relaying it back to their team through in-house training. Emphasis on outdoor learning would therefore be placed across the setting rather than access being reliant on the practice of individuals. The Outdoor Learning Lead could also have responsibility for staying up-to-date with the latest research and developments in the field of SEND outdoor learning to communicate this to the staff team, and could create networks with other leads across schools to share training and develop connections. Furthermore, what could be most valuable is having this person in school for other staff members to go to when seeking support, needing to problem-solve, and wanting to develop new ideas, helping them to feel less alone and encouraging more consistent, quality outdoor practice.

Ensuring that every specialist school implemented an Outdoor Learning Lead could support the skills and engagement of school staff, adapt the school ethos around its approach to outdoor learning, and ultimately make outdoor learning more accessible and meaningful for CYP with PMLD.

5.2.4 Implications for Educational Psychologists

Finally, I have identified several implications for EPs working directly with CYP with PMLD and with those who support them, in order to better meet their needs and further improve their access to the outdoors.

Rejecting the 'expert model'

As most EPs will be aware, a large proportion of the EP role is often based around their contribution to the statutory assessment process; this is also identified to be the primary reason for EPs likely having involvement with a CYP with PMLD (Winter, 2007). As part of this role, EPs are required to identify long-term outcomes for the learning and development of CYP with PMLD, alongside provision that will be required to meet these.

However, a pitfall of this aspect of the profession is that it can often sit within an 'expert model' of practice (Capper & Soan, 2022). This way of working creates distance between EPs, the family, and other professionals, and does not always help to generate a shared understanding of the life of the CYP (Kolnes et al., 2021). This model also does not align with the perspectives of professionals working with CYP with PMLD; as previously mentioned, specialist school staff often feel that they know the young person better than the EP does, and so do not necessarily value receiving expert EP advice at this individual level (DfEE, 2000).

I propose that this research rejects this 'expert' perspective and has highlighted that when interacting and working with CYP with PMLD, the EP is not the expert and should not work in this way. Throughout my participant observations, I relied heavily on school staff who knew the CYP well to be able to develop an interpretation of what was happening for the young people; I do not believe developing this depth of understanding would have been possible had I placed myself, as a Trainee EP, in the position of expert and not engaged in this collaborative process. This also emphasises the importance of knowing CYP with PMLD well in order to effectively understand and support them; however, opportunities to build these relationships are limited for EPs

due to the time and workload constraints of the role. When applying this understanding to the day-to-day work of the EP with CYP with PMLD, including their statutory role, it emphasises the significance of working in collaboration with people who know the child well, including their family and other practitioners.

For example, EPs will usually complete observations of the child in the home or educational setting (Leatherbarrow et al., 2021); outcomes of the current research show that these observations could be more insightful and valuable in developing EP's understanding of the child and context if these were conducted jointly instead of independently, where there is consistent opportunity for discussion with someone who knows the child well in order to create a shared understanding of what is being observed.

This research has also highlighted that significant differences can be seen in CYP with PMLD when they are outdoors compared to inside the classroom. If EPs are only observing the CYP in the classroom, they could be missing a great deal of what they are capable of and motivated to achieve. During the organisation of assessments, observations, and interactions, EPs should therefore ensure that they arrange to spend time with the child in multiple contexts, including the outdoor environment, in order to build a full and holistic picture of them alongside others who know them well.

Adapting statutory provision to meet needs and increase equal access to outdoor spaces

The SEND Code of Practice (2015) states that in an Education, Health and Care Plan (EHCP) which is informed by the statutory advice of an EP, provision must be included in Section F for every area of need of the CYP reported within Section B. This research has identified that access to outdoor learning and nature experiences can have positive benefits related to all four of these areas of need outlined in the Code of Practice. For example, outdoor experiences can support the attention and engagement of CYP with PMLD, and enable their learning and understanding of the world around them through the provision of natural multisensory experiences (Cognition and Learning). It provides opportunities for communication and connection with others in a relational space (Communication and Interaction), as well as

encouraging movement and supporting pain management (Physical and Sensory). Finally, outdoor learning supports emotional containment and regulation, and the overall psychological wellbeing of CYP with PMLD, through its relaxing atmosphere and capacity to support their agency, control, enjoyment, and independence (Social, Emotional, and Mental Health).

This means that when EPs are completing statutory assessments for CYP with PMLD, the findings of this research can inform the development of provision through the inclusion of outdoor education to directly support a wide range of needs. This could also help to overcome what some EPs consider to be a burdening and repetitive part of their job, by enabling them to create new and inventive aspects of provision (Stobie, 2002). Furthermore, this research has highlighted how CYP with PMLD are a marginalised group who are often excluded from accessing the same outdoor spaces as their peers; by including outdoor learning within the provision of the EHCP to meet the needs of a CYP with PMLD, the young person will then have a legal right to access this, supporting their inclusion and upholding their rights through equal access to outdoor spaces.

The outcomes of this research therefore have positive implications for EP practice, through adaptations of how we learn about a child with PMLD, and in the creative development of statutory provision to ensure they have equal access to outdoor learning.

Emotional containment and problem-solving support

This research has highlighted that school staff working with CYP with PMLD are often situated in emotive environments with a high level of responsibility, for example in supporting young people with chronic pain, illnesses, and life-limiting conditions. Over time, school staff working in high-stress environments can experience burnout, and so enabling them to feel psychologically safe and have opportunities to be heard is vital (Fleming et al., 2023).

EPs are well-placed to provide this much-needed emotional containment to school staff through supervision, due to their psychological knowledge of mental health

needs, understanding of school systems, and empathetic approach; they are skilled in facilitating difficult conversations and are prepared to listen and support others to feel heard (Zafeiriou & Gulliford, 2020). However, school staff having access to supervision with an EP is currently not a common occurrence (Dunsmuir et al., 2015).

There are several ways that I feel this research could inform the development of a supportive supervisory service for school staff working with CYP with PMLD. Firstly, participants talked about often feeling alone in engaging in outdoor learning with CYP with PMLD and finding it difficult to identify people to share this with. Opportunities where they can learn from others, problem-solve, and share ideas with practitioners working in a similar role through a group supervision model would be valuable to them. Group supervision is an area that can be facilitated by EPs with school staff, for example Emotional Literacy Support Assistants (ELSAs); this process benefits from this EP involvement as they can enable all individuals to contribute, use curious questioning to develop alternative perspectives, and apply psychological frameworks to support problem-solving and solution-focussed processes (Osborne & Burton, 2014). EPs could therefore have a role in bringing together and creating a supportive space for staff who already or hope to facilitate outdoor learning for CYP with PMLD so that they can develop their practice and feel less alone.

Additionally, many Educational Psychology Services provide drop-in consultation and supervisory sessions, where school staff have the opportunity to speak to an EP about a specific issue, develop understanding around this, and co-construct ideas to overcome it. It could be useful for EPs to offer these drop-in sessions to specialist settings for staff working with CYP with PMLD, to provide them with a space of emotional containment and support, as well as more specifically to act as a critical friend and facilitate conversations around outdoor learning. It would also be beneficial to open these sessions up to parents/carers, to create an empathetic space where they can express their anxieties around their child accessing outdoor learning, feel contained, and be supported to develop alternative perspectives alongside others who understand. This model of EP practice could therefore empower staff and parents to feel more confident and able to facilitate outdoor learning for their young people.

These implications also align with recommendations from Winter (2017), who suggested that instead of EPs developing widespread specialist knowledge to inform individual casework with CYP with PMLD, they use their skills to provide a 'niche contribution'. The niche contribution I am suggesting here is for EPs to utilise their skills in using psychological tools, curious questioning, supportive challenge, and being empathic, to provide emotionally containing problem-solving spaces for school staff and families to develop their thinking about how outdoor learning for CYP with PMLD can be meaningfully and effectively facilitated.

5.3 Strengths and Limitations of the Research

There are several strengths and limitations of this research to consider. In Chapter 3, I discussed the strengths and limitations of various aspects of my methodology, the quality issues related to this, and how these influenced my decision-making during research design. In this section, I will now discuss the strengths and limitations of the research as a whole, as informed by my reflections upon completion of this.

A strength of my research is that it has opened exploration into this area for the first time, adding new understandings to the fields of both outdoor learning and PMLD, and demonstrating new insights into previously unexplored topics; additionally, this was completed from an educational psychology perspective to support the development of much-needed knowledge and confidence in this area. I hope that by beginning to highlight the experiences of CYP with PMLD in the outdoors, perspectives that limit what these individuals are expected to do and access will change, reducing their exclusion from provision that is known to be beneficial.

Secondly, I previously discussed in Chapter 3 that I included participant observations in my methodology to try and include the voices of the CYP with PMLD; I hoped that this would enable opportunities for them to communicate their experiences in the moment with people who know them well, rather than have someone tell their story without them. In doing this, I aimed to reduce the exclusion from research often faced by people with PMLD, which is an objective that could be seen as a strength.

However, I later questioned how much of the young people's voices were truly heard. Whilst I tried to increase the value and credibility of my interpretations by developing these with people who knew the CYP well, their experience was still communicated through the voice of another. I wondered if this could actually go further in disempowering CYP with PMLD by assuming that someone can speak for them as a proxy.

As I came to the end of this research journey, Joanna Grace, who I have referenced many times throughout this thesis as an advocate of the multisensory participation of people with PMLD, completed her PhD. This explored how individuals with PMLD can be better included in research. Grace (2025) writes that utilising reliable proxy voices can be valuable in eliciting voices closest to hearing directly from the person with PMLD themselves. Whilst I felt reassured that my research was therefore more likely to be supportive of the inclusion of CYP with PMLD than harmful, Grace (2025) did illustrate ways in which this could have been even better achieved.

Grace's methodology aligned with my own in that she utilised the ethnographic approach of participant observation; however, these observations took place twice per week for eight months. This meant that she was able to build long-term, trusting relationships with the young people and become attuned to them through a methodological approach of 'Being With', using photographs to share these experiences. As I was only able to visit settings once, I was not able to fully become attuned to the young people, therefore relying more on proxy voices. Whilst I acknowledge that the extent of participant observations in Grace's research would not be possible in my own due to the time constraints of my study, it may have been possible to work further towards this, as I had initially planned and discussed in Chapter 3, by completing multiple observations in each setting and incorporating the use of photographs and videos. Whilst difficulties with participant recruitment and consent gathering quashed this initial plan, due to concerns around extensive time spent on the participant recruitment stages having a knock-on effect of being able to meet thesis deadlines, perseverance with this approach may have strengthened my research.

Finally, ‘member checking’ is regularly referred to when considering the quality of qualitative research; this is when interpretations and reporting of the data are returned to participants to check the resonance and accuracy of this in relation to their actual experience (Birt et al., 2016). I did not do this within my study, again due to constraints of allowing additional time for participant feedback and potential further editing of my report. However, Harvey (2015) writes that when interpretations are co-constructed within data collection, as occurred in my research with its grounding in social constructionism, this acts as an alternative to member checking. Braun and Clarke (2022) also state that member checking can be complicated when data includes information from multiple sources as there will naturally be findings that participants do not recognise. Whilst I therefore acknowledge that the lack of member checking could be considered a limitation of my study, I believe that I have been able to counter this in some ways through my methodology and interpretative reporting.

5.4 Future Research

To my knowledge, this is the first study exploring experiences of nature and outdoor learning for children and young people with PMLD. This means there are still several directions that would be interesting to take in terms of conducting future research in this area.

Firstly, I have considered different methodological approaches that could be taken, particularly in ensuring better inclusivity for the voice of the young person. I re-emphasise the potential value of a more in-depth ethnographic approach as discussed in the previous section, where the researcher becomes more attuned to the young people (Grace, 2025), as well as the utilisation of photographs and videos that could be revisited to reconstruct interpretations of the experience and better elicit the voices of the young people.

Secondly, the participants involved in this research were self-selecting as already being involved in facilitating outdoor experiences and learning for CYP with PMLD. This could mean that they would be more likely to have positive perceptions of the provision, leading to bias in the outcomes. It would therefore be useful for future research to explore the perceptions of practitioners who perhaps do not possess these

characteristics. For example, completing interviews or focus groups with school staff who support CYP with PMLD but specifically do not engage in outdoor learning with them would help to develop further understanding around why these young people are often excluded from this provision, what the barriers are to them accessing it, and what these practitioners would need to be able to develop their skills and confidence to incorporate this into their practice.

Finally, this qualitative research has highlighted the experience and impact of nature and outdoor learning experiences for CYP with PMLD through anecdotes, interpretations and observations. Whilst I feel this is valuable, I wonder how far this can go in leading to legislative change that improves the equal access to these experiences for CYP with PMLD. It could be possible that by adding to this knowledge through gathering quantitative data around the measurable impact that these experiences have for the young people, there would be greater power and scope for changes to policy that mean this group of young people can no longer be excluded from accessing these outdoor spaces.

5.5 Final Reflections

Since my first specialist teaching role in 2018, I have had a passion for working with children with PMLD. This role was where I also developed my love of outdoor learning and where I first saw just how remarkable this provision could be for young people with PMLD; I was therefore excited to have this opportunity to explore this area in more depth during the completion of my doctoral research. Before beginning my research journey, I thought that I had an understanding of the difficulties and inequality faced by this marginalised group of people; however, throughout my research and extensive wider reading it has become clear to me that the extent of this inequality goes further than I first realised. I have experienced an array of emotions during this experience, from wonder and happiness in my participant observations where I got to be with the young people in nature, to anger and frustration when considering just how difficult it can be for them to access this simple pleasure. However, one of the strongest emotions I have felt is my desire to make a change; I have noticed throughout my doctoral training that EPs often talk about being ‘agents of change’, but I’m not sure I

ever fully understood what this could mean. Maybe this area is where my capacity to make change lies.

I also hope that this research supports other practitioners to see the value of the outdoors for people with PMLD, and encourages them to also work towards positive change. When I first began this research and saw the complete lack of literature in the field, I wondered if I was alone in recognising that people with PMLD can and should also access and have positive experiences in the outdoors. However, being able to see this in practice and work with other practitioners who also value and support this has given me hope. Whilst it is clear that outdoor learning for CYP with PMLD is not yet common practice, it has been good to know that there are others out there working towards a similar goal.

References

Abrams, L. (2016). *Oral history theory*. Routledge.

Adams, R. (2024, October 8). Special needs funding claims in English schools 'increasingly being refused'. The Guardian. https://www.theguardian.com/education/2024/oct/08/special-educational-needs-funding-england-schools-send

Adams, W. (2015). Conducting Semi-Structured Interviews. In K. Newcomer, H. Hatry, & J. Wholey (Eds.), *Handbook of Practical Program Evaluation*. (pp. 492-505). Wiley.

Adams, D., & Beauchamp, G. (2021). The impact of music making outdoors on primary school aged pupils (aged 7–10 years) in the soundscape of nature from the perspective of their primary school teachers. *Journal of Outdoor and Environmental Education*, *24*(1), 37-53.

Adaval, R., Saluja, G., & Jiang, Y. (2019). Seeing and thinking in pictures: A review of visual information processing. *Consumer Psychology Review*, *2*(1), 50-69.

Alase, A. (2017). The interpretative phenomenological analysis (IPA): A guide to a good qualitative research approach. *International journal of education and literacy studies*, *5*(2), 9-19.

Alharahsheh, H. H., & Pius, A. (2020). A review of key paradigms: Positivism VS interpretivism. *Global Academic Journal of Humanities and Social Sciences*, *2*(3), 39-43.

Aliakbari, M., & Amoli, F. A. (2016). The effects of teacher empowerment on teacher commitment and student achievement. *Mediterranean Journal of Social Sciences*, *7*(4), 649-657.

Allam, F. C., & Martin, M. M. (2021). Issues and Challenges in Special Education: A Qualitative Analysis from Teacher's Perspective. *Southeast Asia Early Childhood*, *10*(1), 37-49.

Allen-Collinson, J. (2018). 'Weather work': embodiment and weather learning in a national outdoor exercise programme. *Qualitative Research in Sport, Exercise and Health*, *10*(1), 63-74.

Allen-Collinson, J., Blackwell, J., & Henderson, H. (2024). Sensory pleasures and displeasures of the outdoors: somatic learning and the senses. *The Senses and Society*, 1-15.

Andersen, L., Corazon, S. S., & Stigsdotter, U. K. (2021). Nature exposure and its effects on immune system functioning: a systematic review. *International journal of environmental research and public health*, *18*(4), 1416.

Anderson, B. J., & Coyne, J. C. (2013). Family context and compliance behavior in chronically ill children. In *Developmental aspects of health compliance behavior* (pp. 77-89). Psychology Press.

Arnott, L. (2018). Children's negotiation tactics and socio-emotional self-regulation in child-led play experiences: the influence of the preschool pedagogic culture. *Early Child Development and Care*, *188*(7), 951–965.

Auer, M. R. (2008). Sensory perception, rationalism and outdoor environmental education. *International Research in Geographical and Environmental Education*, *17*(1), 6-12.

Ayer, S. (1998). Use of multi-sensory rooms for children with profound and multiple learning disabilities. *Journal of Learning Disabilities for Nursing, Health and Social Care, 2*(2), 89-97.

Baker, S. T., Le Courtois, S., & Eberhart, J. (2023). Making space for children's agency with playful learning. *International Journal of Early Years Education*, *31*(2), 372-384.

Barnes, J., & Hewett, D. (2015). Physical contact experiences within the curriculum. In *The Routledge companion to severe, profound and multiple learning difficulties* (pp. 182-191). Routledge.

Baron, R., & Kalsher, M. (1998). Effects of a pleasant ambient fragrance on stimulated driving performance: The sweet smell of ... safety? *Environment and Behaviour, 30*, 535-552.

Barrable, A., & Arvanitis, A. (2019). Flourishing in the forest: Looking at Forest School through a self-determination theory lens. *Journal of Outdoor and Environmental Education*, *22*(1), 39-55.

Barrable, D., & Barrable, A. (2024). Affordances of coastal environments to support teaching and learning: outdoor learning at the beach in Scotland. *Education 3-13*, *52*(3), 416-427.

Barrable, A., & Lakin, L. (2020). Nature relatedness in student teachers, perceived competence and willingness to teach outdoors: An empirical study. *Journal of Adventure Education and Outdoor Learning*, *20*(3), 189-201.

Bassingthwaighte, L. (2017). Taking dramatherapy into the outside space–the benefits and obstacles when working with children with SEMH issues. *Dramatherapy*, *38*(1), 16-31.

Beach School Explorers. (n.d.a). What is Beach School? https://beachschoolexplorers.co.uk/about/

Bellamy, G., Croot, L., Bush, A., Berry, H., & Smith, A. (2010). A study to define: profound and multiple learning disabilities (PMLD). *Journal of Intellectual Disabilities*, *14*(3), 221-235.

Benabou, R., and Tirole, J. (2002). Self-confidence: Intrapersonal Strategies, *Quarterly Journal of Economics, 117*(3), 871-915.

Bergland, A., Thorsen, K., & Loland, N. W. (2010). The relationship between coping, self-esteem and health on outdoor walking ability among older adults in Norway. *Ageing & Society*, *30*(6), 949-963.

Bion, W. R. (1963). *Learning from Experience.* Basic Books.

Birt, L., Scott, S., Cavers, D., Campbell, C., & Walter, F. (2016). Member checking: a tool to enhance trustworthiness or merely a nod to validation?. *Qualitative health research*, *26*(13), 1802-1811.

Blacker, R. L. (2009). *A thematic analysis of psychodynamically-oriented supervision of observations in an acute inpatient ward* (Doctoral dissertation, University of Leicester).

Blackwell, S. (2015). Impacts of long term forest school programmes on children's resilience, confidence and wellbeing. *Accesso*, *30*(4), 1-46.

Blades, G., & Bester, L. (2013). Relationships within the shattered rainbow: A search for a pedagogy of attunement. *Journal of Outdoor and Environmental Education*, *17*, 4-16.

Bloomer, A. (2024, October 15). *Money for SEND support lacking in four out of five schools.* Learning Disability Today. https://www.learningdisabilitytoday.co.uk/news/money-for-send-support-lacking-in-four-out-of-five-schools/

Bluebond-Langner, M. (2020). *In the shadow of illness: Parents and siblings of the chronically ill child.* Princeton University Press.

Bohnsack, R. (2004). Group Discussion and Focus Groups. In U. Flick, E von Kerdoff & I. Steinke (Eds.), *A Companion to Qualitative Research.* (pp. 214-221). SAGE.

Boileau, E. Y., & Dabaja, Z. F. (2020). Forest School practice in Canada: a survey study. *Journal of Outdoor and Environmental Education*, *23*, 225-240.

Booker, M. A., & Booker, M. (2011). Developmental drama: Dramatherapy approaches for people with profound or severe multiple disabilities, including sensory impairment. Jessica Kingsley Publishers.

Boyd, D., & Hirst, N. (2018). Recognising Beach Kindy as a pedagogical approach for critical agents of change within early childhood education. *Handbook of sustainability science and research*, 877-892.

Boyle, C., Topping, K., Jindal-Snape, D., & Norwich, B. (2012). The importance of peer-support for teaching staff when including children with special educational needs. *School Psychology International*, *33*(2), 167-184.

Bradley, K., & Male, D. (2017). Forest School is muddy and I like it": Perspectives of young children with autism spectrum disorders, their parents and educational professionals. *Educational and Child Psychology*, *34*(2), 80-96.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*, *3*(2), 77-101.

Braun, V., & Clarke, V. (2012). *Thematic analysis*. American Psychological Association.

Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative research in sport, exercise and health*, *11*(4), 589-597.

Breunig, M. C., O'Connell, T. S., Todd, S., Anderson, L., & Young, A. (2010). The impact of outdoor pursuits on college students' perceived sense of community. *Journal of Leisure Research*, *42*(4), 551-572.

Brilmyer, G. (2022). "They Weren't Necessarily Designed with Lived Experiences of Disability in Mind": The Effect of Archival In/Accessibility and "Emotionally Expensive" Spatial Un/Belonging. *Archivaria*, 94, 120-153.

Brinkmann, S. (2014). Unstructured and semi-structured interviewing. In P. Leavy (Ed.), *The Oxford handbook of qualitative research*. (pp. 277-299). Oxford University Press.

Brunker, S. E. (2019). *Personal experiences of leaders of family-led organizations and their role as advocates: a thematic analysis* (Doctoral dissertation, University of Pittsburgh).

British Healthcare Trades Association. (2014, May). The economic benefits of the better provision of equipment for disabled and terminally ill children. BHTA. https://www.bhta.com/wp-content/uploads/2019/10/Benefits-5.pdf

Broch, T. B., Keller, R., & Petersen, E. (2024). Water symphonies: Teaching silent soundscapes and tranquillity. In *The ocean, blue spaces and outdoor learning* (pp. 93-104). Routledge.

Brodin, J., & Lindstrand, P. (2006). Inclusion of children in outdoor education. *Learning in Motion, Report I. Stockholm: Stockholm Institute of Education*.

Buchanan, D., Hargreaves, E., & Quick, L. (2023). Schools closed during the pandemic: revelations about the well-being of 'lower-attaining'primary-school children. *Education 3-13*, *51*(7), 1077-1090.

Bucknall, E. (2024). *What barriers prevent teachers from incorporating outdoor learning into their everyday teaching practice?* (Undergraduate dissertation, York St John University).

Burgess, E., & Ernst, J. (2020). Beyond Traditional School Readiness: How Nature Preschools Help Prepare Children for Academic Success. *International Journal of Early Childhood Environmental Education*, *7*(2), 17-33.

Burns, R. C., & Graefe, A. R. (2007). Constraints to outdoor recreation: Exploring the effects of disabilities on perceptions and participation. *Journal of Leisure Research*, *39*(1), 156-181.

Burns, N., Paterson, K., & Watson, N. (2009). An inclusive outdoors? Disabled people's experiences of countryside leisure services. *Leisure Studies*, *28*(4), 403-417.

Burr, V. (2015). *Social constructionism* (Third edition.). Routledge.

Burr, V. & Dick, P. (2017). Social Constructionism. In B. Gough (Ed.), *The Palgrave Handbook of Critical Social Psychology.* (pp. 59-80), Palgrave Macmillan.

Butina, M. (2015). A narrative approach to qualitative inquiry. *Clinical laboratory science*, *28*(3), 190-196.

Butler, C. (2018). *Developing the capacity to recognise the capabilities of pupils with PMLD, to promote learning opportunities and to reduce isolation*. Harpur Trust.

Byrne, D. (2022). A worked example of Braun and Clarke's approach to reflexive thematic analysis. *Quality & quantity*, *56*(3), 1391-1412.

Cameron, A., Burns, P., Garner, A., Lau, S., Dixon, R., Pascoe, C., & Szafraniec, M. (2020). Making sense of multi-sensory environments: A scoping review. *International Journal of Disability, Development and Education*, *67*(6), 630-656.

Capper, Z., & Soan, C. (2022). A cultural historical activity theory analysis of educational psychologists' statutory assessment process post-2014 children and families act. *Educational Psychology in Practice*, *38*(4), 428-447.

Carpenter, B. (2007). Changing children–changing schools? Concerns for the future of teacher training in special education. *PMLD Link*, *19*(2), 2-4.

Carpenter, B. (2013). *Families in context*. Routledge.

Carpenter, B., Egerton, J., Cockbill, B., Bloom, T., Fotheringham, J., Rawson, H., & Thistlethwaite, J. (2011). *Complex Learning Difficulties and Disabilities Research Project Final Report.* Specialist Schools and Academies Trust.

Carstensen, J. W. (2013). *A Study of Teaching Under the Weather: The Influence of Weather on Participant Mood and Engagement During an Informal Summer Camp Program* (Master's thesis, Bowling Green State University).

Castarlenas, E., de la Vega, R., Tomé-Pires, C., Solé, E., Racine, M., Jensen, M. P., & Miró, J. (2015). Student expectations of peer and teacher reactions to students with chronic pain: Implications for improving pain-related functioning. *The Clinical Journal of Pain*, *31*(11), 992-997.

Celik, M., Altinel Acoglu, E., Aydin, B., Isiyel, E., & Yalcin, S. S. (2024). Caring Under Pressure: Investigating Parental Attitudes in Mother–Child Chronic Illness Dynamics. *Children*, *11*(11), 1348.

Chan, S. W. C., Thompson, D. R., Chau, J. P., Tam, W. W., Chiu, I. W., & Lo, S. H. (2010). The effects of multisensory therapy on behaviour of adult clients with developmental disabilities—A systematic review. *International Journal of Nursing Studies*, *47*(1), 108-122.

Cherry, K. (2023, February 28). *The sensorimotor stage of cognitive development.* Very Well Mind. https://www.verywellmind.com/sensorimotor-stage-of-cognitive-development-2795462

Chiang, C. Y. (2008). The nose knows: the sense of smell in American history. *The Journal of American History*, *95*(2), 405-416.

Christou, P. A. (2022). How to use thematic analysis in qualitative research. *Journal of Qualitative Research in Tourism*, *3*(2), 79-95.

Clark, A. (2007). Views from inside the shed: Young children's perspectives of the outdoor environment. *Education 3–13*, *35*(4), 349-363.

Coates, J. K., & Pimlott-Wilson, H. (2019). Learning while playing: Children's forest school experiences in the UK. *British Educational Research Journal*, *45*(1), 21-40.

Cohn, L. N., Pechlivanoglou, P., Lee, Y., Mahant, S., Orkin, J., Marson, A., & Cohen, E. (2020). Health outcomes of parents of children with chronic illness: a systematic review and meta-analysis. *The Journal of pediatrics*, *218*, 166-177.

Cole, B. (2022, April 14). *10 reasons why networking is essential for your career.* Forbes. https://www.forbes.com/sites/biancamillercole/2019/03/20/why-networking-should-be-at-the-core-of-your-career/

Connolly, M., & Haughton, C. (2017). The perception, management and performance of risk amongst Forest School educators. *British Journal of Sociology of Education*, *38*(2), 105-124.

Conway, M. (2008). Playwork principles. In F. Brown & C. Taylor (Eds.), *Foundations of playwork* (pp. 19–122). Open University Press.

Conway, M. (2009). Episodic memories. *Neuropsychologia*, *47*(11), 2305-2313.

Coussens, M., Vitse, F., Desoete, A., Vanderstraeten, G., Van Waelvelde, H., & Van de Velde, D. (2021). Participation of young children with developmental disabilities: parental needs and strategies, a qualitative thematic analysis. *BMJ open*, *11*(4), e042732.

Crable, M. (2022, December 15). *How many senses do we have?* USCDornsife: College of Letters, Arts and Sciences. https://dornsife.usc.edu/news/stories/how-many-senses-do-we-have/#:~:text=While%20the%20notion%20that%20people,22%20to%2033%20different%20senses.

Creswell, J. W. (2014). *Research design: qualitative, quantitative, and mixed method approaches.* SAGE.

Cruz, J. (2021). The Listening Guide method as an interdisciplinary approach: Accounting for psychological processes in sociological frameworks. *Qualitative Psychology*, *8*(2), 171.

Cruz, E. (2025, January 29). *Is Youth Mental Health Getting Better or Worse?* Action for Children. https://www.actionforchildren.org.uk/blog/is-youth-mental-health-getting-better-or-worse/

Curtin, S., & Kragh, G. (2014). Wildlife tourism: Reconnecting people with nature. *Human dimensions of wildlife*, *19*(6), 545-554.

D'Amato, M., Molino, A., Calabrese, G., Cecchi, L., Annesi-Maesano, I., & D'Amato, G. (2018). The impact of cold on the respiratory tract and its consequences to respiratory health. *Clinical and translational allergy*, *8*, 1-8.

Dabaja, Z. F. (2022). The Forest School impact on children: reviewing two decades of research. *Education 3-13*, *50*(5), 640-653.

Dahlager, L., & Fredslund, H. (2008). Hermeneutic analysis-understanding and pre-understanding. *Research methods in public health*, 159-184.

Davies, R., & Hamilton, P. (2020). Assessing learning in the early years' outdoor classroom: examining challenges in practice. In *Outdoor Learning Research* (pp. 161-173). Routledge.

Darcy, S., Maxwell, H., Edwards, M., & Almond, B. (2023). Disability inclusion in beach precincts: beach for all abilities–a community development approach through a social relational model of disability lens. *Sport Management Review*, *26*(1), 1-23.

Decker, S., & Schmitz, H. (2016). Health shocks and risk aversion. *Journal of health economics*, *50*, 156-170.

Denzin, N., & Lincoln, Y. (2025). Ethnography and participant observation. *Qualitative Research Methods for Media Studies*, 181.

Department for Children, Schools and Families. (2008). *Designing for Disabled Children and Children with Special Educational Needs, Building Bulletin 102.* HMSO.

Department for Education. (2015). *Area guidelines for SEND and alternative provision.* DfE.

Department for Education. (2023, June 22). *Academic year 2022/23: Special educational needs in England.* GOV.UK. https://explore-education-statistics.service.gov.uk/find-statistics/special-educational-needs-in-england

Department for Education. (2024, September 10). *Help for early years providers: The four broad areas of need.* DfE. https://help-for-early-years-providers.education.gov.uk/support-for-practitioners/send-assessment/four-broad-areas

Department for Education & Department of Health. (2015). *Special educational needs and disability code of practice: 0 to 25 years: Statutory guidance for organisations which work with and support children and young people who have special educational needs or disabilities.* https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/398815/SEND_Code_of_Practice_January_2015.pdf

Department for Education and Employment. (2000). *Educational Psychology Services (England): current role, good practice and future directions: the research report.* DfEE.

Department of Health. (2009). *Valuing People Now.* GOV.UK.

DeVere, R., & Calvert, M. (2011). *Navigating Smell and Taste Disorders.* DemosHealth.

Dewey, J. (1938). *Experience and Education.* Macmillan Company.

Diekhoff, E. (2019, November 22). Speech Resources: Functions of Communication. *Cornerstone Autism Center.* https://cornerstoneautismcenter.com/functions-of-communication/

Dinu Roman Szabo, M., Dumitras, A., Mircea, D. M., Doroftei, D., Sestras, P., Boscaiu, M., ... & Sestras, A. F. (2023). Touch, feel, heal. The use of hospital green spaces and landscape as sensory-therapeutic gardens: a case study in a university clinic. *Frontiers in Psychology*, *14*, 1201030.

Disability Rights UK. (n.d.). *The Equality Act and Disabled People.* Disability Rights UK. https://www.disabilityrightsuk.org/resources/equality-act-and-disabled-people

Doukas, T., Fergusson, A., Fullerton, M., & Grace, J. (2017). *Supporting people with profound and multiple learning disabilities: Core & Essential Service Standards.* CMG; PMLD Link; The Sensory Projects; Choice Support.

Dring, C. C., Lee, S. Y., & Rideout, C. A. (2020). Public school teachers' perceptions of what promotes or hinders their use of outdoor learning spaces. *Learning Environments Research*, *23*, 369-378.

Dropkin, D., & Smith, N. (2021). Inclusive and accessible design. In *Metric Handbook* (pp. 4-1). Routledge.

Dunkley, E., McGough, K., & Agerholm, H. (2023, February 20). Overcrowded specialist schools: 'We're teaching in cupboards'. *BBC News: Family and Education.* https://www.bbc.co.uk/news/education-64418797

Dunsmuir, S., Lang, J., & Leadbetter, J. (2015). Current trends in educational psychology supervision in the UK. *Educational and child Psychology*, *32*(3), 8-21.

Dyke, P., Mulroy, S., & Leonard, H. (2009). Siblings of children with disabilities: challenges and opportunities. *Acta paediatrica*, *98*(1), 23.

Dyment, J. E. (2005). Green school grounds as sites for outdoor learning: Barriers and opportunities. *International Research in Geographical & Environmental Education*, *14*(1), 28-45.

Edley, N. & Litosseliti, E. (2018). Critical Perspectives on Using Interviews and Focus Groups. In L. Litosseliti (Eds.), *Research Methods in Linguistics.* (pp. 195-227). Bloomsbury.

Elbrecht, C., & Antcliff, L. R. (2014). Being touched through touch. Trauma treatment through haptic perception at the Clay Field: A sensorimotor art therapy. *International Journal of Art Therapy*, *19*(1), 19-30.

Ellis, P. (1996). Layered Analysis: A Video-based Qualitative Research Tool to Support the Development of a New Approach for Children With Special Needs. *Bulletin of the Council for Research in Music Education, 130,* 65-74.

Ellis, P. (1997). The Music of Sound: a new approach for children with severe and profound and multiple learning difficulties. *British Journal of Music Education*, *14*(2), 173-186.

Emerson, E., & Hatton, C. (2007). Mental health of children and adolescents with intellectual disabilities in Britain. *The British Journal of Psychiatry*, *191*(6), 493-499.

Emerson, R. M., Fretz, R. I., & Shaw, L. L. (2011). *Writing ethnographic fieldnotes*. University of Chicago Press.

Enoch, J., Jones, L., & McDonald, L. (2020). Thinking about sight as a sense. *Optometry in Practice*, *21*(3), 2-9.

Enoch, J., McDonald, L., Jones, L., Jones, P. R., & Crabb, D. P. (2019). Evaluating whether sight is the most valued sense. *JAMA ophthalmology*, *137*(11), 1317-1320.

Ernst, J. (2013). Early childhood educators' use of natural outdoor settings as learning environments: An exploratory study of beliefs, practices, and barriers. *Environmental Education Research, 20*, 735-752.

Ernst, J., & Burcak, F. (2019). Young children's contributions to sustainability: The influence of nature play on curiosity, executive function skills, creative thinking, and resilience. *Sustainability*, *11*(15), 4212.

Evans, P., & Ware, J. (1987). *Special Care Provision: The Education of Children with Profound and Multiple Learning Difficulties.* N.F.E.R./Nelson.

Every Body Moves. (2024, August 2). *The importance of inclusive and accessible parks.* Every Body Moves. https://everybodymoves.org.uk/importance-inclusive-and-accessible-parks#:~:text=The%20Current%20Pitfalls,fun%20and%20engagement%20to%20all

Fahy, S., Delicâte, N., & Lynch, H. (2021). Now, being, occupational: Outdoor play and children with autism. *Journal of Occupational Science*, *28*(1), 114-132.

Farrell, P., Woods, K., Lewis, S., Rooney, S., Squires, G., & O'Connor, M. (2006). *A review of the functions and contribution of educational psychologists in England and Wales in light of "Every Child Matters: Change for Children".* DfES Publications.

Fasting, M. L. (2019). *Playing outdoors*. Scandinavian University Press.

Fava, L., & Strauss, K. (2010). Multi-sensory rooms: Comparing effects of the Snoezelen and the Stimulus Preference environment on the behavior of adults with profound mental retardation. *Research in developmental disabilities*, *31*(1), 160-171.

Fazackerley, A. (2022, December 17). Schools crisis in England as special needs staff quit 'in droves' over pay. The Guardian. https://www.theguardian.com/education/2022/dec/17/schools-crisis-in-england-as-special-needs-staff-quit-in-droves-over-pay

Fergusson, A., & Byers, R. (2015). Recognising Progress: Assessing outcomes for learners with SLD/PMLD. In *The Routledge Companion to Severe, Profound and Multiple Learning Difficulties* (pp. 246-257). Routledge.

Fergusson, A., Howley, M., & Rose, R. (2008). Responding to the mental health needs of young people with profound and multiple learning disabilities and autistic spectrum disorders: issues and challenges. *Mental Health and Learning Disabilities Research and Practice*, *5*(2), 240-251.

Fermin, C., Perez, M., Obee, A. F., & Hart, K. C. (2024). Benefits of Time Spent Outdoors in Early Childhood Education: A Systematic Review. *FIU Undergraduate Research Journal*, *2*(1), 6.

Fitzpatrick, D. J. M. (2022). *How can Educational Psychologists, School Practitioners, and Parents/Carers Come to a Shared Understanding of and Promote the Mental Wellbeing of Children and Young People with Profound and Multiple Learning Disabilities?* (Doctoral dissertation, Newcastle University).

Fitzsimons, J. (2021). *An exploration into the use of smell as a support to the education of pupils with Profound and Multiple Learning Disabilities (PMLD)* (Doctoral dissertation, UCL (University College London)).

Fleming, C. M., Calvert, H. G., & Turner, L. (2023). Burnout among school staff: a longitudinal analysis of leadership, connectedness, and psychological safety. *School Mental Health*, *15*(3), 900-912.

Foran, A., Throop-Robinson, E., & Redmond, K. (2021). Attunement as a pedagogical starting point. *Phenomenology & Practice*, *16*(1), 19-39.

Forest School Association (FSA). (n.d.a.). *What is Forest School?* https://www.forestschoolassociation.org/what-is-forest-school/.

Forest Schools Education. (n.d.a). *Beach Schools.* https://www.forestschools.com/pages/beach-schools#:~:text=At%20its%20core%2C%20Beach%20Schools,an%20outdoor%20or%20woodland%20setting.

Fossey, E., Harvey, C., McDermott, F., & Davidson, L. (2002). Understanding and evaluating qualitative research. *Australian & New Zealand journal of psychiatry*, *36*(6), 717-732.

Fowler, S. (2008). *Multisensory rooms and environments: Controlled sensory experiences for people with profound and multiple disabilities*. Jessica Kingsley Publishers.

Fradkin-Hayslip, A. (2021). Teacher Autonomy, Motivation, and Job Satisfaction: Perceptions of Elementary School Teachers According to Self-Determination Theory. *Ilkogretim Online*, *20*(2).

Franco, L. S., Shanahan, D. F., & Fuller, R. A. (2017). A review of the benefits of nature experiences: More than meets the eye. *International journal of environmental research and public health*, *14*(8), 864.

Francis, H. (2011). Effects of ‘The Listening Program’on children with profound and multiple learning difficulties. *International journal of therapy and rehabilitation*, *18*(11), 611-621.

Friedman, S., Gibson, J., Jones, C., & Hughes, C. (2022). ‘A new adventure’: a case study of autistic children at Forest School. *Journal of Adventure Education and Outdoor Learning*, 1-17.

Futrell, A., & Willard, C. (1994). Intersubjectivity and interviewing. *Interactive oral history interviewing*, 83-106.

Fyfe-Johnson, A. L., Saelens, B. E., Christakis, D. A., & Tandon, P. S. (2019). Physical Activity and Parental Attitudes and Beliefs of Children Attending a Nature Preschool. *International Journal of Early Childhood Environmental Education*, *6*(3), 3-17.

Gabbay, M. B., Cowie, V., Kerr, B., & Purdy, B. (2000). Too ill to learn: Double jeopardy in education for sick children. *Journal of the Royal Society of Medicine*, *93*(3), 114-117.

Gallotta, M. C., Zimatore, G., Cardinali, L., Falcioni, L., Bonavolontà, V., Curzi, D., ... & Baldari, C. (2022). Physical Education on the Beach: An Alternative Way to Improve Primary School Children’s Skill-and Health-Related Outcomes during the COVID-19 Pandemic. *International journal of environmental research and public health*, *19*(6), 3680.

Gaspard, H., & Lauermann, F. (2021). Emotionally and motivationally supportive classrooms: A state-trait analysis of lesson-and classroom-specific variation in teacher-and student-reported teacher enthusiasm and student engagement. *Learning and Instruction*, *75*, 101494.

Ghafouri, F. (2014). Close encounters with nature in an urban kindergarten: A study of learners’ inquiry and experience. *International Journal of Primary, Elementary and Early Years Education 42*(1), 54-76.

Goldbart, J., Chadwick, D., & Buell, S. (2014). Speech and language therapists’ approaches to communication intervention with children and adults with profound and multiple learning disability. *International journal of language & communication disorders*, *49*(6), 687-701.

Goodwin, M. (2013). Listening and responding to children with PMLD–towards a framework and possibilities. *The SLD Experience*, *65*(1), 21-27.

Goodwin, M. (2019). Play My Way! Enabling child-centred playful opportunities. *PMLD Link*, *31(1),* 39-42.

Goodwin, M., & Taylor, N. (2013). Independence versus interdependence: Exploring the potential of a bioecological learning model for pupils with PMLD. In P. Imray, L. Kossyvaki & M. Sissons (Eds.), *A Different View of Curriculum and Assessment for Severe, Complex and Profound Learning Disabilities*. (pp. 137-151). Routledge.

Gorodzinsky, A. Y., Hainsworth, K. R., & Weisman, S. J. (2011). School functioning and chronic pain: a review of methods and measures. *Journal of Pediatric Psychology*, *36*(9), 991-1002.

Grace, J. (2018). *Sensory-being for sensory beings: creating entrancing sensory experiences*. Routledge.

Grace, J., & Silva, A. (2017). Refining the guidance for sensory storytelling with individuals with PMLD: A move towards improved research and practice. *PMLDLink, 29*(3), 11-14.

Grace, J. (2019). *Multiple multisensory rooms: Myth busting the magic*. Routledge.

Grace, J. (2025). *Recognising the belonging of people with profound intellectual and multiple disabilities in research through a collaborative exploration of identity* (Doctoral dissertation, University of Southampton).

Gray, C., Gibbons, R., Larouche, R., Sandseter, E. B. H., Bienenstock, A., Brussoni, M., ... & Tremblay, M. S. (2015). What is the relationship between outdoor time and physical activity, sedentary behaviour, and physical fitness in children? A systematic review. *International journal of environmental research and public health*, *12*(6), 6455-6474.

Green, C. (2018). *Mainstream schools VS. SEN: A thematic analysis exploring teachers' perspectives on children with Autistic Spectrum Disorders (ASD) behaviour in mainstream schools vs Special Educational Needs (SEN).* (Undergraduate dissertation, Manchester Metropolitan University).

Groulx, M., Freeman, S., & Lemieux, C. (2022). Accessible nature beyond city limits–A scoping review. *Journal of Outdoor Recreation and Tourism*, *37*, 100490.

Grove, A. (2006). The Development of a Culture of Engagement in a Service supporting Adults with Profound & Multiple Learning Disabilities. *PMLD Link*.

Guba, E. G. (1981). Criteria for assessing the trustworthiness of naturalistic inquiries. *Ectj*, *29*(2), 75-91.

Guest, G., MacQueen, K. M., & Namey, E. E. (2012). Introduction to applied thematic analysis. *Applied thematic analysis*, *3*(20), 1-21.

Guest, G., Namey, E., Taylor, J., Eley, N., & McKenna, K. (2017). Comparing focus groups and individual interviews: findings from a randomized study. *International Journal of Social Research Methodology*, *20*(6), 693-708.

Gus, L., Rose, J., Gilbert, L., & Kilby, R. (2017). The introduction of emotion coaching as a whole school approach in a primary specialist social emotional and mental health setting: Positive outcomes for all. *The open family studies journal*, *9*(1).

Hadi, M. A., McHugh, G. A., & Closs, S. J. (2019). Impact of chronic pain on patients' quality of life: a comparative mixed-methods study. *Journal of patient experience*, *6*(2), 133-141.

Hagenauer, G., & Hascher, T. (2014). Early Adolescents' Enjoyment Experienced in Learning Situations at School and Its Relation to Student Achievement. *Journal of Education and Training Studies*, *2*(2), 20-30.

Haig, S., & Hallett, N. (2023). Use of sensory rooms in adult psychiatric inpatient settings: A systematic review and narrative synthesis. *International journal of mental health nursing*, *32*(1), 54-75.

Halm, M. A. (2008). The healing power of the human-animal connection. *American journal of critical care*, *17*(4), 373-376.

Hanscom, A. J. (2016). *Balanced and barefoot: How unrestricted outdoor play makes for strong, confident, and capable children*. New Harbinger Publications.

Harris, F. (2017). The nature of learning at forest school: practitioners' perspectives. *Education 3-13*, *45*(2), 272-291.

Harris, F. (2021). Developing a relationship with nature and place: the potential role of forest school. *Environmental Education Research*, *27*(8), 1214-1228.

Hart, P. (2003). *Teachers' Thinking in Environmental Education: Consciousness and Responsibility.* Peter Lang.

Hartley, C., & Penlington, C. (2023). 'I Will Fight for People to Not Have the Experience I've Had': A Thematic Analysis of the Experiences and Perspectives of Chronic Pain Lived Experience Advocates. *Qualitative Health Research*, *33*(11), 995-1004.

Harun, M. T., & Salamuddin, N. (2014). Promoting social skills through outdoor education and assessing its' effects. *Asian Social Science*, *10*(5), 71.

Harvey, L. (2015). Beyond member-checking: A dialogic approach to the research interview. *International Journal of Research & Method in Education*, *38*(1), 23-38.

Hasan, M. N. (2016). Positivism: to what extent does it aid our understanding of the contemporary social world?. *Quality & Quantity*, *50*(1), 317-325.

Hayes, S., McGuire, B., O'Neill, M., Oliver, C. & Morrison, T. (2011). Low mood and challenging behaviour in people with severe and profound intellectual disabilities. *PMLD Link 18, 3*(55), 27-31.

Hecht, D., & Reiner, M. (2009). Sensory dominance in combinations of audio, visual and haptic stimuli. *Experimental brain research*, *193*, 307-314.

Hedelin, H., Jonsson, K., & Lundh, D. (2012). Pain associated with the chronic pelvic pain syndrome is strongly related to the ambient temperature. *Scandinavian journal of urology and nephrology*, *46*(4), 279-283.

Heller, T., Schindler, A., Palmer, S. B., Wehmeyer, M. L., Parent, W., Jenson, R., ... & O'Hara, D. M. (2011). Self-determination across the life span: Issues and gaps. *Exceptionality*, *19*(1), 31-45.

Hernik, J., & Jaworska, E. (2018). The effect of enjoyment on learning. In *INTED2018 proceedings* (pp. 508-514). IATED.

Hewett, D. (2012). What is Intensive Interaction? Curriculum, process and approach. *Intensive Interaction: Theoretical Perspectives*, 137-154.

Hiles, D., Cermák, I., & Chrz, V. (2009). Narrative oriented inquiry: A dynamic framework for good practice. University of Huddersfield.

Hill, V. (2013). Working across diverse contexts with wider populations: The developing role of the educational psychologist. In C. Arnold (Eds.), *British educational psychology: The first hundred years*. pp. 128-140. British Psychological Society.

Hinchcliffe, V. (2022). The Rochford review, pre-key stage standards and the engagement model–what does it all mean to schools for children with SLD and PMLD?. *Support for Learning*, *37*(1), 62-79.

Hite, K. (2024). *Stimulate The Senses: How the Great Outdoors Affects Mental Health* (Doctoral dissertation, Indiana State University).

Hodges, L., & McLinden, M. (2015). Learners with severe and profound learning difficulties and sensory impairments. In *The Routledge Companion to Severe, Profound and Multiple Learning Difficulties* (pp. 153-162). Routledge.

Hogg, J. (2004). *'Call for Papers for Special Issue of Journal of Policy and Practice in Intellectual Disabilities'*. http://www.iassid.org.

Hogg, J. (2007). Complex needs and complex solutions: The challenge of profound intellectual and multiple disabilities. *Journal of Policy and Practice in Intellectual Disabilities*, *4*(2), 79-82.

Hogg, J., Hart, A., & Collins, Z. V. (2014). Service family support–a small-scale project of educational psychologists working with parents. *Educational Psychology in practice*, *30*(2), 167-180.

Hoke, A. M., Pattison, K. L., Molinari, A., Allen, K., & Sekhar, D. L. (2022). Insights on COVID-19, school reopening procedures, and mental wellness: Pilot interviews with school employees. *Journal of School Health*, *92*(11), 1040-1044.

Hopf, C. (2004). Qualitative Interviews: An Overview. In U. Flick, E von Kerdoff & I. Steinke (Eds.), *A Companion to Qualitative Research.* (pp. 203-208). SAGE.

Hopkins, F. (2011). Removing Barriers: Getting Children with Physical Challenges into the Woods. In. S. Knight (Ed.), *Forest School for All.* (pp. 123-136).

Hordyk, S. R., Dulude, M., & Shem, M. (2015). When nature nurtures children: Nature as a containing and holding space. *Children's Geographies*, *13*(5), 571-588.

Horsfall, M., Eikelenboom, M., Draisma, S., & Smit, J. H. (2021). The effect of rapport on data quality in face-to-face interviews: Beneficial or detrimental?. *International journal of environmental research and public health*, *18*(20), 10858.

Horton, J. (2017). Disabilities, urban natures and children's outdoor play. *Social & Cultural Geography*, *18*(8), 1152-1174.

Howell, A. J., Dopko, R. L., Passmore, H. A., & Buro, K. (2011). Nature connectedness: Associations with wellbeing and mindfulness. *Personality and Individual Differences, 51*(2), 166–171.

Howell, K. E. (2016). *An introduction to the philosophy of methodology*. SAGE.

Hughes, E. (2022). *Attunement: The Psychology of Being Alone with Nature* (Doctoral dissertation, The University of the Arts).

Humberstone, B., & Stan, I. (2011). Outdoor learning: primary pupils' experiences and teachers' interaction in outdoor learning. *Education 3-13*, *39*(5), 529-540.

Huntsman, L. (2001). *Sand in Our Souls: The Beach in Australian History.* Melbourne University Publish.

Hussein, H. (2010). Using the sensory garden as a tool to enhance the educational development and social interaction of children with special needs. *Support for learning*, *25*(1), 25-31.

Hussein, H. (2017a). Sensory affordances in outdoor play environment towards well-being of special schooled children. *Intelligent Buildings International*, *9*(3), 148-163.

Hussein, H. (2017b). The Influence of Sensory Gardens on the Behaviour of Children with Special Educational Needs. *Asian Journal of Environment-Behaviour Studies*, *2*(4), 95-108.

Hussein, H., Abidin, N. M. N. Z., & Omar, Z. (2016). Sensory Gardens: A multidisciplinary effort. *Asian Journal of Behavioural Studies*, *1*(1), 32-40.

Imray, P., Kossyvaki, L., & Sissons, M. (Eds.). (2024). *A Different View of Curriculum and Assessment for Severe, Complex and Profound Learning Disabilities*. Routledge.

Ingold, T. (2005). The eye of the storm: visual perception and the weather. *Visual studies*, *20*(2), 97-104.

Jacobsen, A. J. (2014). Vignettes of interviews to enhance an ethnographic account. *Ethnography and Education*, *9*(1), 35-50.

Jarvie, I. C. (1986). The problem of ethical integrity in participant observation. *Thinking about Society: Theory and Practice*, 152-161.

Jasmin, A. B., Sathyan, A. R., & Beela, G. K. (2023). Developing a sensory area for visually impaired person to impart horticultural therapy. *IJSA*, *3*(2), 16-21.

Javadi, M., & Zarea, K. (2016). Understanding thematic analysis and its pitfall. *Journal of client care*, *1*(1), 33-39.

Jenkins, C. S. (2010). What is ontological realism?. *Philosophy Compass*, *5*(10), 880-890.

Jerome, L., & Starkey, H. (2022). Developing children's agency within a children's rights education framework: 10 propositions. *Education 3-13*, *50*(4), 439-451.

Joffe, H. (2011). Thematic analysis. *Qualitative research methods in mental health and psychotherapy: A guide for students and practitioners*, 209-223.

Jones, C. (2019). *"All the Small Things": Research exploring the positive experiences of teachers working with pupils with profound and multiple learning difficulties.* (Doctoral thesis, Cardiff University).

Joseph, D. (2019). Fostering a happy positive learning environment for generalist pre-service teachers: Building confidence that promotes wellbeing. *British Journal of Music Education*, *36*(2), 183-196.

Juberg, D. R., Alfano, K., Coughlin, R. J., & Thompson, K. M. (2001). An observational study of object mouthing behavior by young children. *Pediatrics*, *107*(1), 135-142.

Kaman, Z., & Othman, Z. (2016). Validity, reliability and triangulation in case study method: An experience. *Qualitative Research Conference (QRC)*, 24-26.

Kang, E., & Hwang, H. J. (2021). Ethical conducts in qualitative research methodology: Participant observation and interview process. *Journal of Research and Publication Ethics*, *2*(2), 5-10.

Kapsalis, E., Jaeger, N., & Hale, J. (2024). Disabled-by-design: effects of inaccessible urban public spaces on users of mobility assistive devices–a systematic review. *Disability and Rehabilitation: Assistive Technology*, *19*(3), 604-622.

Karas, M., & Laud, J. (2015). The communication needs of people with profound and multiple learning disabilities. *Optometry Pract*, *15*(2), 59-70.

Kearney, R. (2021). *Touch: Recovering our most vital sense*. Columbia University Press.

KELSI (n.d.). *Joint assessment meetings.* KELSI. https://www.kelsi.org.uk/special-education-needs/educational-psychology/joint-assessment-meetings

Kim, J., & Kim, H. (2019). Beach-Lifeguard Considerations for Individuals with Disabilities: A Literature Review. *Journal of the Korea Convergence Society*, *10*(8), 245-253.

Klimstra, T. A., Frijns, T., Keijsers, L., Denissen, J. J., Raaijmakers, Q. A., Van Aken, M. A., ... & Meeus, W. H. (2011). Come rain or come shine: individual differences in how weather affects mood. *Emotion*, *11*(6), 1495.

Knight, S. (2009a). *Forest Schools and Outdoor Play in the Early Years*. Sage.

Knight, S. (2011). Forest School as a way of Learning in the Outdoors in the UK. *International Journal for Cross-Disciplinary Subjects in Education, 1*(1), 590–595.

Knight, S. (2016). *Forest School in practice: for all ages*. Sage.

Koga, K., & Iwasaki, Y. (2013). Psychological and physiological effect in humans of touching plant foliage-using the semantic differential method and cerebral activity as indicators. *Journal of physiological anthropology*, *32*, 1-9.

Kolnes, J., Øverland, K., & Midthassel, U. V. (2021). A system-based approach to expert assessment work-exploring experiences among professionals in the Norwegian educational psychological service and schools. *Scandinavian Journal of Educational Research*, *65*(5), 783-801.

Kondo, M. C., Jacoby, S. F., & South, E. C. (2018). Does spending time outdoors reduce stress? A review of real-time stress response to outdoor environments. *Health & place*, *51*, 136-150.

Kööts, Liisi, Anu Realo, and Jüri Allik. "The influence of the weather on affective experience." *Journal of individual differences* (2011).

Korstjens, I., & Moser, A. (2018). Series: Practical guidance to qualitative research. Part 4: Trustworthiness and publishing. *European Journal of General Practice, 24*(1), 120-124.

Kristiansen, T. M., & Grønkjær, M. (2017). Focus groups as social arenas for the negotiation of normativity. *International Journal of Qualitative Methods*, *17*(1), 1609406917747393.

Kreuger, R. A. (1998). *Analyzing and reporting focus group results. Focus group kit: Volume 6.* Sage.

Krippendorff, K. (2018). *Content analysis: An introduction to its methodology*. Sage publications.

Kuo, F. E., & Faber Taylor, A. (2004). A potential natural treatment for attention-deficit/hyperactivity disorder: evidence from a national study. *American journal of public health*, *94*(9), 1580-1586.

Lacey, P. (1996). The inner Life of children with Profound and Multiple Learning Disabilities. In V. Varma (Ed.), The inner life of children with special needs. (pp. 63-80). Whurr Publishers.

Lacey, P. (1998). Meeting Complex Needs through Collaborative MultidisciplinaryTeamwork. In P. Lacey & C. Ouvry (Eds.), *People with Profound and Multiple Learning Disabilities: A Collaborative Approach to Meeting Complex Needs.* (pp. ix–xvii). Fulton.

Lambe, L. (1995). Gardening: A multisensory experience. In. J. Hogg & J. Caveat (Eds.), *Making leisure provision for people with profound and multiple learning disabilities.* (pp. 113-130). Chapman & Hall.

Leatherbarrow, J., Woods, K., Thomas, G., & Tyldesley, K. (2021). A Systematic Review of Research Evidence Reporting Educational Psychologists' Use of Contextual Observation in Practice. *Educational Psychology Research and Practice*, *7*(1), 1-17.

Lewis, A. (2020). Using appreciative inquiry (AI) as a solution-focussed approach to organisational change in two educational psychology services. *Leadership for Educational Psychologists: Principles and Practicalities*, *115*.

Loebach, J., Rakow, D. A., Meredith, G., & Shepley, M. M. (2022). Time outdoors in nature to improve staff well-being: examining changes in behaviors and motivations among university staff in the use of natural outdoor environments since the emergence of the COVID-19 pandemic. *Frontiers in Psychology*, *13*, 869122.

Löfgren, M., & Norrbrink, C. (2012). "But I know what works"–patients' experience of spinal cord injury neuropathic pain management. *Disability and Rehabilitation*, *34*(25), 2139-2147.

Logan, D. E., Simons, L. E., Stein, M. J., & Chastain, L. (2008). School impairment in adolescents with chronic pain. *The Journal of Pain*, *9*(5), 407-416.

Longhorn, F. (2011). *A sensory curriculum for very special people.* Souvenir Press.

Longhorn, F. (2014). Foreword. In J. Grace (Eds.), *Sensory Stories for Children and Teens with Special Educational Needs*. (p. 11-12). Jessica Kingsley Publishers.

Lopez, C., & Corcoran, T. (2014). Relationships with special needs students: exploring primary teachers' descriptions. *International Journal of Inclusive Education*, *18*(12), 1304-1320.

Lotan, M. (2006). Management of Rett syndrome in the controlled multisensory (Snoezelen) environment. A review with three case stories. *The Scientific World Journal*, *6*, 791-807.

Lubans, D. R., Morgan, P. J., Cliff, D. P., Barnett, L. M., & Okely, A. D. (2010). Fundamental movement skills in children and adolescents: review of associated health benefits. *Sports medicine*, *40*, 1019-1035.

Lunt, I., & Majors, K. (2000). The professionalisation of educational psychology. *Educational Psychology in Practice, 15*(4), 237–245.

Mackintosh, M. (2017). Beach Schools. In S. Pickering (Ed.), *Teaching Outdoors Creatively.* (pp. 81-97). Taylor & Francis.

Magaldi, D., Berler, M. (2020). Semi-structured Interviews. In V Zeigler-Hill & T. Shackelford (Eds.), *Encyclopedia of Personality and Individual Differences.* (pp. 4825-4830). Springer.

Male, D. (2015). Learners with SLD and PMLD: provision, policy and practice. In *The Routledge companion to severe, profound and multiple learning difficulties* (pp. 9-18). Routledge.

Manner, J., Doi, L., & Laird, Y. (2021). 'That's given me a bit more hope'–adolescent girls' experiences of Forest School. *Children's Geographies*, *19*(4), 432-445.

Marshall, B., Cardon, P., Poddar, A., & Fontenot, R. (2013). Does sample size matter in qualitative research?: A review of qualitative interviews in IS research. *Journal of computer information systems*, *54*(1), 11-22.

Martins, P. (2017). A critical reflection on how sensory stories facilitate high quality teaching and learning for children with profound and multiple learning disabilities (PMLD). *The STeP Journal*, *4*(4), 70-80.

Mastinu, M., Melis, M., Yousaf, N. Y., Barbarossa, I. T., & Tepper, B. J. (2023). Emotional responses to taste and smell stimuli: Self-reports, physiological measures, and a potential role for individual and genetic factors. *Journal of Food Science*, *88*(S1), 65-90.

Maynard, T., Waters, J., & Clement, J. (2013). Child-initiated learning, the outdoor environment and the 'underachieving' child. *Early years*, *33*(3), 212-225.

McClimens, A. (2005). From vagabonds to Victorian values. *Learning disability: A life cycle approach to valuing people*, 28-46.

McCorkindale, L. M. (1992). What is taste?. *Nutrition & Food Science*, *92*(6), 8-12.

McKee, S. A., Harris, G. T., Rice, M. E., & Silk, L. (2007). Effects of a Snoezelen room on the behavior of three autistic clients. *Research in developmental disabilities*, *28*(3), 304-316.

McLinden, M., Lynch, P., Douglas, G., Hewett, R., & Cobb, R. (2017). Facilitating participation in education: The distinctive role of the specialist teacher in supporting learners with vision impairment in combination with severe and profound and multiple learning difficulties.

McLinden, M., & McCall, S. (2010). The role of touch in the learning experiences of children who have PMLD and visual impairment. *Sensory Experiences*.

McLinden, M., & Mccall, S. (2016). *Learning through touch: Supporting children with visual impairments and additional difficulties*. David Fulton Publishers.

McQuoid, J. (2017). Finding joy in poor health: The leisure-scapes of chronic illness. *Social Science & Medicine*, *183*, 88-96.

Melson, G. F., Fine, A. H., & VonLintel, J. F. (2025). Animals in the lives of children. In *Handbook on animal-assisted therapy* (pp. 301-322). Academic Press.

Memory, C. (2015). Please Take Me Outside. *PMLD Link, 27*(80), 24.

Mencap. (n.d.). About profound and multiple learning disabilities. Mencap/PMLD Network. https://www.mencap.org.uk/sites/default/files/2016-11/PMLD%20factsheet%20about%20profound%20and%20multiple%20learning%20disabilities.pdf

Mercieca, D. P. (2013). *Living otherwise: Students with profound and multiple learning disabilities as agents in educational contexts* (Vol. 17). Springer Science & Business Media.

Merkle, S. L., Sluka, K. A., & Frey-Law, L. A. (2020). The interaction between pain and movement. *Journal of Hand Therapy*, *33*(1), 60-66.

Miller, N. C., Kumar, S., Pearce, K. L., & Baldock, K. L. (2021). The outcomes of nature-based learning for primary school aged children: a systematic review of quantitative research. *Environmental education research*, *27*(8), 1115-1140.

Mindrescu, V., Simion, G., Turcu, I., Catuna, C., Paun, D. G., & Nechita, F. (2022). The Multiplicative Effect Interaction between Outdoor Education Activities Based on the Sensory System. *Sustainability*, *14*(19), 118-159.

Mohangi, K., & Archer, K. (2015). Mothers' reflections on the role of the educational psychologist in supporting their children with attention deficit hyperactivity disorder. *South African Journal of Education*, *35*(1).

Mulhall, A. (2003). In the field: notes on observation in qualitative research. *Journal of advanced nursing*, *41*(3), 306-313.

Murphy, A. T. (2020). Listening in, listening out. *Oral History*, *48*(1), 35-44.

Murphy, L. F., Fyffe, D. C., Byrne, R., Maronna, B., & Botticello, A. L. (2025). "Sometimes I just wanna be outside": A qualitative analysis of experiences with accessing community greenspace among people living with chronic mobility disability. *Health & Place*, *91*, 103399.

Murray, R., & O'Brien, L. (2005). *Such Enthusiasm – A Joy to See: An Evaluation of Forest School in England.* New Economics Foundation and Forest Research.

Musante, K., & DeWalt, B. R. (2010). *Participant observation: A guide for fieldworkers*. Rowman Altamira.

Negrin, K. A., Slaughter, S. E., Dahlke, S., & Olson, J. (2022). Successful recruitment to qualitative research: a critical reflection. *International Journal of Qualitative Methods*, *21*, 16094069221119576.

Nel, A., Joubert, I., & Hartell, C. (2017). Teachers' perceptions on the design and use of an outdoor learning environment for sensory and motor stimulation. *South African Journal of Childhood Education*, *7*(1), 1-11.

Newmann, F. M. (2007). Improving achievement for all students: The meaning of staff-shared understanding and commitment. In *The keys to effective schools: Educational reform as continuous improvement* (pp. 33-50). Corwin Press.

Nguyen, T. Q. (2023). *The influence of enjoyment on remembering: an analysis of memory in decision-making* (Doctoral dissertation).

Nielsen, M. K., Dyg, P. M., & Wistoft, K. (2020). Outdoor taste education: Danish perspectives on potentials and challenges for taste education in school gardens and outdoor education. *Food, Culture & Society*, *23*(4), 523-541.

Nielsen, A. F. (2024). The role of toilets in public spaces: An interview study with individuals experiencing gastrointestinal issues. *Social Science & Medicine*, *362*, 117408.

Norðdahl, K., & Einarsdóttir, J. (2015). Children's views and preferences regarding their outdoor environment. *Journal of Adventure Education & Outdoor Learning*, *15*(2), 152-167.

North West Wildlife Trust. (n.d.a.). *Beach School.* https://www.livingseasnw.org.uk/what-we-do/schools-education/beach-school

Norwich, B., & Lewis, A. (2007). How specialized is teaching children with disabilities and difficulties?. *Journal of curriculum studies*, *39*(2), 127-150.

Novak, M., & Schwan, S. (2021). Does touching real objects affect learning?. *Educational Psychology Review*, *33*(2), 637-665.

Núñez-Jaramillo, L., Ramírez-Lugo, L., Herrera-Morales, W., & Miranda, M. I. (2010). Taste memory formation: latest advances and challenges. *Behavioural brain research*, *207*(2), 232-248.

O'Brien, L. (2009). Learning Outdoors: The Forest School Approach. *International Journal of Primary, Elementary and Early Years Education, 37*(1), 45–60.

O'Brien, L. (2020). Learning outdoors: the Forest School approach. In *Outdoor Learning Research* (pp. 238-253). Routledge.

O'Gorman, E., & Drudy, S. (2011). Professional development for teachers working in special education/inclusion in mainstream schools: The views of teachers and other stakeholders. *School of Education, University College Dublin*.

Oberle, E., Zeni, M., Munday, F., & Brussoni, M. (2021). Support factors and barriers for outdoor learning in elementary schools: A systemic perspective. *American Journal of Health Education*, *52*(5), 251-265.

Obrist, M., Comber, R., Subramanian, S., Piqueras-Fiszman, B., Velasco, C., & Spence, C. (2014, April). Temporal, affective, and embodied characteristics of taste experiences: A framework for design. In *Proceedings of the SIGCHI conference on human factors in computing systems* (pp. 2853-2862).

Om, C., Brereton, M., Vella, K., Ploderer, B., Dema, T., Dobson, M. R., & Murcia, K. (2023, December). Rethinking the Development of Computational Thinking Skills in Young Children through Nature Play. In *Proceedings of the 35th Australian Computer-Human Interaction Conference* (pp. 536-549).

Orr, N., Wagstaffe, A., Briscoe, S., & Garside, R. (2016). How do older people describe their sensory experiences of the natural world? A systematic review of the qualitative evidence. *BMC geriatrics*, *16*, 1-16.

Osborne, C., & Burton, S. (2014). Emotional Literacy Support Assistants' views on supervision provided by educational psychologists: what EPs can learn from group supervision. *Educational Psychology in Practice*, *30*(2), 139-155.

Ouvry, C., & Saunders, S. (1996). Pupils with profound and multiple learning difficulties. In B. Carpenter, C. Stevens, K. Bovair & R. Ashdown (Eds.), *Enabling Access.* (pp. 201-217). Fulton.

Pálsdóttir, A. M., Spendrup, S., Mårtensson, L., & Wendin, K. (2021). Garden smellscape–experiences of plant scents in a nature-based intervention. *Frontiers in psychology*, *12*, 667957.

Papen, U. (2019). Participant observation and field notes. In *The Routledge handbook of linguistic ethnography* (pp. 141-153). Routledge.

Park, Y. S., Konge, L., & Artino Jr, A. R. (2020). The positivism paradigm of research. *Academic medicine*, *95*(5), 690-694.

Patberg, W. R., & Rasker, J. J. (2002). Beneficial effect of being outdoors in rheumatoid arthritis. *Journal of rheumatology*, *29*(1), 202-203.

Pathak, V., Jena, B., & Kalra, S. (2013). Qualitative research. *Perspectives in clinical research*, *4*(3), 192.

Patrick, B. C., Hisley, J., & Kempler, T. (2000). "What's everybody so excited about?": The effects of teacher enthusiasm on student intrinsic motivation and vitality. *The Journal of experimental education*, *68*(3), 217-236.

Pavey, B. (2006). *The forest school and ınclusion; a project evaluation.* The University of Glamorgan.

Peel, K. L. (2020). A beginner's guide to applied educational research using thematic analysis. *Practical Assessment Research and Evaluation*, *25*(1).

Perquin, C. W., Hazebroek-Kampschreur, A. A., Hunfeld, J. A., Bohnen, A. M., van Suijlekom-Smit, L. W., Passchier, J., & Van Der Wouden, J. C. (2000). Pain in children and adolescents: a common experience. *Pain*, *87*(1), 51-58.

Persson, A. L., Veenhuizen, H., Zachrison, L., & Gard, G. (2008). Relaxation as treatment for chronic musculoskeletal pain–a systematic review of randomised controlled studies. *Physical Therapy Reviews*, *13*(5), 355-365.

Perry, B. D. (2000). Attunement: Reading the rhythms of the child. *Scholastic Early Childhood Today*, *15*(2), 20-21.

Perry, M. A., Devan, H., Fitzgerald, H., Han, K., Liu, L. T., & Rouse, J. (2018). Accessibility and usability of parks and playgrounds. *Disability and health journal*, *11*(2), 221-229.

Petigas, L., & Newman, C. J. (2021). Paediatricians' views on pain in children with profound intellectual and multiple disabilities. *Brain sciences*, *11*(3), 408.

Pfeifer, E., Fiedler, H., & Wittmann, M. (2020). Increased relaxation and present orientation after a period of silence in a natural surrounding. *Nordic Journal of Music Therapy*, *29*(1), 75-92.

Piaget, J. (1971). The theory of stages in cognitive development. In D. R. Green, M. P. Ford, & G. B. Flamer (Eds.), *Measurement and Piaget.* McGraw-Hill.

Pierce, S., & Maher, A. J. (2020). Physical activity among children and young people with intellectual disabilities in special schools: Teacher and learning support assistant perceptions. *British Journal of Learning Disabilities*, *48*(1), 37-44.

PMLD Network. (2002). *Valuing People with Profound Multiple Learning Disabilities (PMLD).* PMLD Network. https://www.choiceforum.org/docs/Valuing%20people%20with%20profound%20and%20multiple%20learning%20disabilities.pdf

Podobnik, J., Rejc, J., Slajpah, S., Munih, M., & Mihelj, M. (2017). All-terrain wheelchair: Increasing personal mobility with a powered wheel-track hybrid wheelchair. *IEEE Robotics & Automation Magazine*, *24*(4), 26-36.

Pojoga, S., Marici, M., & Pojoga, S. (2015). The role of teacher's communication, involvement, enthusiasm and humor in the behavior control of preschool pupils. *Education and Development, Research and Practice*, *2*(1), 35-44.

Port, T. (2024, November 12). *Five ways to address SEND staff shortages.* Engage Education. https://engage-education.com/blog/5-ways-to-address-send-staff-shortages/

Pouya, S., Bayındır, E., & Pouya, S. (2024). Sensory garden design proposal for children with autism spectrum disorder. *Support for Learning*, *39*(1), 44-57.

Public Health England. (2015). *People with learning disabilities in England 2015: Main Report.* PHE.

Rahman, M. S. (2019). Teachers' peer support: difference between perception and practice. *Teacher Development*, *23*(1), 121-138.

Rapoport, A. (1990). *The meaning of the built environment: A nonverbal communication approach*. University of Arizona Press.

Rappe, E., Kivelä, S. L., & Rita, H. (2006). Visiting outdoor green environments positively impacts self-rated health among older people in long-term care. *HortTechnology*, *16*(1), 55-59.

Ratcliffe, E. (2021). Sound and soundscape in restorative natural environments: A narrative literature review. *Frontiers in psychology*, *12*, 570563.

Rees, K. (2017). Models of disability and the categorisation of children with severe and profound learning difficulties: Informing educational approaches based on an understanding of individual needs. *Educational & Child Psychology*, *34*(4), 30-39.

Rees, K. (2024). *The Mental Health and Wellbeing of Children and Young People with Learning Difficulties: A Guide for Educators*. Jessica Kingsley Publishers.

Roaming the Paths. (2024, June 15). *What's stopping you? Improving accessibility in the countryside.* Roaming the Paths. https://roaming-the-paths.co.uk/enhancing-accessibility-easy-access-public-footpaths-and-routes/#:~:text=Surface%20Type:%20While%20some%20surfaces,hinder%20individuals%20with%20sensory%20impairments.

Roberts. B., (2010). Addressing the physical and sensory needs of children with profound and multiple learning disabilities. In G. Grant, P. Ramcharan, M. Flynn & M. Richardson (Eds.), *Learning disability: A life cycle approach* (pp. 159-169). McGraw-Hill Education.

Rooney, T. (2018). Weather worlding: learning with the elements in early childhood. *Environmental Education Research*, *24*(1), 1-12.

Rushton, R. (2024). *Exploring the impact of music on the play experiences of children and young people with profound and multiple learning disabilities (PMLD) and their supporting staff* (Doctoral dissertation, University of Birmingham).

Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness.* Guildford Publications.

Ryan, R. M., Weinstein, N., Bernstein, J., Brown, K. W., Mistretta, L., & Gagné, M. (2010). Vitalizing effects of being outdoors and in nature. *Journal of environmental psychology*, *30*(2), 159-168.

Rylance, D. (2022). *Forest School and Encouraging Positive Behaviour: Outdoor Education Skills for Pupils with Additional Or Complex Needs*. Jessica Kingsley Publishers.

Sachs, D., & Nasser, K. (2009). Facilitating family occupations: Family member perceptions of a specialized environment for children with mental retardation. *The American Journal of Occupational Therapy*, *63*(4), 453-462.

Sackville-Ford, M., & Davenport, H. (2019). *Critical Issues in Forest Schools.* Sage.

Salt, T. (2010). *Salt Review: Independent Review of Teacher Supply for Pupils with Severe, Profound and Multiple Learning Difficulties (SLD and PMLD).* Department for Children, Schools and Families.

Samuel, J. & Pritchard, M. (2001). The Ignored Minority: Meeting the Needs of People with Profound Learning Disability. *Tizard Learning Disability Review, 6*, 34–44.

Sanderud, J. R. (2020). Mutual experiences: Understanding children's play in nature through sensory ethnography. *Journal of Adventure Education and Outdoor Learning*, *20*(2), 111-122.

Santoro, S. L., Donelan, K., & Constantine, M. (2022). Proxy-report in individuals with intellectual disability: A scoping review. *Journal of Applied Research in Intellectual Disabilities*, *35*(5), 1088-1108.

Savina, E., Garrity, K., Kenny, P., & Doerr, C. (2016). The benefits of movement for youth: A whole child approach. *Contemporary school psychology*, *20*, 282-292.

Scanlan, C. L. (2020). Preparing for the unanticipated: Challenges in conducting semi-structured, in-depth interviews. *SAGE Research Methods Cases: Medicine and Health,* 67-80.

Schwartz, S. (2022). Green Exercise: Discover the Powerful Combination of Nature and Activity. *Vibrant Life*, *38*(2), 18-21.

Seidl, A. H., Indarjit, M., & Borovsky, A. (2024). Touch to learn: Multisensory input supports word learning and processing. *Developmental science*, *27*(1), e13419.

Serrat, M., Ferrés, S., Auer, W., Almirall, M., Lluch, E., D'Amico, F., ... & Feliu-Soler, A. (2022). Effectiveness, cost-utility and physiological underpinnings of the FIBROWALK multicomponent therapy in online and outdoor format in individuals

with fibromyalgia: Study protocol of a randomized, controlled trial (On&Out study). *Frontiers in physiology*, *13*, 1046613.

Shevin, M., & Klein, N. K. (2004). The importance of choice-making skills for students with severe disabilities. *Research and Practice for Persons with Severe Disabilities*, *29*(3), 161-168.

Shrivastava, S. R., Shrivastava, P. S., & Ramasamy, J. (2017). Force field analysis: An effective tool in qualitative research. *Journal of Current Research in Scientific Medicine*, *3*(2), 139-140.

Shroff, N., & Ioane, J. (2022). 'Nature Calms Him and it's Almost Like a Friend he Doesn't Have to Impress'. The Effects of an Outdoor Nature Classroom on Children's Wellbeing: A Parent's Perspective. *Journal of the New Zealand College of Clinical Psychologists*, *32*(1), 41-49.

Simmons, B., & Bayliss, P. (2007). The role of special schools for children with profound and multiple learning difficulties: is segregation always best? *British Journal of Special Education, 34*(1), 19–24.

Sinclair, J. (2010). Being autistic together. *Disability Studies Quarterly*, *30*(1).

Sinha, I. P., Brown, L., Fulton, O., Gait, L., Grime, C., Hepworth, C., ... & Simba, J. (2021). Empowering children and young people who have asthma. *Archives of Disease in Childhood*, *106*(2), 125-129.

Sissons, M., Barnes, J., Imray, P., & Colley, A. (2023). A pedagogical argument for adopting a capabilities approach in the teaching of those with PMLD, CLD and SLD. In P. Imray, L. Kossyvaki & M. Sissons (Eds.), *A Different View of Curriculum and Assessment for Severe, Complex and Profound Learning Disabilities* (pp. 51-62). Routledge.

Slade, K., Shaw, R. L., Larkin, M., & Heath, G. (2023). Care-giving experiences of parents of young people with PMLD and complex healthcare needs in the transition to adulthood years: a qualitative poetic synthesis. *Arts & health*, 1-18.

Slade, M., Lowery, C., & Bland, K. E. N. (2013). Evaluating the impact of Forest Schools: a collaboration between a university and a primary school. *Support for Learning*, *28*(2), 66-72.

Sluimer, N. (2020, March 19). *The limits to urban greenspace for wheelchair users.* The City at Eye Level. https://thecityateyelevel.com/stories/the-limits-to-urban-green-space-for-wheelchair-users/

Smith, B. (2012). Ontology. In *The furniture of the world* (pp. 47-68). Brill.

Smith, B. (2013). The nature of sensory experience: The case of taste and tasting. *Phenomenology and Mind*, (4), 212-227.

Smith, S. (2017). Understandings of play for children with profound and multiple learning disabilities (PMLD). In *Practice-based research in children's play* (pp. 187-202). Policy Press.

Smith, P. (2021). 3. What do students with autism and learning disabilities need to learn?. *The Intensive Interaction Classroom Guide: Social Communication Learning and Curriculum for Children with Autism, Profound and Multiple Learning Difficulties, or Communication Difficulties*.

Smith, E., & Griggs, G. (2010). Good Vibrations': The effectiveness of teaching rebound therapy to children with profound and multiple learning difficulties. *Journal of Qualitative Research in Sport Studies*, *3*(1), 91-104.

Smith, J., & Osborn, M. (2015). Interpretative phenomenological analysis. In J. Smith (Ed.), *Qualitative psychology: A practical guide to methods.* (3rd ed., pp. 53–80). Sage.

Smithson, J. (2008). Focus groups. In P. Alasuutari, L. Bickman & J. Brannen (Eds.), *The Sage handbook of social research methods*. (pp. 357-370). SAGE.

Söderström, M., Boldemann, C., Sahlin, U., Mårtensson, F., Raustorp, A., & Blennow, M. (2013). The quality of the outdoor environment influences childrens health–a cross-sectional study of preschools. *Acta paediatrica*, *102*(1), 83-91.

Speldewinde, C. (2022b). STEM teaching and learning in bush kinders. *Canadian Journal of Science Mathematics and Technology, 22*(2), 444–461.

Speldewinde, C. (2024). Dipping your toes in the water: early childhood science learning at a beach kindergarten. *Journal of Outdoor and Environmental Education*, 1-22.

Spira, E. G., & Fischel, J. E. (2005). The impact of preschool inattention, hyperactivity, and impulsivity on social and academic development: A review. *Journal of Child Psychology and Psychiatry*, *46*(7), 755-773.

Standards & Testing Agency. (2020). *The engagement model: Guidance for maintained schools, academies (including free schools) and local authorities.* GOV.UK.

Stenfors, T, Kajamaa, A., & Bennett, D. (2020). How to assess the quality of qualitative research. *The Clinical Teacher, 17(6)*, 596-599.

Stephenson, J., & Carter, M. (2011). The use of multisensory environments in schools for students with severe disabilities: Perceptions from teachers. *Journal of Developmental and Physical Disabilities*, *23*, 339-357.

Sterman, J., Naughton, G., Froude, E., Villeneuve, M., Beetham, K., Wyver, S., & Bundy, A. (2016). Outdoor play decisions by caregivers of children with disabilities: A systematic review of qualitative studies. *Journal of Developmental and Physical Disabilities*, *28*, 931-957.

Stobie, I. (2002). Processes of'Change'and'Continuity'in Educational Psychology--Part II. *Educational Psychology in Practice*, *18*(3), 213-237.

Sturges, M., & Steel, K. (2023, June). Attuning to Children to Identify What Matters to Them. In *Conference Proceedings. The Future of Education 2023*.

Sulu, B., Kayğusuz, Ş., Sinici, E., & Hassani, F. (2023). The effect of psychological well-being on self-confidence in exercise participants. *Uluslararası Egzersiz Psikolojisi Dergisi*, *5*(1), 1-8.

Sun, P., Muntean, R., & Zinovieff, F. (2024). Soundwalking: Three acts of attunement, motion and breath. In *The Routledge Handbook of Sound Design* (pp. 157-167). Focal Press.

Taheri, M. H. (2020). *Multimodal Multisensor attention modelling* (Doctoral dissertation, Nottingham Trent University).

Tatler, B. W., & Land, M. F. (2011). Vision and the representation of the surroundings in spatial memory. *Philosophical Transactions of the Royal Society B: Biological Sciences*, *366*(1564), 596-610.

Terry, G., & Hayfield, N. (2020). Reflexive thematic analysis. In *Handbook of qualitative research in education* (pp. 430-441). Edward Elgar Publishing.

The National Institute for Health and Care Excellence (NICE). (2023, April). *Learning Disabilities: What is it?* https://cks.nice.org.uk/topics/learning-disabilities/background-information/definition/

Thorburn, M., & Marshall, A. (2014). Cultivating lived-body consciousness: Enhancing cognition and emotion through outdoor learning. *Journal of Pedagogy*, *5*(1), 115-132.

Tilstone, C., & Barry, C. (2013). Advocacy and empowerment: what does it mean for pupils and people with PMLD?. In *People with Profound & Multiple Learning Disabilities* (pp. 176-183). David Fulton Publishers.

Tiplady, L. S., & Menter, H. (2021). Forest School for wellbeing: an environment in which young people can 'take what they need'. *Journal of Adventure Education and Outdoor Learning*, *21*(2), 99-114.

Titman, W. (1994). *Special people, special places: the hidden curriculum of school grounds*. (World Wildlife Fund/Learning through Landscapes).

Tokarskaya, L. V., & Bystrova, T. Y. (2023). Markers of Sensory Well-Being in the Learning Environment for Children With Autism Spectrum Disorders. *Changing Societies & Personalities. 2023. Vol. 7. Iss. 1*, *7*(1), 149-172.

Tovey, H. (2007). *Playing outdoors: Spaces and places, risk and challenge*. McGraw-Hill Education.

Trzesniewski, K. H., Donnellan, M. B., Moffitt, T. E., Robins, R. W., Poulton, R., & Caspi, A. (2006). Low self-esteem during adolescence predicts poor health, criminal behavior, and limited economic prospects during adulthood. *Developmental psychology*, *42*(2), 381.

Tse, M. M., Lo, A. P., Cheng, T. L., Chan, E. K., Chan, A. H., & Chung, H. S. (2010). Humor therapy: relieving chronic pain and enhancing happiness for older adults. *Journal of aging research*, *2010*(1), 343574.

Tsunetsugu, Y., Park, B. J., Ishii, H., Hirano, H., Kagawa, T., & Miyazaki, Y. (2007). Physiological effects of Shinrin-yoku (taking in the atmosphere of the forest) in an old-growth broadleaf forest in Yamagata Prefecture, Japan. *Journal of physiological anthropology*, *26*(2), 135-142.

Tuckett, A. G. (2005). Applying thematic analysis theory to practice: A researcher's experience. *Contemporary nurse*, *19*(1-2), 75-87.

Tul, Y., Unruh, A., & Dick, B. D. (2011). Yoga for chronic pain management: a qualitative exploration. *Scandinavian journal of caring sciences*, *25*(3), 435-443.

Turk, D. C., Fillingim, R. B., Ohrbach, R., & Patel, K. V. (2016). Assessment of psychosocial and functional impact of chronic pain. *The Journal of Pain*, *17*(9), T21-T49.

Ulrich, R. S., Simons, R., Losito, B., Fiorito, E., Miles, M., & Zelson, M. (1991). Stress Recovery During Exposure to Natural and Urban Environments. *Journal of Environmental Psychology, 11*(3), 201–230.

Ulset, V., Vitaro, F., Brendgen, M., Bekkhus, M., & Borge, A. I. (2017). Time spent outdoors during preschool: Links with children's cognitive and behavioral development. *Journal of Environmental Psychology*, *52*, 69-80.

Unicef. (1990). *United Nations Convention on the Rights of the Child.* Unicef.

Unwin, K. L., Powell, G., & Jones, C. R. (2022). The use of Multi-Sensory Environments with autistic children: Exploring the effect of having control of sensory changes. *Autism*, *26*(6), 1379-1394.

Vaandering, D., (2016). Critical Relational Theory. In B. Hopkins (Ed.), *Restorative Theory in Practice: Insights into what works and why* (pp. 63-76). Jessica Kingsley Publishers.

Van den Berg, A. E., & Van den Berg, C. G. (2011). A comparison of children with ADHD in a natural and built setting. *Child: care, health and development*, *37*(3), 430-439.

van Dijk-Wesselius, J. E., Van den Berg, A. E., Maas, J., & Hovinga, D. (2020). Green schoolyards as outdoor learning environments: Barriers and solutions as experienced by primary school teachers. *Frontiers in Psychology*, *10*, 2919.

Van Dooremalen, T. (2017). The pros and cons of researching events ethnographically. *Ethnography*, *18*(3), 415-424.

Van Manen, M. (2017). But is it phenomenology?. *Qualitative health research*, *27*(6), 775-779.

Van Teijlingen, E., & Hundley, V. (2001). The importance of pilot studies. *Social research update*, (35), 1-4.

van Tuin, L., Schaufeli, W. B., Van den Broeck, A., & van Rhenen, W. (2020). A corporate purpose as an antecedent to employee motivation and work engagement. *Frontiers in Psychology*, *11*, 572343.

Verbeek, C., & Van Campen, C. (2013). Inhaling memories: Smell and taste memories in art, science, and practice. *The Senses and Society*, *8*(2), 133-148.

Verdonck, M., Wiles, L., & Broome, K. (2024). Lived experience of using assistive technology for sandy beach based leisure for Australian people with mobility limitations. *Disability and Rehabilitation: Assistive Technology*, *19*(4), 1568-1578.

Vining, J. (2003). The connection to other animals and caring for nature. *Human Ecology Review*, 87-99.

Vitale, V., Martin, L., White, M. P., Elliott, L. R., Wyles, K. J., Browning, M. H., ... & Fleming, L. E. (2022). Mechanisms underlying childhood exposure to blue spaces and adult subjective well-being: An 18-country analysis. *Journal of Environmental Psychology*, *84*, 101876.

Vora, L. K., Gholap, A. D., Hatvate, N. T., Naren, P., Khan, S., Chavda, V. P., ... & Khatri, D. K. (2024). Essential oils for clinical aromatherapy: a comprehensive review. *Journal of Ethnopharmacology*, 118180.

Vygotsky, L. S. (1986). *Thought and language* (Rev. ed.). MIT Press. (Original work published 1934.).

Wachtell, J., Wachtell, T., & Costello, B. (2009). *The restorative practices handbook for teachers, disciplinarians, and administrators*. International Institute for Restorative Practices.

Waite, S. (2007). 'Memories are made of this': Some reflections on outdoor learning and recall. *Education 3–13*, *35*(4), 333-347.

Waite, S. (2009, April). Outdoor learning for children aged 2–11: Perceived barriers, potential solutions. In *Fourth international outdoor education research conference, La Trobe university, Beechworth, Victoria, Australia* (Vol. 15, p. 18).

Waite, S. (2020). Where are we going? International views on purposes, practices and barriers in school-based outdoor learning. *Education Sciences*, *10*(11), 311.

Wales, M., Hoff, E., Mårtensson, F., & Englund, J. E. (2024). The quality of Swedish adolescents' outdoor life and its relationship with self-esteem and well-being. *Landscape and Urban Planning*, *246*, 105023.

Walshe, N., Bungay, H., & Dadswell, A. (2023). Sustainable Outdoor Education: Organisations Connecting Children and Young People with Nature through the Arts. *Sustainability*, *15*(5), 3941.

Ware, J. (1987). *Providing education for children with profound and multiple learning difficulties :a survey of resources and an analysis of staff:pupil interactions in special care units.* (Doctoral thesis, University College London).

Ware , J. (1996). *Creating a Responsive Environment for People with Profound and Multiple Learning Difficulties.* Fulton.

Ware, J. (2004). Profound and multiple learning disabilities. In A. Lewis & B. Norwich (Eds.), *Special Teaching for Special Children.* (pp. 67-80). McGraw-Hill Education.

Waters, J., & Begley, S. (2007). Supporting the development of risk-taking behaviours in the early years: An exploratory study. *Education 3–13*, *35*(4), 365-377.

Watson, K., (2021, November 19). *What is Sensory Overload?* Healthline. https://www.healthline.com/health/sensory-overload

Watson, J. (2023). Stretching beyond our perceived boundaries: The role of speech-language pathology in realising autonomy through supported decision-making. *International Journal of Speech-Language Pathology*, *25*(3), 355-362.

Watson, A., & Till, K. E. (2010). Ethnography and participant observation. *The SAGE handbook of qualitative geography*, *1*, 121-137.

Weedle, S. (2016). The use of Intensive Interaction with people with severe-profound intellectual disability. *Learning Disability Practice*, *19*(9), 27-34.

Welsh Assembly Government. (2004). *Educational Psychology in Wales.* Welsh Assembly Government Pupil Support Division.

Weis, F. (2017, November 17). *Confidence is the result of experience.* Thrive Global. https://community.thriveglobal.com/confidence-is-the-result-of-experience-2/

What Works Centre for Wellbeing. (2023, September 21). *Children's Wellbeing in the UK 2023.* What Works Wellbeing. https://whatworkswellbeing.org/blog/childrens-wellbeing-in-the-uk-2023/

Willander, J., & Larsson, M. (2006). Smell your way back to childhood: Autobiographical odor memory. *Psychonomic bulletin & review*, *13*, 240-244.

Winnicott, D. W. (1960). The Theory of the Parent-infant Relationship. *International Journal of Psychoanalysis, 41*(6), 585–595.

Winter, S. (2017). *Work to be done? Exploring the Current Contribution of Educational Psychologists to Special Schools which Cater for Children and Young People with Profound and Multiple Learning Difficulties (PMLD)* (Doctoral thesis, University of East London).

Winter, S., & Bunn, H. (2019). Work to be done? A survey of educational psychologists' contribution to special schools for profound and multiple learning difficulties. *British Journal of Special Education*, *46*(1), 53-75.

Whitehouse, S., Varni, J. W., Seid, M., Cooper-Marcus, C., Ensberg, M. J., Jacobs, J. R., & Mehlenbeck, R. S. (2001). Evaluating a children's hospital garden environment: Utilization and consumer satisfaction. *Journal of environmental psychology*, *21*(3), 301-314.

Wolf, C., Kunz, P., & Robin, N. (2022). Emerging themes of research into outdoor teaching in initial formal teacher training from early childhood to secondary education–A literature review. *The Journal of Environmental Education*, *53*(4), 199-220.

Woodcock, C. (2016). The listening guide: A how-to approach on ways to promote educational democracy. *International Journal of Qualitative Methods*, *15*(1), 1609406916677594.

Yang, L. J., & Bruner, J. D. (1996). Effects of providing sensory stimulation to decrease self-stimulatory behavior: using additional food to suppress hand-mouthing behavior. *Behavioral Interventions: Theory & Practice in Residential & Community-Based Clinical Programs*, *11*(3), 119-130.

Yip, J. M., Jodoin, N. M., & Handy, T. C. (2023). Dimensions of inattention: Cognitive, behavioral, and affective consequences. *Frontiers in psychology*, *14*, 1075953.

You, J. H., & Shin, W. S. (2019). The Effects of Psychomotorik in the Forest on the Sensory and Visual Perception of Children with Intellectual Disabilities. *Journal of People, Plants, and Environment*, *22*(3), 321-332.

Young, H., & Lambe, L. (2011). Multi-sensory storytelling: for people with profound and multiple learning disabilities. *PMLD Link*, *23*(1), 29-31.

Yukhymenko, M. A., Brown, S. W., Lawless, K. A., Brodowinska, K., & Mullin, G. (2014). Thematic analysis of teacher instructional practices and student responses in middle school classrooms with problem-based learning environment. *Global Education Review*, *1*(3), 93-110.

Zacharia, Z. C. (2015). Examining whether touch sensory feedback is necessary for science learning through experimentation: A literature review of two different lines of research across K-16. *Educational Research Review*, *16*, 116-137.

Zacharov, N. (2018). *Sensory evaluation of sound*. CRC Press.

Zamani, Z. (2016). ‘The woods is a more free space for children to be creative; their imagination kind of sparks out there’: Exploring young children’s cognitive play opportunities in natural, manufactured and mixed outdoor preschool zones. *Journal of adventure education and outdoor learning*, *16*(2), 172-189.

Zafeiriou, M. E., & Gulliford, A. (2020). A grounded theory of educational psychologists’ mental health casework in schools: connection, direction and reconstruction through consultation. *Educational Psychology in Practice*, *36*(4), 422-442.

Zeman, J., Cassano, M., Perry-Parrish, C., & Stegall, S. (2006). Emotion regulation in children and adolescents. *Journal of Developmental & Behavioral Pediatrics*, *27*(2), 155-168.

Zhang, E., & Ye, Y. (2024). Understanding how to ignite teacher enthusiasm: The role of school climate, teacher efficacy, and teacher leadership. *Current Psychology*, *43*(15), 13241-13254.

Appendices

Appendix A: Ethics approval letter

The University Of Sheffield.

Downloaded: 22/04/2024
Approved: 22/04/2024

Eleanor White
Registration number: 220110460
School of Education
Programme: Doctorate in Educational and Child Psychology

Dear Eleanor

PROJECT TITLE: How do school staff members understand the Forest School experience for children and young people with Profound and Multiple Learning Disabilities (PMLD)?
APPLICATION: Reference Number 058899

On behalf of the University ethics reviewers who reviewed your project, I am pleased to inform you that on 22/04/2024 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 058899 (form submission date: 19/04/2024); (expected project end date: 30/08/2025).
- Participant information sheet 1133210 version 2 (19/04/2024).
- Participant information sheet 1133211 version 2 (19/04/2024).
- Participant consent form 1133212 version 2 (19/04/2024).
- Participant consent form 1133213 version 2 (19/04/2024).

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.

Your responsibilities in delivering this research project are set out at the end of this letter.

Yours sincerely

James Bradbury
Ethics Administrator
School of Education

Please note the following responsibilities of the researcher in delivering the research project:

- The project must abide by the University's Research Ethics Policy: https://www.sheffield.ac.uk/research-services/ethics-integrity/policy
- The project must abide by the University's Good Research & Innovation Practices Policy: https://www.sheffield.ac.uk/polopoly_fs/1.671066!/file/GRIPPolicy.pdf
- The researcher must inform their supervisor (in the case of a student) or Ethics Administrator (in the case of a member of staff) of any significant changes to the project or the approved documentation.
- The researcher must comply with the requirements of the law and relevant guidelines relating to security and confidentiality of personal data.
- The researcher is responsible for effectively managing the data collected both during and after the end of the project in line with best practice, and any relevant legislative, regulatory or contractual requirements.

Appendix B: Participant recruitment poster 1

Do you support young people with PMLD to access Forest School?

Research participants required!

Aims of the Research:

The research aims to find out more about the Forest School experience for children and young people with PMLD. It is hoped that this will support other schools to facilitate Forest Schools for more children with PMLD to increase their access to outdoor experiences, as well as developing the knowledge of Educational Psychologists in the field of PMLD and associated provision.

What would taking part in the research involve?

- I would like to join in with one class of young people with PMLD at Forest School for approximately 4-5 sessions, spending time with the young people and immersing myself in the experience. I will write observations and record some videos and/or photographs of interactions and activities.
- At the end of the sessions, I would like to collaborate with you as staff members to develop an interpretation of the videos and/or photographs, to hear your perspectives on what was happening and what this might mean for the experience of the young person.
- I would also like to find out more about your thoughts on the Forest School experience, and the impact of/barriers to this for young people with PMLD, through either an interview or a focus group.

If you are interested in taking part or would like some more information, please contact:

Ellie White
Trainee Educational Psychologist at The University of Sheffield
erwhite1@sheffield.ac.uk

Appendix C: Participant recruitment poster 2

Do you support young people with PMLD to access outdoor experiences, such as a Forest School, Beach School, or Sensory Garden?

Research participants required!

Aims of the Research:

The research aims to find out more about outdoor multisensory experiences for children and young people with PMLD. It is hoped that this will support other settings to facilitate Forest Schools, Beach Schools, Sensory Gardens, and other outdoor opportunities for more children with PMLD to increase their access to outdoor experiences. Additionally, this research aims to develop the knowledge of Educational Psychologists in the field of PMLD and associated provision.

What would taking part in the research involve?

Taking part in the research would involve participating in an interview with myself, or, depending on your availability and participant numbers, a focus group alongside some other practitioners who also facilitate outdoor experiences for young people with PMLD. This process would last for *approximately one hour*, and would aim to explore:

- **What can outdoor provision for young people with PMLD look like?**
- **What is the capacity of these outdoor environments to create multisensory experiences?**
- **What do you think the impact of these outdoor experiences is for young people with PMLD?**
- **Are there any barriers to young people with PMLD accessing outdoor experiences? How could these be overcome?**

At the end of the research, you will receive an overview of the analysed findings. If involved in a focus group, this may also be an opportunity for network building with other practitioners interested in this field.

If you are interested in taking part or would like some more information, please contact:

Ellie White Dumbrell
Trainee Educational Psychologist at The University of Sheffield
erwhite1@sheffield.ac.uk

Appendix D: Practitioner information sheet

The University Of Sheffield.

Participant Information Sheet for Practitioners

Research questions:

- How do practitioners facilitate and understand outdoor experiences for children and young people with Profound and Multiple Learning Disabilities (PMLD)?
- What do practitioners believe is the potential of outdoor environments for creating multisensory experiences for children and young people with Profound and Multiple Learning Disabilities (PMLD)?
- What do practitioners feel is the impact of and barriers to accessing outdoor multisensory experiences for children and young people with Profound and Multiple Learning Disabilities (PMLD)?

Hello!
You are being invited to take part in a research project. Before you decide whether you would like 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 discuss it with others if you wish. Please ask if there is anything that is not clear or if you would like more information. Take time to decide whether you wish to take part.

Why is this research taking place?
I am currently in Year 3 of the Doctorate in Educational and Child Psychology at The University of Sheffield. As part of this course, I am required to complete a research study. I have decided to explore outdoor multisensory experiences for young people with PMLD, as this is an area that I have previously worked in and valued. Children with PMLD often miss out on these opportunities due to a number of barriers, and so I would like to explore how and why this can be facilitated for them in order to increase equal access to the outdoor experiences.

Why have I been asked to take part?
I am aiming to speak to practitioners who support children and young people with PMLD to access outdoor experiences. This might be through a Forest School, Beach School, Sensory Garden, or other outdoor provision. I would like to find out more about your experiences and perceptions of this.

It is up to you to decide whether or not to take part. If you do decide to take part, please contact Ellie White Dumbrell on erwhite1@sheffield.ac.uk for further information. You will be asked to sign a consent form and you can still withdraw at any time without any negative consequences. You do not have to give a reason. You can also choose to withdraw your information or any contributions after the research has taken place. If you wish to withdraw from the research, please contact Ellie White. Please note that that by choosing to participate in this research, this will not create a legally binding agreement, nor is it intended to create an employment relationship between you and the University of Sheffield.

What will I need to do?
Taking part in the research would involve participating in an interview with myself, or, depending on your availability and participant numbers, a focus group, alongside other practitioners who also facilitate outdoor experiences for young people with PMLD. This process would last for approximately one hour and will aim to explore:

- What can outdoor provision for young people with PMLD look like?
- What is the capacity for multisensory experiences in these outdoor environments?
- What do you think the impact of these outdoor experiences is for young people with PMLD?
- Are there any barriers to young people with PMLD accessing outdoor experiences? How could these be overcome?

At the end of the research, you will receive an overview of the analysed findings.

What are the possible benefits of taking part?

- Support other settings to facilitate Forest Schools, Beach School, Sensory Gardens, and other outdoor opportunities, so that more children with PMLD can access outdoor experiences.
- Help to develop the knowledge of Educational Psychologists in the field of PMLD and associated provision.
- If involved in a focus group, this may also be an opportunity for network building with other practitioners interested in this field.

What are the possible risks of taking part?
It is not anticipated that there are any direct risks to participant safety when taking part in this research. It could be possible that participants may become distressed if discussing the complex needs of the young people they support, and the barriers this may create for them. If this happens, participants will be able to have a break or leave the discussion at any time, and will be offered the opportunity for a debrief with the researcher afterwards.

What will happen to my data? How will recorded media be used? What about the results of the research project?
All data will be pseudonymised (you will be given another name so that we can keep your input anonymous). Only the researcher will listen to audio recordings of the interviews and/or focus groups. No one outside of the project will have access to the original recordings.
The results of the research will be reported as part of my written thesis and presented at The University of Sheffield. It could also be published in a peer-reviewed academic journal. All participants will be informed of the research outcomes.

Confidentiality
All the information that we collect about you during the course of the research will be kept strictly confidential and will only be accessible to members of the research team. You will not be able to be identified in any reports or publications unless you have given your explicit consent for this. If you agree to us sharing the information you provide with other researchers (e.g. by making it available in a data archive) then your personal details will not be included unless you explicitly request this. Please be aware that if any information is shared that the researcher/s feel may pose a safeguarding risk to any of the participants or their families, this information will need to be shared with the Designated Safeguarding Contact within the research team.

What is the legal basis for collecting my data?
According to data protection legislation, we are required to inform you that the legal basis we are applying in order to process your personal data is that 'processing is necessary for the performance of a task carried out in the public interest' (Article 6(1)(e)). Further information can be found in the University's Privacy Notice https://www.sheffield.ac.uk/govern/data-protection/privacy/general.
As we will be collecting some data that is defined in the legislation as more sensitive, we also need to let you know that we are applying the following condition in law: that the use of your data is necessary 'for archiving purposes in the public interest, scientific research purposes or statistical purposes' (9(2)(j)).

Who is organising and funding the research?
This research will be conducted by Ellie White (Trainee Educational Psychologist) via The University of Sheffield, and has no funding attached.

Who is the data controller?
The University of Sheffield will act as the Data Controller for this study. This means that the University is responsible for looking after your information and using it properly.

Who has ethically approved this research project?
This project has been ethically approved via the University of Sheffield's Ethics Review Procedure, as administered by the School of Education department.

What if something goes wrong and I wish to complain about the research or report a concern or incident?
If you are dissatisfied with any aspect of the research and wish to make a complaint, please contact the Designated Safeguarding Contact, Dr Rob Begon [r.begon@sheffield.ac.uk] in the first instance. If you feel your complaint has not been handled in a satisfactory way you can contact the Programme Leaders for the Doctorate in Educational and Child Psychology [Dr Penny Fogg p.fogg@sheffield.ac.uk or Dr Sahaja Davis t.s.davis@sheffield.ac.uk] or the Head of School of Education [Dr Rebecca Lawthom r.lawthom@sheffield.ac.uk]. If the complaint relates to how your personal data has been handled, you can find information about how to raise a complaint in the University's Privacy Notice: https://www.sheffield.ac.uk/govern/data-protection/privacy/general.

For further information or to ask any questions, please contact Ellie White Dumbrell on erwhite1@sheffield.ac.uk.

Thank you very much for reading this information and considering taking part in this research!

Appendix E: Parent/carer information sheet

The University Of Sheffield.

Participant Information Sheet (Parents/Carers)

Research questions:

- How do staff members understand the Forest School experience for children and young people with Profound and Multiple Learning Disabilities (PMLD)?
- What do staff members perceive is the potential of Forest Schools in creating multisensory experiences for children and young people with Profound and Multiple Learning Disabilities (PMLD)?
- What are the perceptions of staff members of the impact of and barriers to Forest Schools for children and young people with Profound and Multiple Learning Disabilities (PMLD)?

Hello! Your child's school are being invited to take part in a research project. Before you decide whether you would like your child 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 discuss it with others if you wish. Please ask if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish your child to take part. Thank you for reading this.

Why is this research taking place?

I am currently in Year 2 of the Doctorate of Educational and Child Psychology at The University of Sheffield. As part of this course, I am required to complete a research study. I have decided to explore the Forest School experience for young people with PMLD as this is an area that I have previously worked in. Children with PMLD often miss out on these opportunities due to a number of barriers, and so I would like to explore how and why this can be facilitated for them in order to increase access to the Forest School experience.

Why been asked to take part?

I am aiming to recruit one specialist school who facilitate the Forest School experience for children who could be understood as having Profound and Multiple Learning Disabilities (PMLD). Your child attends a school who has expressed interest in taking part.

It is up to you to decide whether or not you would like your child to take part. If you do decide to take part, please contact Ellie White on erwhite1@sheffield.ac.uk for further information. You will be asked to sign a consent form and you can still withdraw at any time without any negative consequences. You do not have to give a reason. You can also choose to withdraw your and your child's information or any contributions after the research has taken place. If you wish to withdraw from the research, please contact Ellie White. Please note that that by choosing to participate in this research, this will not create a legally binding agreement, nor is it intended to create an employment relationship between you and the University of Sheffield.

What will the research involve?

I would like to join in with the Forest School experience with your child and their class, alongside staff members, for approximately 5 sessions. I will write observations of the experience and record some videos and/or photographs of activities and interactions. During this time, staff and children will just be asked to do what they would normally do at Forest School. After the session, I will work with staff members to interpret the videos and/or photographs to hear their perspectives on what was happening and what this means for the experience of the young people. At the end of my observations, staff members will be asked if they would like to take part in one focus group, lasting approximately one hour, with other staff members, to discuss their thoughts on the impact of and barriers to the Forest School experience for young people with PMLD.

What are the possible benefits of taking part?

It is hoped that the research will provide a voice to young people with PMLD to support others to understand their experience. It is also hoped that this will support other schools to facilitate the Forest School experience for children with PMLD and increase their access to equal opportunities.

What are the possible risks of taking part?

It is possible that having an unfamiliar researcher joining the Forest School experience may cause some distress to some young people. I will ensure that I work closely with staff members and if it appears that any child would like for the research to end, data collection will pause immediately, and only resume if and when the young people are ready for this.

What will happen to my child's data? How will recorded media be used? What about the results of the research project?

All data will be pseudonymised (your child, their school and staff members will be given another name so that we can keep your input anonymous). Only the researcher and staff members involved in the research will view the video recordings for analysis and understanding purposes. No videos and/or photos be included in the written thesis or any subsequent presentations or publications. Only the researcher will listen to audio recordings of the interpretation discussions. No one outside of the project will have access to the original recordings.

The results of the research will be reported as part of my written thesis and presented at university. It may also be published in a peer-reviewed journal. All participants will be informed of the research outcomes. I will also aim to share the results with the young people who were involved in a way that will be accessible to them, for example through a sensory story or video.

Confidentiality

All the information that we collect about you/ your child during the course of the research will be kept strictly confidential and will only be accessible to members of the research team. You will not be able to be identified in any reports or publications unless you have given your explicit consent for this. If you agree to us sharing the information you provide with other researchers (e.g. by making it available in a data archive) then your personal details will not be included unless you explicitly request this. Please be aware that if any information is shared that the researcher/s feel may pose a safeguarding risk to any of the participants or their families, this information will need to be shared with the Designated Safeguarding Contact within the research team.

What is the legal basis for collecting my data?

According to data protection legislation, we are required to inform you that the legal basis we are applying in order to process your personal data is that 'processing is necessary for the performance of a task carried out in the public interest' (Article 6(1)(e)). Further information can be found in the University's Privacy Notice https://www.sheffield.ac.uk/govern/data-protection/privacy/general.

As we will be collecting some data that is defined in the legislation as more sensitive (information about ...), we also need to let you know that we are applying the following condition in law: that the use of your data is necessary 'for archiving purposes in the public interest, scientific research purposes or statistical purposes' (9(2)(j)).

Who is organising and funding the research?

This research will be conducted by Ellie White (Trainee Educational Psychologist) via The University of Sheffield, and has no funding attached.

Who is the data controller?

The University of Sheffield will act as the Data Controller for this study. This means that the University is responsible for looking after your information and using it properly.

Who has ethically approved this research project?

This project has been ethically approved via the University of Sheffield's Ethics Review Procedure, as administered by the School of Education department.

What if something goes wrong and I wish to complain about the research or report a concern or incident?

If you are dissatisfied with any aspect of the research and wish to make a complaint, please contact the Designated Safeguarding Contact, Dr Rob Begon [r.begon@sheffield.ac.uk] in the first instance. If you feel your complaint has not been handled in a satisfactory way you can contact the Programme Leaders for the Doctorate in Educational and Child Psychology [Dr Penny Fogg p.fogg@sheffield.ac.uk or Dr Sahaja Davis t.s.davis@sheffield.ac.uk] or the Head of School of Education [Dr Rebecca Lawthorn r.lawthorn@sheffield.ac.uk]. If the complaint relates to how your personal data has been handled, you can find information about how to raise a complaint in the University's Privacy Notice: https://www.sheffield.ac.uk/govern/data-protection/privacy/general.

For further information, please contact Ellie White on erwhite1@sheffield.ac.uk.

Thank you very much for reading this information and considering taking part in this research!

Appendix F: Practitioner consent form

Main Research Question - How do school staff members understand Forest School experience for children and young people with Profound and Multiple Learning Disabilities (PMLD)?

Participant Consent Form (School Staff)

Please tick the appropriate boxes	Yes	No
Taking Part in the Project		
I have read and understood the project information sheet. (If you will answer No to this question, please do not proceed with this consent form until you are fully aware of what your participation in the project will mean.)	☐	☐
I have been given the opportunity to ask questions about the project.	☐	☐
I understand that video/audio recordings and/or photographs may be taken of my child during data collection in order to understand the Forest School experience. These will only be viewed by the researcher, research supervisor and school staff members. No one else will have access to the recordings and/or photographs. They will not be published or disseminated in any written work or presentation of the research.	☐	☐
I understand that by choosing to participate as a volunteer in this research, this does **not** create a legally binding agreement nor is it intended to create an employment relationship with the University of Sheffield.	☐	☐
I understand that my taking part is voluntary and that I can withdraw from the study at any time. I do not have to give any reasons for why I no longer want to take part and there will be no adverse consequences if I choose to withdraw.	☐	☐
How my information will be used during and after the project		
I understand my personal details such as name, phone number, address and email address etc. will **not** be revealed to people outside the project.	☐	☐
I understand and agree that my words may be quoted in publications, reports, web pages, and other research outputs. I understand that I will not be named in these outputs unless I specifically request this.	☐	☐
I understand and agree that other authorised researchers will have access to this data only if they agree to preserve the confidentiality of the information as requested in this form.	☐	☐
I understand and agree that other authorised researchers may use my data in publications, reports, web pages, and other research outputs, only if they agree to preserve the confidentiality of the information as requested in this form.	☐	☐
I give permission for the information that I provide during data collection to be deposited in a secure Google Drive, only accessible to the researchers and their supervisor, so it can be used for future research and learning.	☐	☐
So that the information you provide can be used legally by the researchers		
I agree to assign the copyright I hold in any materials generated as part of this project to The University of Sheffield.	☐	☐

Name of participant [printed]: Signature: Date:

Name of Researcher [printed]: Signature: Date:

Project contact details for further information:

Researcher:	**Research supervisor:**
Ellie White (erwhite1@sheffield.ac.uk)	Dr Rob Begon (r.begon@sheffield.ac.uk) **Course Directors:** Dr Penny Fogg (p.fogg@sheffield.ac.uk), Dr Sahaja Davis (t.s.davis@sheffield.ac.uk)

The template of this consent form has been approved by the University of Sheffield Research Ethics Committee and is available to view here: https://www.sheffield.ac.uk/research-services/ethics-integrity/policy/further-guidance

Appendix G: Parent/carer consent form

Main Research Question – How do school staff members understand Forest School experience for children and young people with Profound and Multiple Learning Disabilities (PMLD)?

Participant Consent Form (Parents/Carers)

Please tick the appropriate boxes	Yes	No
Taking Part in the Project		
I have read and understood the project information sheet. (If you will answer No to this question, please do not proceed with this consent form until you are fully aware of what participation in the project will mean.)	☐	☐
I have been given the opportunity to ask questions about the project.	☐	☐
I understand that video/audio recordings and/or photographs may be taken of my child during data collection in order to understand the Forest School experience. These will only be viewed by the researcher, research supervisor and school staff members. No one else will have access to the recordings and/or photographs. They will not be published or disseminated in any written work or presentation of the research.	☐	☐
I understand that by choosing to participate in this research, this does **not** create a legally binding agreement nor is it intended to create an employment relationship with the University of Sheffield.	☐	☐
I understand that taking part is voluntary and that I can withdraw my child from the study at any time. I do not have to give any reasons for why I no longer want to take part and there will be no adverse consequences if I choose to withdraw.	☐	☐
How my information will be used during and after the project		
I understand my personal details such as name, phone number, address and email address etc. will **not** be revealed to people outside the project.	☐	☐
I understand and agree that other authorised researchers will have access to this data only if they agree to preserve the confidentiality of the information as requested in this form.	☐	☐
I understand and agree that other authorised researchers may use my data in publications, reports, web pages, and other research outputs, only if they agree to preserve the confidentiality of the information as requested in this form.	☐	☐
I give permission for the information that I provide during data collection to be deposited in a secure Google Drive, only accessible to the researchers and their supervisor, so it can be used for future research and learning	☐	☐
So that the information you provide can be used legally by the researchers		
I agree to assign the copyright I hold in any materials generated as part of this project to The University of Sheffield.	☐	☐

Name of participant [printed]: Signature: Date:

Name of Researcher [printed]: Signature: Date:

Project contact details for further information:

Researcher:	**Research supervisor:**
Ellie White (erwhite1@sheffield.ac.uk)	Dr Rob Begon (r.begon@sheffield.ac.uk) **Course Directors:** Dr Penny Fogg (p.fogg@sheffield.ac.uk), Dr Sahaja Davis (t.s.davis@sheffield.ac.uk)

The template of this consent form has been approved by the University of Sheffield Research Ethics Committee and is available to view here: https://www.sheffield.ac.uk/research-services/ethics-integrity/policy/further-guidance

Appendix H: Field notes from participant observation (Sensory Garden)

Participant Observation Field Notes - Sensory Garden
Date and time: 11.11.2024 1-3pm
Location: Sensory Garden within the site of a specialist school

Before meeting the young people at the school, I was given a tour of the Sensory Garden and outdoor area by the Outdoor Learning Lead. This is a reasonably new space that opened two years ago after a period of fundraising to develop it. The Sensory Garden sits in a quiet corner just past the school's playground surrounded by tall trees. There is a curved bench around the edge, overlooking some raised planters that are accessible for young people in wheelchairs to reach out to. In the planters are a range of herbs and plants that have been chosen due to their sensory properties, such as lavender and jasmine for smell, soft angel wings for touch, and brightly coloured flowers for to look at. There is a water fountain that again is at wheelchair height to support children to reach out and feel the running water, and is also made out of mirrored material so they can see their reflection. Different areas provide either light or shade, depending on whether you are out by the planters or underneath the trees. Wind chimes hang from a pergola to add noise to the breeze, and various textures are laid on the floor to create different feelings when moving over them either on foot or by wheelchair. There is also a grassed area and some space nearby for a campfire. The space is very quiet, and so the only sounds to be heard are the wind rustling through the surrounding trees and chimes, the birds singing overhead, and the running water of the fountain.
The first class of children join us in the Sensory Garden. There are seven children who are aged between 6-10 and who all have PMLD. They are all wheelchair users and all but one are pre-verbal, with one child able to speak some single words. The class gather around the garden and the staff began to sing an Autumn song as a signifier that they were beginning their outdoor time. The staff were drawing attention to elements around them throughout the song, for example touching the children's hats when singing about them to provide sensory stimulation and relevance to their real life. They also sang about Autumn leaves, and picked up lots of leaves that had fallen to the ground from the trees above and placed them in the laps of each child. Some children immediately reached out and grabbed the leaves and began to crunch them and put them in their mouths for sensory seeking. Others did not or were not able to do this, and so staff members picked them up and tickled their hands and face with them. One child made a loud single vocalisation. I asked what this meant and was told that he usually makes that sound at the beginning of a new sensory activity, to show his engagement.
Another staff member begins to crunch the leaves near a young person's ear. The child alerts to this and turns their head to face them, smiling. The staff member smiles back. They stop crunching the leaves and the child stops smiling. The staff member also stops and asks, "more?" and then waits a few seconds. The child

makes a quiet vocalisation, and the staff members copies this and begins to crunch them again. The child again smiles showing that they liked it.
One child was not engaging in the song or leaves at all and was not looking at anybody around them. A staff member noticed this, and supported her to get out of her wheelchair; it was explained to me that this child is the most mobile in the group and able to move around on her hands and knees. She was initially kneeling on the rubber tarmac area and still did not seem to be overtly responding to her environment. The staff member then sat on the grassed area and encouraged her to come and join her. The child noticed this, and moved over to be near the staff member. The moment her hands and knees touched the grass, her face changed completely and she gave a huge grin. She ran her hands over the grass smiling and looked at the staff member, who said, “does that feel nice?” The child continued to move around the grass and began to make short high-pitched vocalisations. I asked the staff member what those noises meant, and was told that she makes them when she is excited and happy. The child began to clap her hands and bounce up and down on her knees. Again, I was told that this is a sign that she is enjoying herself. She then moved over to a stoney floored area, and as she felt this, her face changed again to clearly show a dislike for the feel of the floor. She turned and made her way back to the grass where she again smiled, showing her strong preferences and making choices of where she wanted to be. I joined them on the grass and commented how different the child appears now compared to when she was in her wheelchair. The staff member told me that she is always much more engaged when she is out on the floor, but that it can be hard to do this in the classroom due to hazards and the other wheelchairs moving around her, compared to the open space they have in the Sensory Garden. At this point, the child reached out to touch the face of the staff member, who did this back to her, starting a process of Intensive Interaction. I sat back and observed as these two people lay in the grass connected with each other, together in their outdoor space.
Across the garden, a child near the planters turned their head and appeared particularly drawn to the brightly coloured pink flowers. As they reached out to touch them, their hand brushed past the angel wings. They moved back to touch these again, suggesting that they liked the soft texture of them. Next to this was the lavender. They brushed their hand through it and a scent was released. The child pulled their head back at this smell and made a deep vocalisation. The staff member built on this, asking them, “What do you think of that?”, but the child went back to touching the soft leaves.
Another class came to join the Sensory Garden. These were slightly older children aged between 11-15, but also all had identified primary needs of PMLD and were all wheelchair users. As they entered the garden one young person immediately turned to face the water fountain and reached their hand out. The staff member pushing their chair noticed this and turned to push them over to the fountain. The young person reached into the fountain and appeared engaged by the sound of it and the look of their reflection. The staff member did not directly take part or interact, but just initially stood back. The child banged their hand on the fountain repetitively and

made loud vocalisations. I asked the staff member about this, who told me that the fountain is one of this child's favourite parts of the garden and he always reaches out to go there first. They explained that he is very drawn to sound stimulation and so likes the sound of the fountain alongside the banging of his hands, which leads to his vocalisations that he was making that told the staff he was happy. I discussed how great it was that he could so strongly indicate his preference of where he wanted to be in the garden and what he wanted to engage in.
A child sat in their wheelchair is watching a few birds in the trees above us, hopping between branches and singing. Their eyes track the movement of the birds and I mention that they seem engaged in this, which staff members agree. One of the staff reclines the child's wheelchair slightly so that they can face the trees more easily, and they appear calm and relaxed whilst they look up through the leaves. At one point, a beam of sunlight comes through branches and shines on their face; they initially react by squinting and turning away, before turning back to face the light. They close their eyes and sit with the sun on their face. A staff member notices and asks them if that "feels nice and warm". The child doesn't show a response but continues to sit seemingly enjoying the sun.

Another of the children has been supported out of their wheelchair and is on the floor by the planters, feeling the dirt with their fingers and digging their nails into it. Another staff member sits with them and does the same thing, but doesn't say anything or directly interact, they are just with each other. The child suddenly makes multiple loud and high pitched vocalisations. I ask what this means and the staff member tells me that is their happy noise and that they are showing they are having a good time.
I notice another child in their chair is watching this and I engage with them about it. The staff member says I can put some soil onto their tray, and so I pick some out of the planter and place it across their tray. They immediately put their hand into it and squeeze it between their fingers. I do this too. We do this together for a minute and the child then blows some raspberries. Staff members tell me that again this is their happy noise, but that they don't hear it very often. I ask if they have heard it before outdoors and they tell me that it is one of the only places they do hear it. I continue to be with the child feeling the soil for a while, blowing raspberries together.
The child who was previously out on the grass has now moved over to a bush at the edge of the garden. They begin flicking the leaves and branches with their hands up and down. Whilst they do this, they vigorously bounce up and down on their knees and make a repetitive squeaking noise. Staff tell me that this child will often make those movements and sounds during sensory activities and when they are becoming stimulated. I asked if it is a positive sign or a sign of overstimulation; they replied that it is a positive sign as it shows they are engaged, interactive, and paying attention to something, but they would usually monitor them to ensure they don't become overstimulated and step in to support them to move onto another activity if they feel it is needed.

The third class now joined the Sensory Garden as others have left to go back inside. As I go to meet them, I pass by another child and hear them say “cold” to the staff member nearby them, who reponds to this by covering them with a blanket. This provided a good example of how the natural sensory experiences of being outdoors can provide stimulation that encourage communication and accessing their wants and needs.

The staff of the third class pick up lots of the Autumn leaves around them and place them in the laps of the young people. Some reach out to touch them, whilst others don’t. For one child who hasn’t looked at or interacted with the leaves, the staff member picks them up and throws them up into the air so that they fall down around them. The first time, nothing happens. She does it again and makes a ‘oooooh’ sound, and this time the child looks up and sees the leaves falling, following them with their eyes down to the ground. The staff member does it a third time and again the child watches. The staff member then places the leaves back into the child’s lap, and they immediately pick one up and press it into their face. The staff member laughs and the child smiles with them.

It is almost the end of the school day, and the young girl who has been out of her chair now needs to get back into her chair to get ready for home. Two staff members are with her using visuals for ‘home’ to support her understanding. As they move to transition her back into her chair, she resists and begins to cry, showing that wants to stay outside and on the floor and suggesting that she has enjoyed her time out in the Sensory Garden. Another staff member comes over to comfort her and also uses visuals to support. They are eventually able to support her to get into her wheelchair and the group sings another song to signify the end of the session. Most of the children seem engaged in the song, more so than when I’d observed them just being spoken to - maybe the rhythm of the singing supports this engagement.

Many of the activities that have been taking place are child-led rather than designed by adults, in particular for those who are able to be on the floor out of their wheelchairs. They are left to explore their environment and staff build on these explorations by commenting and joining in, often using intensive interaction techniques. For the children remaining in their wheelchairs, it is more adult-led due to staff choosing the items to go on their trays or laps rather than them being able to explore independently, however they are still free to engage with their surroundings through sight, smell, and sound, and pay attention to what they choose. Staff pay attention to what the children appear to be drawn to and work hard to support them to access this in ways they are able to by supporting movement towards where their gaze or hand may fall and encouraging further engagement and exploration.

This is also reflected in the interview that took place at the end of these observations with the Outdoor Learning Lead.

Appendix I: Field notes from participant observation (Forest School)

Participant Observation Field Notes - Forest School
Date and time: 25.06.2024 10-11am
Location: Forest school close by to specialist school site - 5 minute walk from school building.

I visit the classroom first on my arrival to school. The class consists of six children who all have PMLD, and are aged between 8 and 11 years old. All children are wheelchair users and pre-verbal, with many also experiencing significant health and medical needs. There are six staff members in the class, consisting of the class teacher and five teaching assistants. I wait with them in the classroom whilst the staff get them ready to go out and nurses finish off feeding and giving medication. This takes time and so there is a lot of waiting around for some of the children, so I engage with them to introduce myself and learn their names.
Whilst still in the classroom, the teacher plays forest sounds through the interactive whiteboard as a sound signifier to let the children know that it is time for Forest School. The young person that I am engaging with notices this and turns their head towards the speaker. A staff member sees them do this and jokes with them that it is their “favourite time”.
Once everybody is ready, we start to make our way outside. It is a warm day with bits of sun peeking through the clouds, however some of the children still need to be wrapped up in coats and blankets due to their health needs. The Forest School is a five minute walk from the school building. We arrive at the gate to the Forest School and I hold this open for everybody to move through. Once inside, we are within a small woodland area. The space is calm and quiet, with the sound of the distant traffic heard from school no longer apparent. The only sounds are the wind rustling through the leaves on the trees, and some gentle birdsong.
There are multiple bark pathways through the trees. We take one and start to move through the woodland. A staff member tells me that the paths have been purpose built to be wheelchair-friendly. There are still some tree roots poking through, and as the wheelchairs bump over them one of the children makes a squealing noise and the staff laugh and ask them “is that bumpy?”. There are trees and bushes on either side of the path and another child moves their hand out to touch the leaves as they pass by. We walk through the path for a couple of minutes and then come to a clearing. There are log benches in a circle around a space for a campfire, with trees rising up around it. There are smaller plants and flowers growing directly within the clearing, with the floor made up of natural dirt, some bark patches, and a few fallen leaves. You can distantly hear the sound of traffic from a nearby road, but it is mostly a calm and quiet environment.
Staff move the wheelchair around the clearing. The children have had a tray put onto their chairs so that staff can place objects on there for them to interact with, firstly some small branches with leaves on. One child instantly sweeps them off their tray onto the floor, and the staff member laughs with them. Another child picks one up

and puts it into their mouth for some oral sensory seeking. I ask about this and the staff tell me that they make sure all of the plants growing in the woodland are non-toxic as this is a regular occurrence. Another child has not yet interacted with the branches, and so a staff member goes to them and picks it up for them and slowly tickles their cheek with it before stopping. The child makes a quiet vocalisation and the staff member says, “again?” before tickling their cheek again. The child again vocalises and turns their cheek closer to the branch, which the staff member mirrors. Later I asked what this meant, and the staff member told me that the quiet type of vocalisation and turning towards the branch showed that they liked it and wanted them to carry on.

I notice one of the children has had their attention drawn by something up in the trees, and I follow their gaze. There is a bird above hopping along the branches; the young person seems fascinated by this and their eyes are tracking its movements. I engage with them about this, and another staff member comes to recline their wheelchair so that they can have a better view. At this, the child makes a low humming noise whilst still following the squirrel, which staff tell me is a content sort of vocalisation. She remains in this position following the squirrel and the movement of the leaves whilst humming for a few minutes; when she stops humming, staff take this as communication that she has finished engaging with this, and move on.

There is a small box of wooden instruments in the clearing. The staff member opens it up and takes a couple out, and begins playing them. The child next to her is busy holding and mouthing a branch, but turns her head towards the noise. She is quiet at first, but then begins to loudly vocalise alongside the music. The staff member says, “are you singing along?” I later ask what the head turn and vocalisation might have meant, and was told that the child really enjoys music and that the head turn showed engagement and attention, whilst the vocalisation was “not necessarily happy but just showing that she’s being there, joining in”. They tell me that they engage more with music when outside as there are less distractions around them and they are less likely to become overwhelmed by the noise due to being in such a calm environment.

For the majority of the session, all children appeared happy and regulated with no instances of distress. I asked if this is usual, and staff explained that the children usually are at one of their most calm and relaxed states whilst in the Forest School. I wondered why that was, and staff expressed that the natural environment supports it. It’s quiet and they are free to explore and just be in ways that don't often happen within the classroom.

Children were then supported back into their chairs and began to walk back to the school. Staff told me that once back in class, they would have to clean everybody up and move them into their ‘indoor chairs’ for the rest of the day, which could take around 20 minutes each, again showing how time consuming and staff heavy Forest School can be. I asked if they felt it was worth it, and staff felt that it was, referencing the levels of engagement and movement that we had seen today.

Once back into the classroom, I said goodbye to everybody and ended the observation.

Appendix J: Guideline protocol for practitioner interview questions:

Practitioner Interview – example questions:

1) Can you tell me a bit about the type of outdoor provision you access with your young people?
   - What does it look like?
   - What resources do you have there?
   - On site/off site?
   - How regular?
   - Staffing?

2) What might a typical session look like?

3) Can you tell me a little bit about what you think this outdoor experience is like for your young people?

4) What do you think the young people think and feel about the outdoor provision?
   - What makes you think this?
   - Do they communicate this in a certain way?

5) Do you see potential for the outdoor environment to create multisensory experiences?
   - What does this look like?
   - Is there anything that you do to facilitate this, or is it naturalistic?
   - Does this differ to indoor multisensory experiences? How?

6) Do you see a different side to the young people whilst they are at/after being outdoors?
   - If so, what does this look like?
   - What might these changes mean/indicate?

7) What do you think the overall impact of accessing the outdoor provision is for your young people?

8) Why do you and/or others value this provision?

9) Are there any barriers to your young people accessing the outdoors?
   - How are these/could these be overcome?

10) What would you say to other practitioners who might like to support their young people with PMLD to access the outdoors, but may be wary of this or unsure where to begin?

11) Any other questions/comments…

Appendix K: Interview transcript 1 (Nancy)

Interview 1 Transcript – 30.10.2024

(Welcome and Intro)
E: Okay, brilliant. So should we maybe just start off with what you do at school? So could you just describe that sort of provision to me? For example what does it look like, how often do you do it, what sort of activities do you do?
N: So I work in a generic special school and I've got the class of PMLD complex needs. We've got an outdoor balcony area, it's recently been developed, probably 12 months ago to have a bit more on it for them. So, there's a sand pit, planters, a huge tree…
E: Right.
N: They've got some sound making things on the wall, textures, a tray for water play. so there's a lot more on it and a bit of shade finally because that was a big barrier until that got put in it was at the side of the school that just gets the sun…
E: Mhm. Right.
N: because they've been all wheelchair users. It was hard to get them out and not burn cuz they're not moving about so they were just burning.
E: Okay. Yeah.
N: So we had to really fight for some shade.
E: So, if you got sort of canopies up and stuff?
N: Yeah, we've got a big canopy that's like a circus tent thing now. Yeah, it's not quite the colors you'd have gone for, but yeah,…
E: So would you call that kind of like, a sort of a sensory garden sort of space?
N: It's probably more of a sensory garden now yeah.
E: Yeah.
N: But it's what we call our playground because we can't access the actual playground without one to one…
E: Okay. Right.
N: because it's on a slope and…
E: Yeah.
N: the wheelchairs can only be on it if they've got an adult to hold them so they don't roll away.
E: So that's a barrier for you?
N: Staffing in general. But our balcony, we can all go out and we only need class staff.
E: Okay. Right.
N: So, they've got more access now than they did 12 months ago.
E: That's good. Do you have sort of timetabled slots out there as well as just kind of going out as and when, or is it more just flexible when you access it?
N: They have the flexibility and we also have a set timetable of…
E: Mhm. Okay.

N: Once a week we have a specific outdoor session which some go out every week, some stay in because of parental preference.
E: Do you know why parents prefer them to stay in?
N: They think that the fresh air will make them poorlier.
E: Okay.
N: So it's all the cold weather.
E: Right. Yeah. Is it more of a seasonal thing?
N: So yeah, they're seasonal children,…
E: Right.
N: But these are the same children that don't go on school trips because they'll be with the public and germs.
E: So there's fear there, isn't there? Which is totally understandable from a parent's point of view.
N: Yeah. Yeah,…
E: But yeah, I suppose does that feel frustrating for you if you can see sort of the benefit?
N: It can do. Because you often see a child that genuinely does look really poorly in the classroom, but you get them outside and it just seems to perk them up, like the fresh air. And they seem happy and engage with you, and then that lasts for the rest of the day then, that effect. But if we just stay in cause we think they're too poorly then you don't see that difference. But if we can't go out, we bring it in.
E: What do you do to bring it in?
N: So we've just got lots of tuff trays or…little metal trays. and whatever we're doing outside, I'll just replicate it inside. They're not getting the fresh air,…
E: Okay. Yeah,…
N: but they're still touching the soil and the trees. We just make sure the parents are happier that it's warmer inside. Yeah.
E: That sounds good. So they're still accessing it but just in a bit of a different way, like an inside outside provision. You're kind of being creative, aren't you, to overcome those barriers to still help them to access it.
N: It is. And some staff think, "They're really poorly. You can't take them outside." But the kids want to be. You can see that they do once they get out there, but then they're covered in blankets.
E: Yeah. Right.
N: They're covered in every It's like, they're not actually feeling it now, so we might as well be inside.
E: And I suppose, does that stops some of their, if they are able to maybe move their arms and hands to touch things, that prevents that a bit as well does it?
N: Yeah, staff just worry.
E: Yeah maybe do you think staff are just a bit overprotective maybe because they're not sure…
N: I think. They've probably not really done it until I went in there.
E: That was very similar to me when I started. my class did not go to forest school until I started.

N: Yeah. Yeah.
E: And I think part of it was just that how do we do that? there's just so many barriers, right?
N: They can't access the forest school that school go to because it's not wheelchair accessible. But that's obviously the provisions like issue as such, rather than the children's. I think they're trying to make it accessible but it's just a money and…
E: Yeah. Yeah.
N: money time and having the materials to do that.
E: Yeah. Definitely. I think all schools are a bit short of money, aren't they at the minute? Okay.
N: Yeah, but a couple of them get to access horse riding outside, carriage riding in a wheelchair. Outside of school…
E: Sounds brilliant.
N: I don't know as much about that cuz I'm allergic to horses. So there's a barrier for me with that. But the kids go in six week blocks.
E: Yeah, that sounds good though.
N: So I think all of mine other than the children without permission to go outside go on that. It's like a wheelchair accessible carriage that they can get on and then horse sort of pulls them along.
E: So, it sounds like they're doing quite a few different things at different times.
N: Yeah
E: So when you've got your sort of timetabled hour session on the balcony area, what sort of activities do you usually do then?
N: So we've started going through the twinkle boost like story or…
E: Mhm. Yeah…
N: The activities and ideas that they went through. So in the summer term we did the Little Mermaid story from Twinkle Boost, but each week focused on a different part of the story with a different activity. So I don't know if you've seen much about the Twinkle Boost thing.
E: I've had a look at it. Yeah.
N: So you have two puppets that play the characters. So every character looks the same because it's the same two puppets every time. But the kids just love them.
E: Mhm. Okay.
N: But it's mainly building communication. So you start by saying hello to them and puppet goes around the circle saying hello to everyone in their own way, and then you have focus signs as well. So it also builds not so much my kids Makaton but the staff to use MaKaton in situations as such and learn different ones cuz you generally only use food drink in our class, but in the story we're using ones like magic bubbles and different things.
N: So, it keys the staff in and makes the staff take part as well cuz they get roles given whether they like it or not. So…
E: Mhm.
N: then it's mostly props. You read through the story, it's predictable because they know what's coming and then we specifically focus on one part. and the Little

Mermaid likes a treasure. So we had a treasure hunt around the sensory garden bit. So there was some things hidden in the sand pit for the ones that could access that independently to find and dig and then a few more obvious which our most independent child went straight for them ones. And I was like no yours are the ones that hidden please go don't take them for the one stop taking the easy ones.
N: But it gets them independently moving about if they can or encouraging them to use their eyes or gesture where they want to go to try and find something. And just to try and key staff to allow them that independence and…
E: Mhm yeah yeah.
N: time rather than it just push them past and go, "look, we've found a ball. Put it in your basket".
E: So it sounds like it's got lots of different benefits to it in terms of independence, communication, sensory.
N: Yeah. Yeah.
E: And then are you able to just tell me a little bit about Camp and the sorts of activities that you do there?
N: Camp is for whole families, if they've got a disabled child to go to. So they put a bid in to go and then it's whether you get accepted or not and I think they can take 30 families a summer but they get up to 300 applications so they've got to whittle it down and…
E: Right. Okay.
N: they try to make it so that you only get to do it once basically. so it's a once in lifetime thing for the child, but also for the family. Each volunteer has a different role, there's a group of family volunteers that are assigned to a family and then you're their staff member.
E: Yeah. Mhm. Yeah.
N: So, you can either take the children off or help the parents with the children. It just purely depends on the family. It's fully accessible, so the tents can get medical equipment delivered. So, if they need ventilators or anything, that all gets brought and plugged in. Changing places toilets too, which is a massive access thing.
N: So to be able to sleep in a tent overnight and have the changing places on hand is just like that's enough for our families to be like, " this is fine." But then we've got the activity volunteers that put on anything from a sensory story to getting in hammocks to pottery.
E: Ahh
N: Feeding animals. what else? There's literally no limit, like going to the beach. Get them up.
E: Yes. Yes.
N: They all get in the sea because they've got the equipment for the chairs.
E: I saw those adaptive wheelchairs that go on the beach and in the ocean. That just looked absolutely amazing to me.
N: Yeah. Yeah. So, any child can get in if they want to. They don't need to be held back by whatever equipment they normally use if that isn't allowed to get wet. There's enough people around to make it accessible. And it doesn't have to be the

parents taking them in. one family I supported this summer, the girl was physically disabled, and it just made me think like why am I doing this? Cuz you were up and…
E: Yeah. Yeah.
N: you get up that hill and she's like, I'm fine. and you think, "actually she can do it" and it was interesting to see it from a child's perspective that could tell me what she could do. And then she was like, "I want to get in the sea." And she was just like, "Yeah, surf me. I'm not bothered." out bam on the waves. We're like, "my god." At one point she nearly went under and she was like, "That was amazing." It's amazing, but needs three adults to float her in the sea. Mum and dad wouldn't have been able to do that on their own.
E: Yeah. Yeah. Exactly. And it's lovely to get that feedback from her as well…
E: Because I imagine a lot of the time when you're working with children with PMLD, you have to kind of just use what you know of them to think, "that looks like they're enjoying it or that looks like they're not enjoying it." …
N: Yeah. Yeah. Just guessing.
E: Yeah. What do you think the children who can't verbally tell you think about Camp and about the outdoor provision that you do at school?
N: I'd generally say they enjoy it in varying degrees, but I think that you can always tell which one's parents allow them to do that. Whereas at Camp, the parents will take them out because they wouldn't apply for it if they didn't think being outside was okay.
E: Mhm, okay.
N: So you know that those children are going to have had more experiences of the outside and more experiences in general than some of the children in class because they don't generally go anywhere. We get children from quite a disadvantage background in my school. So sometimes they'll have a lot of siblings, but won't actually get to go anywhere because there's too many. So they'll go different places but generally the child with PMLD won't be the one that goes anywhere.
E: Okay. So, they're only accessing it with you.
N: Yeah, so they're only ever going to the park with us or they're only ever going outside with us. Cause their gardens might not be accessible due to council adaptations.
E: Yeah
N: Yeah.
E: Yeah, but it just shows the importance of doing it in school though doesn't it? Because they might never be outside, accessing that, if not by the sounds of things.
N: So we've got a couple of parents that say, "Yeah. She loves outside, but we can't get her there."
E: Yeah. Yeah.
N: So, I think it's more that parents don't know what to do or where to go. And there's not many places that are accessible.
E: Mhm. Yeah.
N: At school, we've got a wheelchair swing, we've got a wheelchair roundabout, but how many playgrounds have that?

E: In a local park. Yeah. Not many. Yeah.
N: without having a car that you can go in.
E: And woodlands and forests and things often aren't wheelchair accessible, are they?
N: No. And nowhere's really got the accessible wheelchairs either.
E: No.
N: I know Scarborough Beach does, but again, you've got to be able to get there.
E: Yeah, they looked amazing.
E: So, how can you tell that the children enjoy it usually? What sort of things do you see?
N: You usually the facial expressions or just body language. Some that vocalize will probably do their happy vocalizations.
E: Right.
N: Some of ours are more engaged as well, one boy in particular, as soon as we hit outside, whether it's just taking him to the bus, he sticks his tongue out because it's just fresh air.
E: Ahh right.
N: He went horse riding and for the whole 20 minute ride on the carriage, just had his tongue out.
E: Do you think it's the feel of the fresh air?
N: The staff members were like, I've never seen him do that. I was like, no, he don't do it in class. But for some reason he goes outside and that is his response. It's got to be the feel and the taste of the air. Yeah. And I know he doesn't access it with parents cuz they've said themselves they struggle to get him and…
E: Yeah. Yes.
N: his siblings out.
E: So do you feel like you see a bit of a different side to some of the children when you're outside with them?
N: Yeah. Yeah.
E: I know I did as well. Like you say, more engaged, more kind of interactive, more wanting to do things and moving more. What sort of things do you see?
N: So, the more we've done the sessions, the more some have tried to get themselves out. So, if they've got a self-propelling wheelchair, they might not do it around school, but they will do it out of the classroom door onto the playground. And then while they're on the playground, they'll take themselves around or one that's just started walking will only crawl about in the classroom, but will walk outside. But we don't know if that's also the flooring cause it's that bouncy tarmac.
E: Right wow.
N: So, if he thinks it's safer or…
E: yeah. Yeah.
N: I don't know what it is, but he won't walk on the hard floor in the classroom,…
E: That's amazing though.
N: but he'll walk on the tarmac outside.
E: that's great.

E: And at Camp? I'm just thinking about children going on the beach and in the sea. I feel like for the majority of them, that's probably the first time they've ever done that. What sort of things do you usually see from them that might indicate whether they're enjoying it or not enjoying it?
N: So it's a bit more difficult to tell because we don't know them as well, but you have the family there and…
E: Yeah. Yeah. Mhm.
N: you get family feedback and they'll say yeah they really enjoyed that. And parents are quite open by the end, on the first day they're a bit like, "no, maybe not." But then when we get there and they see everyone getting in, they're like, "yeah, let's give it a go." And they're like, "they actually really liked that." we had one girl who had Rhett syndrome, so she had gone to not being able to move at all, the only thing she could do was squeeze your hand to say yes or no. …
E: Right.
N: And we were like, "Do you want to go in the sea?" And mom and dad were like, "she doesn't really like the cold and it's a bit cold." They'd got wet suits and they were well prepared. So they were happy to give it a go and for her to go in, but were like, "I don't know." And we said, "Do you want to go in?" And she didn't really answer us. So we thought, me and the other staff, we went, "we'll take her up right to the edge so she just gets it on her feet." And she just smiled. And mum and dad were just like, "We have not seen her smile in two years." And we were just like, wow…
E: Wow.
N: So it's just like the outdoors has opened her world up and just given her back to them for a bit.
E: Yeah, that sounds amazing.
N: It was just mad that just putting her toes in the freezing cold sea with the waves made a child smile, for the first time in two years. She's not done that for ages.
E: That's brilliant, really amazing.
N: Yeah.
E: It just shows us, I suppose, how I mean, in that situation, those parents were a bit unsure and maybe a bit wary, but they thought, "let's just give it a go anyway." And she surprised them and the reaction was different to what they expected, and it just shows how maybe parental concern might sometimes be stopping children from accessing that yeah…
N: Yeah. Yeah.
E: which is as I say totally understandable isn't it, but it's a bit shame.
N: They were fully prepared to get in themselves, and we never went all the way in, but just covering her feet was enough for her to experience it and get a response.
E: Yeah. It sounds like a lot of it is kind of related to sensory needs and sort of touching different things, listening to the waves or birds or the different temperatures. Do you feel like the outdoor environment is a really good space for those multisensory experiences for children with PMLD?

N: Yeah, you obviously can't predict it. But when you're outside, you've got every senses there for you to use. you also can't really limit which senses being used, but I think for me any response is a good response because they're showing that they're aware they're engaged and…
E: Yeah. Yeah.
N: it builds on everything really. So, …
E: So what sort of senses would be used in certain activities? Do you use certain activities to stimulate certain senses or how does that work?
N: I say, we try to focus in, we're trying to develop the planters so that they're a bit, we're developing the planters cuz the company that put them in, they've just obviously gone, "yeah, you've got sensory plants." And just put them anywhere. And we were like,…
E: Okay, very helpful. Right.
N: So we now have the more colorful plants in this one, for looking. Then you have the smelly plants in another and we use feely plants in another. So we're currently, between us that none of us are gardeners, trying to keep the plants alive by moving them about and organizing them. But we just want it to have a bit more of a focus on each sense, just to heighten the awareness of each sense even though you can't shut off any others while you're outside cuz you can't stop the birds or…
E: Yeah. Yeah.
N: the traffic or any or the bin men coming and shouting and everything, because the bins are really close to our balcony. So when they come it's a bit like not quite the natural environmental.
E: Unwanted sensory stimulation. Yeah.
N: Not exactly what you're wanting…
N: but sometimes even that gets a response cuz the odd ones might laugh when they hear those different voices. They might not know what they're on about, but we're just like, they're here again.
E: Okay. Yeah. So, lots of auditory system like either nice natural ones or…
N: Yeah. Yeah.
E: Yeah. Maybe less nice.
N: Yeah. All the local council.
E: Yeah. Mhm.
N: But you can't shut it out, but you can try and focus them into each sense.
E: How would you do that?
N: So we use touch cues. So, just tapping the nose to smell. we'll tap on the side of the eyes to try and focus. This is what you use for looking or…
E: Right. Okay.
N: ears for listening. And we might have use the drums that are on the side or the xylophone for listening or like just say, "you hear, can you hear this?" They might not know what, but we're just trying to focus them in on those other things that we can hear.
E: Yeah. Okay. Yeah.

N: Or just using our footsteps placing things on the ground for the wheelchairs to go over. yeah, we did want different flooring so that they could feel the different textures, but money. Yeah, money is a massive barrier.
E: Yeah, I bet.
N: We've been at the building 9 years and it took seven to even get a plan for our balcony…
E: Right. …
N: because the rest of school needed doing first because everybody could access it.
E: so before that was there just no outdoor space that they access.
N: It was just a blue piece of tarmac with a glass wall.
E: So, it wasn't sort of stimulating or interactive at all.
N: No, but it's still got the hideous blue tarmac,…
E: Right. Yeah.
N: but we've got huge wooden planters at wheelchair height, big textured panels on the wall again at wheelchair height, and a sand pit at floor level so we can hoist them out with a mobile hoist…
E: Okay. Yeah.
N: but that is the plan of why it was put in at summer, but again that's a weather issue.
E: Yeah. When you get to this time of year, a lot of that sort of thing needs to be put on hold a bit, doesn't it?
N: But I think it's also not under the canopy, so it does get a bit bogged the rain.
E: Yeah. Yeah.
N: Even though it's got a cover on, but it's just the potential we've got now to what we had this time last year with that outdoor area. I think in summer we'll see a massive difference and we'll be able to do more lessons out there. Even if it's not outdoor learning because once the weather's dry, everyone can go outside.
E: Yeah. Yeah. Just being outside makes a difference, doesn't it?
N: which is good.
E: And what about the sensory experiences at Camp? Are they different? What do they look like?
N: Similar-ish. So it's on a farm, it's not a working farm as such, but they do have donkeys, chickens, but it's just like a couple that own it and just do it because they do. And then they've given the farm up to Camp for them to have that space.
E: All right, that's good of them.
N: So there's a woodland area and they're still developing it all the time. so this year they had a labyrinth put in.
E: Okay.
N: And that was for anyone to use with but with the idea of you follow it round, leave your worries in the middle and then come back out cuz that's what a labyrinth is apparently. It's not a maze because you can't get lost in it. So, that was one thing that I learned there. It was all about the mindfulness and had a little seating area in the middle. You could use it at any time. So even in the night if you wanted a bit of quiet time you could go sitting there, obviously at your own risk with the bugs, but

there was that option for parents after lights out, quiet time for them to take themselves off and just have a bit of time that there's no limits to either…
E: Yeah. Yeah.
N: So obviously a couple of the dads might take themselves off down there at night. Even though they've never met each other, they've got something in common.
E: Just know that you're not on your own and there's people in the same boat as you.
N: Yeah, so in addition to the hammocks, it's given another space for parents to just take them off or…
E: Yeah. Yeah.
N: even us to take the children down. Children might not use it as that intention cuz they see it as a maze.
N: But you can get the children in the hammocks. We have them outside in between the trees. We put them in the hammocks from using the hoist and they've never ever been in a hammock..
E: Yeah, just for that relaxing movement.
N: Yeah that free movement. It has that same feeling of being in water because your body doesn't have to hold itself either.
E: Yeah. Yeah.
N: We adapted it with multiple cushions and blankets and things just to make sure that they were comfortable. But I find at Camp, all the volunteers are under that same thought process of anything's possible. Why can't they do it?
E: That's why you're there, I suppose, isn't it? You wouldn't be there if you didn't think that.
N: And you're all there giving up your own time to do it. So you generally are like yeah get them in a hammock - why can't we?! Obviously within reason but you do. Everyone wants every child to have every possible experience.
E: Yeah. Yeah. Okay.
N: Even if it's fire lighting they can do that because they have someone trained to do the proper forest school stuff with the fire lighting and everything else that she does. But it's generally like the mainstream boy siblings that they're like, "we're doing fire lighting every day, all day because at home they're told to stay away from it." But at Camp, you can yeah.
E: Go wild.
N: Yeah. But then it gives them a role later in the day when we do the campfire, some of them are picked to light the campfire and build the campfire or…
E: Okay. Mhm.
N: put as chief marshmallow toaster. So it like the skills that they're learning they're then using. And by the time of the campfire on the first night, the parents have sat down somewhere else. They arrive like then but then by that time they're like, "actually we can just let them go."
E: And even that, the campfire, then is a sensory experience, even if the children aren't directly lighting the fire, but just being near the sound of it, the smell, the light. Yeah. and…

N: Yeah. The heat. Sleeping outside as well. You still hear the noises… I don't know what all the sounds are, but they're sounds they've never heard before because they've been stuck in a house.
E: Yeah. Yeah.
N: The first night at Camp is always the weirdest because you hear things that you never think, but then you just get used to it. I stayed for eight nights last summer.
E: Ahh wow.
N: And even in myself, I felt better after having eight nights of sleeping outside. I thought I'm going to really want a proper shower cuz even though the warm showers, it's not the same.
E: Yeah. Yeah.
N: But you just feel better for that constant fresh air, you notice it in yourself, cuz you're never inside. There's a barn but both doors are open, so the fresh air is still there.
E: Yeah. Yeah. I always find that with being just on the coast as well and being near the beach and the sea and it's just really good for wellbeing, I think.
N: Definitely. So if you notice it in yourself, your children that you're looking after have got to also feel some benefit.
E: Yeah. Yeah,…
N: But yeah, it's just nice to see family dynamics change as well from when they arrive to when they're leaving. Some of them don't want to leave.
E: Yeah…
N: And one of the girl that I was with, she did not stop sobbing from the morning that she got up the day they were leaving to her getting home, and they were like, "It was a 5 hour journey and she did not stop sobbing." And I was like, "That shows how much of an impact it's had really." …
E: It doesn't it? Definitely. Yeah.
N: But yeah…
E: So, with all of those sort of multisensory experiences that we've talked about, how do you feel that differs from what you could access inside? Like in a sensory room for example. Is it different? Is it better? Worse?
N: Sensory rooms are good if they're used right, this is a whole different topic really, but if they're used appropriately with a reason. But it's quite artificial. I find it yeah it does have a purpose, but it's people knowing how to use it and why you're using it.
E: So don't just turn everything on at the same time.
N: Yeah. Don't just recreate Blackpool. Because you're just getting over stimulated and…
E: Yeah. Yeah.
N: there's no purpose to it. It's not like real life. And also having the right things in a sensory room cuz everyone thinks of a sensory room and everybody thinks of the same thing but why do you have all the different lights because they're doing effectively the same thing.
E: Yeah. …
N: Yeah.

E: So would you say you preferred indoor or outdoor sensory experiences?
N: I prefer outdoor sensory experiences.
E: Why would you prefer outside sensory times?
N: It's more natural…
E: Mhm. Yeah.
N: It's more unpredictable. And you can change the light by using fabric or other things. You can take things out to change the colours,…
E: Yeah. Yeah,…
N: Change the lighting. It's just having that creativity and the resources to do that. Whereas in a sensory room, you're limited to what the sensory room can do. It's not like real life. Like outside they're living in it, whereas often inside it doesn't really mean much to them a lot of the time.
E: I agree.
N: So, yeah, I'm not saying they're bad,…
E: Yeah.
N: but they're …
E: Yeah, there's a limit to them, isn't there?
N: There's a limit. Whereas outside it's you can do whatever you can do as long as you've got the imagination and willingness to do it and the resources and money. But yeah,…
E: Yeah. Yeah.
N: but the main barriers are the money and people's perceptions.
E: Yeah. Yeah. So if we talk about barriers then so obviously money is a huge one, making things accessible and buying the resources that you need. Do you find that you have to kind of find things yourself rather than through school or…
N: Outdoor wise, not so much because I can generally take whatever I've got
E: Yeah. Mhm.
N: And I was lucky enough to really fight for my outdoor area to be the next thing.
E: Yeah.
N: And cause the rest of the school can use it. Nobody really sees us except the class next door when they come to join us and they're a more able class. So that's also another thing, that it's enabled is the connections and building peer relationships because they're coming in as our helpers but they're actually working, but not realizing that they're working on their communication and personal development skills by just helping us access it.
E: Yeah. Yeah…
N: And even that helps our pupils because it's not an adult being with them and doing. It's somebody there their age that's helping them.
E: It's meeting other people, isn't it? And connecting with people your own age.
N: And you find that the children don't think about what they're doing before they do it. So they might throw a bit of soil in the air, which is something we probably wouldn't do without thinking where are we throwing it? What are we doing with it? But they will or water play they'll just splash it and they'll all get drenched and need changing which then impacts us.

N: But what have they actually got out of that? I can sometimes go into a bit of child mode because I think if we're not going to do it they won't.
E: Yeah. You're modelling it aren't you?
N: Yeah. You've got to model that. But yeah, so staff wise,…
E: Staff perceptions and parental perceptions, we've already talked about that being a bit of a barrier. Is there anything that you've done that overcomes that a little bit?
N: We've done a bit of outdoor training over the last few months, like the Twinkleboost, which has been really helpful. Just to like have different ideas and activities and how you can adapt things, and see what other people do.
E: Yeah.
N: But I think just them doing it has made them think, actually we can do it and it's really good. It's just different. They're the TAs that will have waterproofs in school…
E: Yeah. Yeah.
N: wellies in school, you name it. They are prepared to be outside in any weather. Whereas the middle of school are "no." We do lessons, then we go outside for play or it's wet play. But we're trying to change that culture of even…
E: Right. Yeah.
N: if it's raining, they can go outside.
E: Because that could be a barrier could it, especially for children who might be in different equipment and might kind of have electronic equipment and things like that. Do you find that that's an issue with different weathers?
N: Yeah physio equipment. Walkers, for some reason, it's fine for everyone to go outside in any weather in a walker. Even though it's the exact same stuff as the activity chairs, but physio are like, activity chairs can't go outside. You've got to put them in their outside chair to take them out. And it's like… why? And then I actually asked them the question and it was all due to having to replace the wheels on them more if they went outside. It wasn't anything actually there or even the actual equipment. It was purely down to the wheels wear down more if they go outside.So at that point I went, if that's the reason, then they're going outside in it. It's a soft tarmac playground. I'm not bumping them to the park,…
E: Yeah.
N: but then the walkers have the same wheels on, but they can go out. And I was just like, there's no rhyme or reason here, so off we go. Yeah, it's the other thing is it's not affecting school's budget either because the children are entitled to that equipment. So if that's enabling them to do something then if they need a wheel changing then they need a wheel changing. They wouldn't pay for that wheelchair.
E: Yeah. Yeah.
N: So, I was just like, that's not a genuine barrier.
E: No, we can easily overcome that one.
N: So, it's a barrier, but it's not a life or death barrier, just change the wheels. We're yet to have a pair of wheels that need changing to be fair. But yeah, I think it was just one of them physio's that to them it's an indoor chair. Yeah.
E: Yeah. So again, it's perception of others, isn't it? Comes back to the same thing.

N: Yeah, they think they're like, “yeah, put them in the wheelchair." But then you think that then is a barrier because you're taking away the time you've got because you're then having to hoist them. You're then repositioning that can be another 10 minutes knocked off what you're wanting to do.
E: And it's uncomfortable sometimes, isn't it, as well for the child to be repositioned and…
N: You're like, Wow. It's just a bit of a fair enough if there's a genuine reason, but I think sometimes people make an excuse so that they don't have to do it.
E: Okay. Yeah.
N: They don't always think of the benefits that it's going to have over changing a wheel in four years time.
E: I mean, when you put it like that, it seems quite an easy decision, doesn't
N: And I also think for some of the children that are in my class like that wheelchair is probably still going to be around in however many years time, but the child might not be. And we've had that experience over the last few years. And it's like, we took them out, we did this, and the parents are so grateful that you did do that. No one's thinking about that wheelchair that went outside that probably shouldn't have gone.
E: Yeah. Yeah.
N: Everyone's thinking about what they actually did. I'd rather think about that than not do it because ever will.
E: Yeah. It puts it in perspective, doesn't it? Definitely. Yeah,…
N: Yeah. I'd rather they experienced it than didn't cuz yeah,…
E: Absolutely. Yeah.
N: We might have some that do get to adulthood, but a lot that go through our class, they might not. And I just think do it.
E: To make that time meaningful for them and fun.
N: Yeah. Let them do whatever they can while they can. And I think the team that I've got are under that same impression because we've all worked together so long. We're all about letting them do whatever. Not quite to the extent that everybody is at Camp because I think people are like, "I'm getting paid." I'm like, if I do, there's a few more risk assessments. They do, like at Camp, risk assess everything…
E: Yes. Right.
N: but everything's risk assessed under the idea that ‘everybody can’, whereas at school I think there's a bit more wariness from everybody and…
E: Okay. Yeah.
N: I don't really know why but
E: Do you think it might be partly to do with families kind of being at Camp and…
N: Could be.
E: So they feel a bit more like it's joint responsibility rather than just on the staff?
N: Yeah. Yeah, it could be that staff feel it's their responsibility at school.
E: Yeah. Yeah.
N: But we take them swimming so bit of water play is not as Yeah.
E: Yeah. Yeah. There's probably more risks with that, isn't there?

N: because for so long there's been a culture of PMLD children don't go outside, and we're changing that culture. They don't access playtime. They do their own thing.Yes, we don't access whole school playtime outside, but that's purely because of other barriers to do with staffing. Generally at whole school playtime, the children have tube feeds. There's medical interventions happening, medicines need giving. So you've got all that that you need to do in the classroom, then you don't then have the staff to take children outside. When we're children down, I'll be like, "take them outside and we'll stay and do all those jobs." But on a general day, if you've got everyone in, you can't do that.
E: Yeah, staffing is massive isn't it? Especially with hosting and things when you need multiple members of staff.
N: Yeah. …
E: Yeah. Yeah.
N: Having our outdoor area adapted now, it just means that one member of staff can take four children outside. They're outside, but that's only taken one member of staff. Whereas, if they're going to main playtime, those four children need four staff, which leaves one staff with five children. So, you can't do it and…
E: Can't do it. Yeah.
N: They're not even accessible to you to shout them in they're at the other side of the school. So yeah,
E: Yeah. Yeah.
N: at least if they're on the garden, you can just be like, "Sorry. Can you come back in?" Or you can leave the door and that staff member can stand half and half. Yeah.
E: Just sort of supervising.
N: You don't have that barrier of you've got to be physically one to one with them.
E: Yeah. Yeah. Because even if they're just sort of sat on the balcony, because the staffing isn't there to fully interact, they're still hearing the noise. They still got the smells of the plants…
N: Yeah. Yeah.
E: haven't they? Still looking at the colours. There's still a lot happening for them.
N: We got things that we can hang on the canopy or so it can all dangle and they can touch it or you can put a tray on their tray and you can make it accessible without needing a staff member. The same as you would in class,…
E: Yeah, that's a big part of outdoor education anyway, isn't it? That sort of independence and it being child led rather than having an adult kind of stuck to you all the time, like right now touch this and now touch this and now look at that. They're choosing what they're going to touch and what they're going to look at. It's giving them a bit of freedom and agency isn't it?
N: Also they've actually got more mobility time as well because when in the classroom you can't always have them in the walkers. We've got two children who independently walk and three children with walkers now, but then some children that also need time on the floor and that all has to happen at the same time because the feeds and everything else.
E: Right. Mhm.

N: But if you can open that door and get the walkers out, they're still doing what they need to do, but they're out.
E: Mhm. Yeah.
N: One's realize she can pull plants up, but she's making that choice to go and do that. And it's making her walk because we'll just get her in a place where she's nowhere near them. She will go and you can hear her laughing all the way because she knows what she's going to do.
E: Straight to the plants. She's really bringing out her personality as well.
N: Yeah, it's brought a personality out. Mum and dad have said she's different at home as well, after outdoor sessions, more confident and outgoing.
E: Yeah.
N: So, we don't know if it's just a general class thing or that she's accessing. I probably can't put it totally down to outdoors.
E: Okay.
N: but I know in the class before she didn't because she was PMLD in a mixed class, so she had to stay inside to have time out of a chair at play times.
E: Yeah. Yeah.
N: But again, did she or…
E: Yeah. Yeah.
N: that just a staff perception?
E: Exactly.
N: But in our class she's one of our most independent.
E: Really kind of switched roles.
N: So she's really switched up. But this year she's really ramped it up in her independence and…
E: Yeah. Yeah.
N: The personality is coming out and she'll take herself off outside now where she used to linger at the door just looking. She's got her own self-propelling chair. She just used to take herself up to the door, put her two front wheels out, and then come back in.
E: Right. Okay.
N: But if the door's open now, she will just go. She does like it but it's took her a long time to get that confidence to take herself outside but she has it now.
E: Okay.
N: Before she'd turn herself around and bring her self back in.
E: because it was new?
N: It could have been that it was new and she's now more confident or if the class has changed and there's two mobile children who just take themselves out and…
E: Mhm. Yeah.
N: I think she wants to be friends with them but because of their developmental level, they've not got… that they're not all on the same page on what they're doing together. Put it that way. I think she's trying to make friends, but they're just not. One sees her as a climbing frame.

E: Okay. Yeah. You never know though in time, it's at least giving them something that they're doing together.
N: Yeah. Hopefully by the end of the year they might have gelled, but at the minute they're all very much on their own mission…
E: Yeah. Yeah.
N: but together.
E: So, if you were to summarize what you think the impact and benefits of being outdoors is for children with PMLD, what would you say?
N: It's a really hard one. I think it gives them that equality, just in access and self, because when they're outside there is no barrier. What we're experiencing is the same, but they just happen to be in a piece of equipment. They're feeling that same weather. They're still hearing those same sounds. They're still seeing the sights. Smell especially is probably the one that we're all quite equal on. It gives that. But it just gives them that sensory input that you can't get anywhere else, cuz as much as you try, you can't replicate the outside inside.
E: Yeah. Yeah.
N: you can't…
E: Definitely.
N: because you're bringing plants in, but they're the plants that you're bringing in. Whereas outside you do get random things growing in a planter that you're not quite sure what it is, but they do see even on our adventure playground at school,…
E: Yeah. Mhm.
N: which my kids can't really access because of the nature of an adventure playground. but they can access the roundabout on there. So, we'll go down for that. But the ones that get on the floor, there's probably mushrooms growing in the grass that we have to get out and dispose of cuz we don't know what they are, but they've probably never seen them before or felt them. It's guaranteed that they'll find them before we do.
E: Yeah. Yeah.
N: And the fruit trees and things like the ones that can go up and feel it and pick it and if they can eat it, they can eat it. There's just no official barrier outside.
E: Okay.
N: I feel like outside, the barriers are just perceptions and access. If the access is there by people who believe in it,
E: Yeah. Yeah,…
N: then there is no barrier.
E: Definitely. Yeah.
E: You've put that in such a lovely way. That's really nice. So, last sort of question then from me. If you were to give any sort of advice to anyone, or say anything to anyone who is in sort of a similar position to you and wants to set up some outdoor experiences, but is just a bit unsure how or is a bit wary of it, what might you say to them?
N: Just give it a go. So I think my TAs are more open to going outdoors than some other classes would be because they're a lot more used to it and know what it's all

about now. And just start with anything. It doesn't have to be expensive if you don't want it to be. I don't think, cuz I can take out a skipping rope, tie it to the canopy or some kind of sticks, hang loads of things on it. They might not be outdoor things that I hang on, but we're outside and we're having that same experience. So it's the musical instruments, fabric, anything. Just being outdoors makes a whole difference to…
E: Yeah. Mhm.
N: how they engage and pay attention or respond. Sometimes yourself,…
E: Yeah. Yeah.
N: you get bored inside and go on a walk. You're happy to count how many birds you've seen but you ask someone to do that inside it's like no.
E: Yeah. Yeah. I like that. Just give it a go. That's what it is, isn't it?
N: Yeah. just genuinely give it a go…because it's unlikely to go terribly wrong if you're just doing a bit on a playground.
E: Yeah. Just build it up gradually.
N: Yeah. And use the people around you because you'll probably find that somebody's got some kind of expertise as such in something. It's hard cause it doesn't happen a lot so you can be alone sometimes, so you just have to be creative, but if you ask enough someone will know something or have an idea.
E: Mhm. Yeah.
N: Like we're not gardeners, but one of my TAs does enjoy being in the garden.
E: Use their strengths.
N: Yeah, so, she's happy to take on weeding, make it accessible. She's happy to do that.
E: That's good.
N: I might go out and take every plant out because I'm not sure if it's a weed.
E: Yeah. Yeah.
N: Yeah, just use people as much as you can cuz between you, you'll do something that'll benefit someone in some way.
E: Yeah, brilliant. Is there anything else that you wanted to talk about or kind of tell me?
N: No, I think we've covered pretty much
(Thankyous and goodbyes.)

Appendix J: Interview transcript (Valerie)

Interview 2 Transcript

(Welcome and Intro)
E: So can you just tell me a little bit about your project?
V: Yeah a typical session, is there any such thing? So *project name* had been running for about four or five years when I took it on, and probably for about eight years I had a mixture of students, so some PMLD but some who weren't, and they were always attending here at *charity setting*, sometimes it's just like a giant playground here. I'm attending in their school now because there's all sorts of problems with retaining staff.
E: Okay. Right.
V: So they're permanently short staffed and lots of problems with transporting to *charity setting* because the students that I see, some of them are a bit older so their chairs are very big. So actually being able to get there and find the space that they can all be involved and interact is difficult. We can only get about three to visit whereas if I go into school I can sometimes see like 18 in an outdoor setting, so every time I looked up there was somebody else who'd called popped in.
E: Must be popular!
V: Yeah, but at school obviously I have to take everything with me and then bring it away again because I've got nowhere to store it.
E: Okay.
V: So in terms of planning, my sort of teaching head likes to have something to hang the lesson on. So today we're exploring herbs, for example. But really it's just what happens. So, I like to see where the eye gaze rests, where the hand reaches out, and that's where we stop and just let things happen. But it's much more challenging in a school environment. I mean, I make a lot of mess. I think the cleaners know, god, it's Tuesday. That woman's going to have been in.
E: Haha right.
V: One of the things I found over the years is that a lot of my students… so there's two things that strike me. One is that the medical stuff gets, I mean it's all very serious, and in fact I had a student two weeks ago who had to have CPR. So, I'm not minimizing the medical stuff, but it gets in the way of being a child and having fun and…
E: Right.
E: Yeah, definitely.
V: any sort of, gentle approach to risk taking is a no.
E: Okay.
V: And I do get that. But yeah, so it can be quite a battle, and the children have been brought up like that. So, don't touch that. It's dirty. Don't touch that. They're not used to messy, squidgy, plant-based stuff. So, they're very touch averse when I first come across them.
E: Okay. Yeah.

V: Not all, but generally. And the same for any sort of medical assistance. I mean, some of the children are so poorly that they do have medically trained staff with them and they're very, like, you're not coming over here with your compost.
E: Yeah. Where do you think that risk aversion is mainly coming from?
V: I mean, the children are wary but just because of lack of accessibility to that sort of stuff.
E: Yeah. Mhm.
V: I mean some parents are really up for their children getting out there and getting their hands in compost and eating different things if they're able. So yeah I think it's a bit from family and staff. I mean, you come across what I tend to think of old school care support who are very like, you don't want to touch that. I say, I'd love them to touch it. They'll splash and they'll make a mess. Good. That's exactly what I want. And they look at me as if to say, on your head. And I'm always being told, he can't do that. He won't be able to do that, and I'm like, let's just see what happens…
E: Yeah.
V: because it's in a different setting or it's different, I was told once that a slightly more able guy he wouldn't be able to use some small secateurs or scissors, no he won't be able to use those because he can't use scissors and it's dangerous. And I said, I'd like to just see what happens. And he used them perfectly well. And they were like wow…
E: So he just needed that opportunity, to be given the chance.
V: Yeah, and one of the students who came about five years ago, he was very very nervous of being outside, anything flew past he was [flinching action], and one of the things that they said about him was that he had terrible memory problems and I sent him off to get a wheelbarrow after he'd been here a few weeks and we'd done it together already. I said, you can go off and get the wheelbarrow. And they're like, "No, no, no, no. He won't remember. He won't." Off he got the wheelbarrow, came back, no problem. So being in a different environment, I think brings out different sides to children. Definitely. Yeah.
E: Yeah definitely. And it sounds like you're really child led as well. So let's just see what the child can do and what they want to do. Is that how you base your sessions.
V: Yeah. Yeah. It just needs to be adapted differently. I mean everything tends to get mouthed.
E: Mhm. Yeah.
V: So for sure I have to make sure all plants are non-toxic and other materials too. But apart from that… so this week and just before half term we did harvesting, and I mean I have got raised beds here that are great for the students in their chairs to be able to grab hold of a carrot and yank it out. And I sort of preset things so that things will come out of the ground easily, there's not too much resistance.
E: Yeah.
V: But they were a bit unwell. So, I took the harvest to them in bowls and we were on mats on the floor, on beds, and they harvested the carrots and potatoes and things from the bowls and they had the best time. They don't need to necessarily stay in their chair.

E: Brilliant. It sounds great.
V: So they still harvested, they just did it in a different way.
E: Yeah, you just made it accessible for them. And do you feel like the young people enjoy the sessions?
V: Yeah they definitely enjoy being out there.
E: Yeah. And how can you tell that? What do they do that shows you they're enjoying it?
V: So sometimes it's the way they were before I started the session. So this week I had somebody lying on a mat rocking almost crying. And she ended up harvesting for the whole session. Putting the carrots back in, and taking compost out, putting it back in and completely engaged. Smiling, laughing, shrieking. It's the noises, isn't it, and engagement. I had another young man who sometimes when he comes to session, he literally comes and leave. He's not able to tolerate the noise level very well. And he's going through teenage years as well, so there's a bit of the angsty boy about him and he can be quite grumpy. But this week he wasn't wearing shoes and socks because apparently he refused to put them on and he was very unhappy. I thought actually that's perfect because we can do some stuff with herbs and stuff around his feet and he absolutely loved it. So being tickled with leaves and fennel and carrot tops and we made up a silly song about them going up the arms and down the legs and under the toes and he was shrieking and smiling and he stayed with the session. He then engaged in finding things in compost. I had little butterflies hidden in pots of compost. I often use that as a way of getting children to sort of feel compost for the first time rather than giving them the compost. Give them something that's poking out of the compost and then they accidentally touch it and they're like, "All right, didn't hurt." Yeah. Yeah.
E: Ah okay that's a good idea. Are a lot of your activities quite sensory based then, especially for the children with the more complex needs and PMLD?
V: Oh yeah, definitely.
E: What sort of activities do you do that focusses on that? What senses can be used?
V: So I mean a lot of touch, feeling lots of different plants. So things that are soft, things that are a little bit prickly, they feel differently. We might be rolling up and down fingers and hands and arms sometimes. Smell obviously, and there are often very clear indications of whether somebody enjoys a smell or not. sometimes there's quite a sustained sniff, and other times it's like they pull back and the hand will come out to push it away. They can show their preferences.
E: Okay. Yeah.
V: We do some simple cooking with herbs, like we’ve made pesto and some of them can taste that or just smell it. And we did a harvest a little while ago and we did a soup, I bought one of those magic soup makers that makes soup in 20 minutes or whatever, and they were able to take part in the preparation for the veg.
E: Ah great.
V: But looking as well, I pay a great deal of attention to where their eye gaze sort of falls, where the hand reaches, what they're kind of engaging with. And sometimes,

we'll sit in one area and just ask everybody to be quiet. And it's quite interesting, they really do pay attention to the sound of the wind moving the grasses, or the trees, or birds. Any sounds that they make then are very gentle and really toned down, like they're mimicking or just relaxed. And sometimes they interact with each other, which they don't often do within the classroom setting. Yeah.
E: Ah right. So, they're adapting their own communication based on where they are?
V: Yeah. Yeah. There's so much going on in the classroom, isn't there? And I mean our classrooms are quite crowded because you have two or three people in a bed and then another big chair and somebody else on a floor mat. There's not actually even much room to get in between people. And there's just always so much going on. People coming in to take people to go and have an OT assessment, somebody else is getting a wheelchair measured, and yeah it's very busy environment. Whereas outside, it just does so much good.
E: Yeah. So do you feel like it has an impact on the children's emotional wellbeing, just helping them to be calm and regulated?
V: Oh yeah absolutely. One student in particular, she's always very engaged in anything that's offered to her outside, very keen to touch and hold. But I've noticed in the classroom setting, she'll just hold her herself back and not really pay much attention to you. And I think she's in quite a lot of pain. I mean, it struck me the other day how difficult it must be to manage pain for them. For them not to be able to say when pain is particularly bad, but you can see sometimes that she's feeling very uncomfortable at the very least. But if we manage to get her out into the outdoors, she's like a different person. She doesn't need to do anything; in fact, I'd prefer it if people just leave her be. Which is another battle with teaching staff because you need to produce something, don't you? And I do get that. But if she's just left, she'll hold her face up if there's sun, she'll sort of hold her face up to the sun or breeze and listen to the birds, and there's just this gentle contented noise that she makes. And I think what a difference to the young lady that I saw when I came into school today.
E: Right. Yeah.
V: Look, and I keep saying to the staff, look. I mean, I have to push them to go out because if they see the skies gray like today, they say, they don't want to go outside. But it's mild and yes, we do want to go outside. And I get everybody outside and they're like, "I'm really glad we came out." So,…
E: Absolutely. Yeah.
V: But it's taken a while to get them on side.
E: Right.
V: I definitely have now, but it's been hard work. It's a different sensory experience, isn't it, in different weather. That's part of it. They're being exposed to different things and feeling different things.
E: Yeah I feel like that's quite an important part of it, to go out in different types of weathers and see that, because that's something that you can't really replicate in a classroom, isn't it?
V: I think they're worlds apart, aren't they?
E: I think so.

V: They really are.
E: Yeah.
V: I mean, I mean it's great to have alternatives indoors for when the weather's really bad and you can't get outside, like with sensory rooms and stuff, but I always push for outside even if it's a little bit nippy, it’s just better. And when they come here, I mean and we will tend to spend most of the time outside but even if the weather's bad I always use the little walk around the garden even if it's very cold a short one. And that seems to have calming effect as well.
E: Yeah. Yeah.
V: Wrap up warm. That's what coats and hats and gloves are for. Crack on. They think I'm a bit harsh at times, maybe I am.
E: But if you didn't do it, then the children might be missing out on all of these amazing experiences that you’ve told me about.
V: Yeah.
E: And why do you think the outdoors are better in terms of providing those experiences, than indoors? What is it about that environment?
V: I think there's merits for both, but I mean, obviously I think the outdoor environment is just so great for children. The opportunities are very different and it's that rhythm of nature, the fact that the things are seasonal, there's so many different tactile things for them to experience. Many things to see. Many things to smell. And you have an opportunity to slow everything down. Because I'm not expecting them to produce anything. So if today we went for a walk around the garden then that's enough. I could write things down and say they touched this and responded to that smell. But I mean, that's just part of our journey around the garden. I'm not expecting anything of anybody. I just want them to be.
E: Yeah. Yeah.
E: Yeah. That's lovely. So how would you summarise the overall impact that the outdoor experiences have on the young people you work with? What kind of what difference does it create for them?
V: I think because everything is relaxed, we have time to have fun. And I think that as I said at the very beginning, it's something that can get overlooked because there's so much serious stuff going on around medical needs that sometimes we forget what it is just to be a child and just to have fun and be silly and playful and joyful. And I'm very privileged cause I don't have to do any of the paperwork and stuff that they have to do, the teachers. I mean, some of it is just mindboggling when I realize what they're have, having to try and tick boxes and I don't have to worry about that. I just have to facilitate them having fun really. That's my primary motivation, I think, is for them to have fun because it then affects the rest of the day, doesn't it? At least that day, they've had a nice time, they've enjoyed something, they feel happy. And because they're relaxed, things perhaps don’t hurt so much. I mean, a lot of my guys have problems with their hips and joints, and I think, when you're laughing and being silly, it's quite a mindful activity. You're not thinking about anything else. And I think that all helps.

E: Yeah, that’s brilliant, really. And what would you say the barriers are for supporting children with PMLD to be outside?
V: There's financial stuff. Because obviously stuff costs money. We have to get funding for that every year. We've had to go out and find the funding to provide it and that's not cheap. There's the stuff about transport, being able to get from A to B. I mean I often say to people, you don't see my students out and about because it's just too difficult to get them from here to there. You don't see them you don't see them at the pantomime, or the shops, or the park. And it frustrates me that they are excluded from so much. And then there's attitudes of staff.
E: Right.
V: The head teacher in my opinion needs to drive making green environment important. There’s a picture of me in school wearing my dinosaur scrubs during COVID and my son said to me, “where are you, a prison?” Because it's all plain metal fences, and they have a lot of problems in other classes with challenging behavior and I can't help but think they're responding to their environment to be frank.
E: Right. Yeah.
V: You need staff to be willing and open for that sort of intervention to happen. …
E: Okay.
V: Maybe getting them some training or something to get them thinking about alternative ways of teaching in an outdoor environment.
E: Yeah. Yeah.
V: Yeah, I think they're the main barriers I think. And time's a bit of a barrier as well, because they've got so much to fit into school. And then if they come to one of my outdoor sessions and they get dirty, it's quite a big deal to have to get somebody into the washroom and host them to get them all changed and all of that.
E: Yeah. Yeah.
V: So that's another thing.
E: Yeah. Absolutely. So we need to think about how to overcome those barriers don’t we. What would you say to a practitioner or a staff member who would quite like to do some outdoor things with their children with PMLD, but are facing these barriers or don’t know where to start? Is there any sort of advice that you would give them in just how to start that and a first step to take?
V: I mean, when I took on *project name*, I inherited it from somebody who was a master at the game, and I was supposed to shadow her for six months, and that didn't happen. So I kind of got thrown into the deep end. Which is hard cause you feel alone a lot of the time in this, cause not many people do it. So I was that person so I just experimented really because I thought I can't be her because I'm not her. and she's marvellous and everybody thinks very highly of her. So it's big shoes to fill. But I'm going to have to make my own way here. So it was thinking things through a bit. So whatever activity you'll try, sort of think through the steps and that way you sort of foresee any problems. You almost need to make a thing before whether it works, but maybe start slowly with things like herbs.
E: Mhm. Yeah.

V: So potting them up, they're tough old plants. Things like mint, you can, I mean, my students rip things, my herb budget is quite high…
E: Right. Yeah.
V: because I go to the garden centre, and I'll buy 30 quids worth of plants and I come back with nothing. Occasionally I might find a root strewn in the corner of the space, I mean things get thrown and that's all okay. You kind of have to think about it very differently though because I mean, it can be a bit of a shock working with children with PMLD when you've been working with children that are more able and you just to have more cognitive awareness because, their cognitive age is young, usually no more than 18 months. So everything goes in the mouth. And it can all be a bit of ahhhh, but start slowly. Make sure your stuff is not toxic. And above all, have fun. I mean, you can use things like water and stuff that's safe, and that way you're building confidence, I think. And just keep reading.
E: Yes. Yeah.
V: Read. If there's anybody you can learn from ask them questions.
E: Brilliant, great advice.
(Thankyous and Goodbyes).

Appendix M: Interview transcript (Rachel)

Interview transcript 3 – 12.11.24

E: Thank you for having me this afternoon in your sensory garden. There were quite a lot of different activities going on, weren't there? It was lovely to move between the different groups and get to know everyone and the area. Are those the sort of arranged activities that you usually do, are there some things that you do that I didn't see today?
R: We try to always have quite a range just because of the different needs and personalities, and generally the different teachers that are out there believe in different things. So some teachers are very much for really active roles and play and songs, and we generally would also sometimes take out a parachute as well and that would normally be a different sensory activity. Whereas some of the others just like to be with the children and let them gravitate towards different things.
E: Yeah, yeah it was lovely to see because there were a couple of children who would just do something for a little bit and then look around to see what else was happening.
R: Yeah so the staff are quite child-led and will look at their gaze and movement and noises to see where to go with it next or what they're responding to.
E: Yeah I think I was getting to know them enough to know if they were engaged and having a good time, and for some children it was really clear, but then for other I think you maybe need to know them really well to find out what they're thinking and feeling. How do you know that the children are enjoying the experience?
R: I think so yeah, because yeah, I think when you know the ones really well, even if for some of them it's literally just being and just accepting what's going on, you can

see that they’re relaxed and just calm in the space. Which you can see with some of the *PMLD class name* kids, the fact that thev've actually just sort of stopped and paused and they're sort of listening to what's going on. It's quite a big thing for them, it's quite a positive thing for them, whereas then some other classes obviously get more sort of open vocalisations and you can see they're enjoying it. But equally I think in some places actually it's all the role of the staff member to support that, so where they weren't enjoying it and it can be noticed, the staff can say, “So yeah, okay, we're not enjoying this but let's go and do this.” And being responsive to that. But if you don’t know the children very well, you generally just need to be reliant on the staff that do, so you're very reliant on them to sort of say, yeah, this is a good sign. This is a happy sign actually, or actually, I'm not quite sure but I'm sort of tolerating it.
E: Yeah, that's it isn't it, trying to find the difference between tolerating and enjoying it.
R: Yeah, I think sometimes you can sort of see that I'm here and tolerating it but there's something more you could be doing that would really make me enjoy it. But equally some of them actually doing some of those tolerating activities is quite beneficial because they wouldn't get that opportunity otherwise and actually part of their learning is that they’re working to accept that they're not getting exactly what they want all the time, but being open to new things. I think for me, is that, *child name* for example, would normally just scream and scream and scream until he got what he wanted. So actually, him just tolerating being outside was progress for him and a really useful skill to develop. And actually, that has to come first before the ‘I'm enjoying this’ type of activity. Yeah, like we were saying it's new experiences and kind of exposing them to new things. And his communication as well, like he’s able to communicate his preferences now about what he does want to do outside. So it's really supporting quite a few areas, isn't it?
E: Yeah absolutely, so would you say that there is an impact on the children in several different areas of their life and development?
R: Yeah so this is just what we've been looking at as a school about whether we assess like outdoor learning as a whole or not. And I think what I've generally found with looking into that is that it covers so many different areas. We generally find under SEMH it's generally that they're more regulated, and also they're more engaged, and they're being as independent as possible and making that independent choice about their sensory preferences. And generally, just that happiness and that experience of different things and interacting with other people in a calm space. But physically as well it encourages movement in touching different things, and seeing other people do things where they then think, “I want to join in with that as well.” And obviously physicality it's quite a big thing. And then another big one is the communication, choosing between different things, particularly for those who aren't mobile, for them to be able to express non-verbally to say, “I'm enjoying this or actually, no, I don't want to do this. I've made this choice. I want to go here.” Which is quite a big thing and again, something they don't often get in school or at home.

E: Would you say there’s a difference in having those opportunities outside compared to what they would maybe get in the classroom?
R: So yeah, because I think generally in the classroom you find it's more, even though we're not necessarily structured in early years, most of the classes it's more structured. You generally have a goal of “this is what I need all pupils to do in this time and create this by the end of the lesson”.
E: Yeah.
R: And to do that, generally you're working like one to one or two to one with the pupils. So others are sort of sat like, just waiting for my turn, right? Then I'm going to have my few minutes with them and then go. So I guess outside it's very much more open, because it's not prescribed with what they're doing, it's so much more open for staff to develop that communication to go, oh, you're really enjoying this? Yeah, let's go and do more actually. I can tell they're not enjoying this. Let's go somewhere else.
E: Okay.
R: Yes, it's more child led. Whereas I think, because even when we do sort of free playing here inside, obviously that is, we focus on that being completely child led. But I still think inside, with some pupils, you generally sort of, you go into like, oh, we're going to get this out. And whatever you're putting out is what they like. Yes, you certainly bring that sort of stuff out, but it’s your choice and not theirs. Whereas outside, when you take away all the toys and stuff, it's very much just them being outside and experiencing it, something that we don’t control. And you can't control either, which I guess is quite a nice thing for them. We’re all equal. So it's definitely more, yeah, I see it's more child led outside and just, you're more responsive to what they're doing. And I think because it's, you've not got all that stimulation constantly going on. Actually, you're thinking like, oh, what can I do to develop this? I'm like, yeah, let's just pick up the leaves and scrunch them because actually that's what they’re getting really involved. So it's quite nice.
E: Yeah, absolutely. As you mentioned there, there were quite a few multi-sensory experiences happening. And I could see the little girl moving on the grass and she was just, she changed completely from being on the concrete to being on the grass. Like it was a completely different experience for her. She just showed that she was so happy from her facial expressions and little noises. And the children were looking up at the clouds and the light and watching the squirrels in the trees. There were just a lot of natural sensory experiences going on. Is that something that you’ve noticed as well?
R: Yeah, absolutely. And it's an unplanned thing. So it's sort of that case of them noticing something that's going on that’s a bit different to what they’re usually exposed to. And yeah, so many of them that inside would sort of just seem to sit and not particularly give you loads of engagement with different things, outside, because there's that wind on their face that they're turning to, or the sun in their eyes that they have squint to, or a bird or squirrel is in the tree above them, there’s just much more that they’re able to give a reaction to. And I think it's just because it is such a natural thing. And it's not like a, “I’ve turned this light and music on now and it's like in your face”, it's very much more of a gentle, natural, “oh, I've noticed that and that’s

interesting to me. And I'm just sort of calm and watching what's going on around me". And many of them just quite happily just sit there and just watch the world. But actually how amazing is that, to pick up on those things and show your preferences of whether you like it or not. I think it's less in their face and overwhelming, so the more they can notice and engage and interact with it. It's not an overwhelming sensory experience outside, just a calm and natural one. It's so natural that actually people do notice things more because they're not being expected to notice. Whereas actually inside again, you normally have the outcome that you're expecting them to say, I've noticed that slightly.
E: And do you always try and keep it natural like that? Or do you also facilitate multi-sensory experiences as well?
R: Yeah, I do a bit of both. When it's sort of just free time like that, we just pretty much stick to the natural world sort of side of it. But we try to, and we don't always quite manage it, we try to say at least every term, we have like a set topic for that day. So we did one a while ago that was like weather. And each class shows a different type of weather. And outside, we did like a bit of a central trail with it. But we brought loads of sand in and had the beach and we had the sun and all that sort of stuff. And then we had ice and snow that was getting thrown around as well. And we tried to sort of set it up and just encourage a bit more of what we would do. You do it in the classroom when you're sort of setting up a bit of a scene and all that sort of stuff, so we tried to set that outside and use the natural resources to embed into it. But that generally tends to be more topic-based. Or like when we do our pride parades and things like that, that is adding extra things outside and colour everywhere, hung from trees and noise and the instruments and things like that. So yeah, we take a lot more and do a big focus on that outside. But then at other times when it's more that free time, we try to keep it more natural and laid back actually. Yeah, just to sort of balance it because there's some that really revel from the really like stimulating environments. But I think there's some that are like, that's too much. And they actually just withdraw which we don't want.
E: Yeah it's about finding what's right for different children isn't it?
R: Yeah like a mix of small and calm and quiet spaces, and then some grander events. Yeah, we did a bonfire in that way around the campfire circle a bit. And everyone just sat around the fire. And we started talking about bonfire and sang songs and stuff. And felt the heat and listened to the crackling.
E: And how would you say that those sorts of experiences outside and the sensory experiences outside differ from the types of activities you might be able to do in a sensory room for example?
R: Yeah, I mean on the first scale just the size, like just there's physically more space outside. And basically when we're trying to do like nice sensory things together, it's so hard inside because of all the people and equipment and chairs and things, there's just a lot. We've tried it many times. It's so hard to do more than one class in a classroom, but you want to have that real like community feel to what you're doing.
E: Yeah.

R: But you just can't do that inside, but you can outside, and interact with more and different people. And I guess equally with like the noise that you make, there's some children that are very, very loud just vocalising in a very happy way. But in the classroom that's, because it's contained, it's so intense and actually other children are like, arghh, but outside it's much better for them because it's like dissipating out. It's so much, they can still scream and be really happy and make the noise they need to, but others aren't overwhelmed by it. But I think we just, it just encourages people to think outside the box more. I think it's so easy inside to think, oh, we're doing about like weather so we'll just put it on the screen and we'll just watch something and then watch a little video and that's that. Whereas actually outside people are thinking, right, I don't have any of the technology. How can we make the noise of different weathers? How can we look at the colours and the images it makes and things like that? How does it feel? So just to get encouragement to be a bit more creative with what you're doing, which is quite nice because like I say, if you put a lot of our people round the screen, it doesn't mean anything to them. But actually outside they've got that like, lived experience to go, oh, I notice that and I understand that and I'll remember that. It just gives more value to what they're doing.
E: Yeah that makes sense absolutely. And do you think that comes with its barriers as well? Do you think it's harder to do that outside than it is inside?
R: Yeah, absolutely. I think partly because of the staffing, like just to get outside is such a challenge. And I've seen like this, sort of where they're getting their coats and everything. It just takes up so much of your time to physically get them ready to go outside that you can look at the clock and go, I've only got like 10 minutes of this lesson left. Whereas actually I would have had half an hour in the classroom. And with the weather, like, yeah, if it's particularly cold, it's hard to get out for those that are quite poorly, it can be quite a challenge from that side as well. But I also think sometimes because you're not having to be quite as creative and you can shoot the technology inside, sometimes it's an easy sort of way of doing things, I guess, in a way. And if you're having that every day and if you've got children in crisis and things like that, like just getting outside is such a big event for them that actually, if you wanted to do that for like every lesson of your day, like it would take up so much time that you wouldn't get anything done whereas actually there's times when you think, oh, I want to cover this and I've only got sort of 10 minutes and I can't get outside and do it and make it valuable in that time. So let's do it inside to sort of make up for it.
E: Right yeah.
R: But I think then that means you actually value the outside time more because I think because you're not constantly outside, when you do go outside and like today classes coming together and stuff and doing that and like actually you bounce off each other so much more and you remember it more and you enjoy it more because it's been a while. It's like actually we're outside and we're singing songs and playing a game and seeing things and like it's so much more fun and active. But yeah, I think sometimes otherwise it can feel a bit overwhelming and like it takes a lot of preparation to go outside and get that far. Whether you're doing resources or just

sitting or whatever, just physically the prep to get out there is quite a big burden sometimes so actually to do it all the time is a lot. Whereas actually if you just focus on set times that tends to work a lot better.
E: Do you find that staff usually are quite up for going outside?
R: A lot of the time no. Mainly they would have just said, oh, it's cold or I don't really want to. But then when they're persuaded to actually go out, they sort of go, oh, it's worth it now. And they see, they enjoy it with the children and they enjoy it themselves and it's sort of capturing that moment, so sometimes you just need to remind them and say, I know it's a bit cold but you've got to go. We're all going outside, let's go and like give that positivity to the children so they can get out there, because they'll pickup on it otherwise.
E: Yeah definitely.
R: But then equally with some parents, some parents are very much like, my child's not going outside, it's too cold. They'll get poorly.
E: Right, so is it concerns around their health?
R: Health more so than anything. Yeah, and I remember one of mine particularly I used to teach who, he just refused to go outside and refused, refused, refused and I spoke to his parents and they were like, "oh yeah, we would never go outside. He could get poorly". I said, yeah, but this child, like all the rest of his friends are going outside and actually he misses out that he doesn't get that opportunity. So we sort of gradually built it in when it was nicer weather and built it up and built it up and it took a lot of time but actually in the end of saying, but you look, let me show you the fun he is having outside and the friendships he's making and what he's actually getting up to. I said, yeah, if it means me wrapping him up in five extra layers, that's fine, I can do it to get him out. And they all really came round to it. But I think it's generally more so around health than anything else from parents. But I think also they, a lot of them just appreciate that they're going out and doing something that they wouldn't get to do at home.
E: Yeah.
R: Whereas staff, it's a bit more annoying when they're like, oh, I have to go out and I don't want to and it's cold or it's a bit wet. And even sometimes just with them, there's sometimes a lot of them will go out, you can find them with the TA, they'll go out and they'll sort of go and just stand there and look at you. Like what shall I do now. So I think that training of what you can actually do when you're outside would be really good. But also striking that balance, if you don't have to be singing and dancing 24-7, it can be just observing or going on a little walk or just being together. But actually having that confidence, because they feel like they're not learning outside often we've actually done a lot of work. You might think the child's just sat there watching a squirrel run, but look at all the different skills that it's ticking off for them – they're noticing something, they've engaged with it, they've tracked it, they've shown a preference by doing that, they've had some independence in what's happening to them and what they're doing and had some control over what they're looking at. And then they go, oh yeah, like actually it is a lot of learning, just because you don't, it's not what you would stereotypically think of, oh we're not sitting and

reading and writing and that sort of stuff, it doesn’t mean it’s not learning. So it's kind of understanding what those benefits are and that they can benefit from it too themselves and that they don't have to go out and do loads of crazy stuff. They can just go out and just join in and just being with the children actually. Which is amazing in itself. They're being, not having it done to them, and that whole premise of like that's all you have to do, like if you're with that child and you're just chatting away to them and you're engaging with them, that's massive, that's really beneficial to them. But yeah, you just find certain staff that are really up for it and some that really aren't. And I think some of it comes down to just that confidence of what to do outside and knowing how it's benefiting them. But yeah, I think some are just a bit like, oh well I wouldn't go outside myself, so particularly people that sort of say like they'd go home after work and they would just sit in their house all evening. And whilst we say the pupils don't experience it much, a lot of the staff don't get out and experience nature in that sense either, so again it's new to them to know what sort of to do.
E: Yeah, it was interesting to observe some of the different approaches in the staff, obviously you've got some staff who are really sort of lively and jumping around and then other staff who are just, like you said, just being with.
R: Yeah, just sit next to, not even necessarily engage with them directly, just be safe because I'm here with you and let's just sit and look at the clouds or look at the trees. It's quite nice that you get a mix of that I guess, because you kind of need both people in that scenario. I think if everybody was kind of doing the games and it would be too much in the same way if everybody was just sitting next to, maybe need a bit more stimulation. So it's nice to have those different approaches, but like you say it's important that everyone kind of knows what they're doing and what the benefit of both approaches is.
E: Absolutely. So what are your thoughts on the future of your sensory garden and other outdoor provision, and how you want to develop it?
R: I definitely want to develop the space and tidy some areas up, make some areas a bit more useful, but also really preserving those quieter spaces as well as having those sort of bigger things with resources. We have woods down the road that some classes get to go out and a bit of a walk to, but so many don't, mainly because of staffing and just actually getting out, but also just the accessibility for the wheelchairs. But that would be lovely, to be able to walk through some trees and sort of see that sort of side of stuff that, we’d really love to do. And like we have an area out here behind us that we again would love to make into more of a like a forest school sort of area to have that really like, natural woodland sort of space that is just ours to go and explore in.
E: And do you feel like those things are doable for you?
R: So much of it comes down to just the funding to get it ready, and the staffing to get in there. Yeah, we'd love to explore a few different sort of environments more, but equally the ones we have just make them a bit more valuable. Because I still find with some of the play, like the certain elements of both playgrounds that we think, oh that's amazing for like our mobile people, we really get loads out of that, but I still think for our like most complex, there's more that we could do to make it more

central, there's more things that you can notice and things like that, but also like say balancing that between the really natural sort of elements that are there, so not just chucking loads of plastic things everywhere around the playground, but having sort of more zones for different things going in. Because I think that'd help those our mobile to just go and choose what they want a bit more, but I also think there's some of our wheelchair users that particularly get brought into that sort of middle bit, and unless they've got like staff encouraging them to like, let's go on a walk or something or engage with this, they're generally sort of just out and sat, and sometimes I think oh, is there something different or a different where we could have different sensory elements in different areas or something like that. Just developing the multisensory side even more. Because then people don't need to bother to bring stuff out because it's extra work and prep, or it gets taken out and it gets left and ruined and then it's never used again, and it leaves a bit of a mess, but actually to have some things, like more natural things of different smells and trees and light, things like that, and some sounds and stuff that can just be small and actual things, but things that just make it a bit more of a natural welcoming sort of space. Yeah, because I think we tend to get the big thought down and oh, this whole new big thing that we're going to put in the middle of the play around and then actually, like you say, today we had loads of fun with so much of the stuff that was out there, so actually can we just look at what is there and really highlight that a bit more. But again, I think all of that comes with that training of staff as well, to get them confident with what's out there and actually, yeah, I can do this and that's fine to sort of just sit and look at and notice and listen to and things like that.

E: Is there anything that you feel like you're missing or that you need, to be able to get to where you want to be and to develop those spaces?

R: It's mainly just the funding, that's massive, just because we don't have the funding as a school to be able to put into it, so it's only done through fundraisers and money grants we get. I think our issue sometimes is we try to do lots of little bits, but actually, by the time that you've done one thing and you move on to the next, because it's taken that long to get that next bit of money, that first thing's sort of, because you've gone for the cheaper option, it's sort of a bit rubbish by the time you've got to it, so you keep going, sort of chasing your tail a bit more. But, yeah, a lot of that comes down just to the money for it and, again, like, if you could have more staffing, then you could be out more and you could do more with it, but that's, again, a money thing.

E: And accessibility is expensive, isn't it?

R: Yeah, by the time you're paid for a ramp somewhere or if you need to level off all the ground in the woodland because you'd want everybody to be able to access it, but just to do a ramp takes up your entire budget, so then you sort of look at the rest and you go, oh, there's so much more I'd love to do, but I don't have the money to do it, and, like, any of the grants that we do go for and stuff as well, they're normally so prescriptive to one thing. So, yes, you could get one that's just for that ramp, but then to try and get something else, something like you're forever trying to fight and build things up together, as opposed to something sort of being sort of saying, look, what

do you want to do in your area? Right, let's perhaps almost do it, but, yeah, they don't tend to do that generously. I think that's just everything, sort of SEN and PMLD, as soon as there's words around that accessibility, the price is suddenly three times more expensive, which just makes everything a bit tricky, really.
E: Is there anything that you feel could help, apart from just being able to magic up a lot of money?
R: Any sort of support with the training side would be really useful. And even, yes, to help with that awareness of the benefits of outside and all that sort of stuff, but you could be like, we looked at wanting to do more forest school stuff and very nature-based stuff, but all of that sort of training that you can access, it's just so mainstream, so mainstream. And even when I've gone to different ones and I went to a trial thing and was chatting to people out there, and it was very much an early year sort of forest school stuff, and I sort of said, right, what could you do for children with additional needs? Like, yeah, we'll talk about that. But it was very much just the specific of, like, autism, and that we can set a routine for it. And I was like, that's great, but certainly our people have that as well as a number of other things. And most people just then go, I don't know. I don't know how you can do that. Or they can do it if you're just a wheelchair user, but you're cognitively really able. But actually, I kind of go, well, but what if you're both? So that knowledge is just really lacking. And even in our trust, we have an early years network and we can share ideas and stuff. But even in that, I'm the only PMLD school. So all the others are sort of like, oh, we've done this and we're doing this and I'm always like, that's amazing. But it's so not appropriate for our sort of people. So you can go around their settings and I'm always like, this looks amazing. You've got so many cool things, but actually, would that be appropriate for us? Probably not so much. If we find the right kind of people at that same level to sort of go, actually, you're interested in that, let's all find out about it together, that would be amazing. Because you don't tend to find many people that are like, outdoor and PMLD together, it's usually just one or the other. Like they're mutually exclusive.
E: Yeah definitely.
R: And I'd say, yeah, we'd be looking at whether we assess it or not, and actually, if people can say, well, this is what we do. So I'd go, oh, that's really useful to know. Because again, there's not many schools like us, so knowing if and how to assess what's happening is really hard too. We really want to assess to show the benefits, but it feels sort of like, just duplicating work for people that's already sort of there. And I don't want to make it an onerous thing, but if others have got ideas of how they do it, that would be really useful to look at.
E: Okay yeah.
R: Just ideas and stuff, if people are like, oh, we do this, and it's something just different. And like I say, it can be easy to find different ideas for what you can do outside for some people, like we're going hunting for shapes and stuff for their maths work, that could be amazing. But actually for those classes that aren't on that sort of structured learning side, how they can take their learning outside, like through music and sensory stories and stuff. I think in summer people tend to do that, but actually

there's more that you can do all year round and how you can incorporate stuff. I think people would be more up for doing it if they've got suggestions and ideas to follow as opposed to just sort of going it alone, like they're just going into it a bit blind.
E: Okay, yeah, that makes sense.
(Round up, thankyous and goodbyes).

Appendix N: Detailed description of Reflexive Thematic Analysis Process

1) *Familiarising yourself with the data*

Braun and Clarke (2006) state that this stage involves getting to know the data well by immersing yourself in it through transcription, reading and re-reading, and noting down initial ideas. Of my three interviews, two were conducted via Google Meet in which I utilised the recording and automatic transcription features. I then listened back to the recording for the first time whilst reading through the transcription to ensure it was accurate, and editing it where necessary. For my face-to-face interview, this was voice recorded on a phone and then manually transcribed by myself.

Transcripts in constructionist RTA do not need to be as detailed as in some other methods of analysis such as discourse or narrative, for example where all pauses and sometimes gestures and movements are recorded (Braun & Clarke, 2006). Instead, RTA transcripts should include all verbal utterances alongside accurate punctuation that reflects the information that was gathered and that remains 'true' to the original account.
Once each interview was accurately transcribed, I then re-listened to the recording whilst re-reading the transcript to further immerse myself in the data without having to regularly pause it to complete the transcriptions. Finally, once I had recordings and transcripts for all three of my interviews, I re-listened to them and re-read the transcripts for a third time one after the other, whilst taking notes of my initial ideas around meaning and potential patterns in preparation for Phase 2.

My field notes from my participant observations were initially in handwritten form. As recommended by Emerson et al., (2011), I typed these up on a computer immediately after each observation whilst the memory was still fresh, where I was able to increase legibility and add required details so that they transitioned from a hurried outpouring of thoughts into comprehensive excerpts of the event. Once completed and edited to ensure they accurately reflected my observations and interpretations of what was happening, I then re-read these field notes multiple times to further familiarise myself with the contents and my initial thoughts on them before moving to the following coding phase.

2) *Generating initial codes*

During the coding process, Braun and Clarke (2006) write that the researcher should work systematically through the data set, identifying pieces of information that are interesting or may be relevant to the research questions. Codes should capture a singular meaning, which can be either semantic (explicit meanings that stay close to what is said) or latent (more implicit, interpreted meaning). I coded using both of these methods, known as double-coded data (Byrne, 2022).

I used the software NVivo to organise my coding by labelling excerpts of the data with either a semantic or latent meaning. Some codes only consisted of one reference, which could suggest they were too fine-grained, whereas others contained multiple references. Some references were also placed into multiple codes if I implied various meanings from it. My approach to coding was inductive rather than deductive, as I did not have a set of predetermined codes that I attempted to fit the data into, but instead only produced codes directly from the data set. Byrne (2022) describes this as 'open-coding' and states that it is richer and better reflects meaning from the participants than a deductive approach. This is because codes should not 'emerge' as though they are already in the data set waiting to be found, but are interpreted through the active role of the researcher as they move through the coding process.

I deliberated whether I should code each transcript completely separately and then merge codes at a later date, or code all three together as one data set. I decided to follow the approach of Terry et al. (2017) and Butina (2015) in creating a master code list, meaning that whilst I did go through each transcript to code it separately, only one codebook was created and codes could include references from multiple transcripts. This meant that whilst each transcript could retain its individual meaning and was thoroughly analysed and coded on its own, themes across the data set could be better collated and identified.

I also debated whether I should use this same master code list to code my field notes, or if a new code list should be created. Yukhymenko et al. (2014) state that in research involving both observations and interviews, field notes and transcripts should be coded together and integrated to obtain better triangulation and more developed results. Furthermore, in a study with a similar context and methodology to my own, Peel (2020) coded transcripts of teacher interviews alongside typed versions of classroom observation field notes to have both data types coded within one master code list, in order to again identify patterns across the whole data set. I subsequently followed this approach and integrated the coding of my field notes into my existing master code list, adding to existing codes and creating new ones where appropriate.

This meant that after initial coding of all transcripts and field notes, I had one codebook consisting of 80 separate codes, comprising 671 references from across the data set. I then went back through all transcripts and field notes for a second time to ensure that all relevant pieces of data were appropriately coded, and created new codes where I interpreted new meaning. As I had my completed first draft of the master code list at

this point, this second coding process sometimes included adding references from the first transcripts I had coded, into codes that were developed later in the first coding process, if they were appropriately aligned, therefore turning the coding process at this point more deductive.

After multiple rounds of coding, I was able to refine my codes by renaming them to more accurately reflect the meaning of the references contained within them and make this meaning more explicit, for example the code ‘new responses’ was renamed as ‘being outdoors elicits new responses from CYP with PMLD’. I also merged some codes that I felt had similar meanings after checking that all the references within each code aligned, for example, the code ‘attached to classroom so able to use regularly’ was merged with ‘on-site provision supports access to the outdoors’. After numerous rounds of refinement, my final codebook consisted of 63 codes (Appendix O), which were then examined to identify patterns and themes.

3) Searching for themes

This stage involves sorting codes into broader level categories where codes that have similarities in meaning are clustered into ‘candidate themes’ (Braun & Clarke, 2006). At this point, I moved away from NVivo and manually began to create groups of codes using slips of paper that each had one code name on it; this enabled me to visualise the groups more effectively and more easily move codes between different themes, creating ‘theme-piles’. Once I had created a group, I gave it a tentative theme name that described the meaning behind it and used Post-It notes to highlight these. Next, I linked each of my candidate themes to how they may answer my research questions and added these questions to the theme-piles (Appendix P). This provided the context to then begin to create the first representations of the thematic map, to illustrate candidate themes and sub-themes, and how they link to one another (Appendix Q).

4) Reviewing themes

Stage 4 involves reviewing and refining the candidate themes previously developed through steps such as merging, renaming, deleting or breaking down themes to ensure they have enough data to support them and accurately represent the entire data set (Braun & Clarke, 2006). I firstly re-read through the references taken from my transcripts and field notes for each theme to make sure there was a coherent pattern between them and they could be accurately collated under a similar interpretive meaning.

Once I was satisfied with this, I then looked at each candidate theme to examine how accurately I felt it represented the data. At this point, I erased some themes that were not relevant in answering the research questions or I felt did not have the data to support it, as I wanted to move away from any themes that could be considered too ‘thin’. I also separated some themes that I felt were too broad into subthemes, such

as the “comparison to indoor sensory experiences”’. Some themes were relegated to sub-themes or incorporated into others; for example, ‘Child-Led’ was initially an overarching theme but I later included this concept within ‘Supporting Agency in a Relational Space’, as the core meaning of my interpretation was linked to agency, equality and power.

Additionally, I felt that there was some overlap between the research questions that some themes were relevant to, and so I illustrated this by adapting my thematic maps to link to multiple research questions rather than having individual maps for each question (Appendix R). Braun and Clarke (2006) suggest that after this refinement, you should look at your thematic maps to decide if it represents the data as a whole, and if they do, you should then move onto Stage 5.

5) Defining and naming themes

Once you have a satisfactory thematic map of your data, you should refine and define the names of your themes to ensure they capture the essence and meaning of the data (Braun & Clarke, 2006). At this stage, I realised that most of my initial theme names were topic summaries, such as ‘Medical/Health Needs’; Braun and Clarke (2006) suggest that that this synthesis of participant responses as theme names should be avoided, as should one-word theme names, as they are not engaging and do not reflect the meaning behind the data. I read back through the quotes associated with every theme to further develop my understanding of the underlying meaning of the data. This helped me to then begin to rename my themes so that each name captured the essence of the theme and the excerpts of conversation and observations within it. I decided to use quotes directly from my transcripts or field notes as my theme names, providing some additional context where necessary, so that the names come straight from the data and illuminate voice. Many thematic analysis researchers choose to do this to provide an immediate and vivid sense of what the theme is about whilst staying close to the language and the concepts within the data set (Braun & Clarke, 2012; Christou, 2022).
Next, I wrote a short description of each theme, aiming to describe the central concept alongside how it relates to the research question (Appendix T). This was also useful in supporting me to ensure that each theme was boundaried and distinct from each other, and I subsequently removed some themes that I felt did not capture the essence of the data or answer the research questions, and merged others that I felt overlapped. At the end of this process, I was able to finalise my thematic maps with my refined themes and theme names, which will then support how I outline my interpretations within the report of my findings.

6) Producing the report

Once a set of fully worked-out themes has been mapped, this should be reported alongside quotations directly from the data that support the development of meaning

of each theme. It is emphasised that at this stage, the thematic analysis process is not ‘finished’, but should continue to evolve throughout the writing process with adaptations continuing to be made where necessary, as analysis will still be produced as it is written (Braun & Clarke, 2022). This was the case for me, as my themes and thematic maps continued to change and develop throughout my writing process.

Appendix O: Codebook after first full round of coding

Outdoor Provision Transcripts/Field Notes - Phase 1 and 2

Codes after initial coding

Code name
Accessibility prevents CYP being outdoors
Accessibility supports CYP with PMLD to be outdoors
Adults facilitate activities outdoors
Attached to classroom so able to use regularly
Aversion to risk taking
Being with
Child-led
Children enjoy being outdoors
Comparison to classroom spaces and provision
Comparison to indoor sensory experiences
Concerns around safety from parents
Culture of CYP with PMLD staying inside
Different types of outdoor provision and environments
Environmental features prevent access
CYP with PMLD are more equal outside
Equipment barriers

Code name
Family wellbeing is supported
Features of outdoor area
Find support in people around you
Fun
Funding preventing better access
Getting to know the children to interpret how they feel and think
Giving lived experience
How to assess progress
Importance of knowing CYP well to support them outside
Importance of opportunity
Intensive Interaction
Lack of resources
Lack of staff training and experience in supporting CYP with PMLD outdoors
Lack of time
Making a mess
Medical and health barriers
Medical equipment to be considered
Natural sensory experiences
Needing to have an outcome
New experiences
New responses
Not expecting an outcome

Code name
On-site provision helps access
Outdoor provision adapted to be inside
Overcoming staff barriers
Overwhelm
Pain
Parent perceptions support engagement
Parental perceptions impact access
Parents don't know how to support their child outside
PMLD children don't go outside
PMLD forgotten
Removal of equipment
Resources used to facilitate sensory stimulation
Risk assessments
Socioeconomic impacts
Staff concerns and worry preventing access
Staff confidence
Staff facilitate engagement
Staff feeling alone
Staff numbers linked to accessibility
Staff perceptions
Staff training
Staff understanding benefits
Staff understanding of how to support outdoors

Code name
Staff want to give it a go
Staffing numbers can prevent access
Start small
Supporting attention
Supporting communication
Supporting community
Supporting confidence
Supporting connection
Supporting engagement
Supporting independence
Supporting making choices
Supporting movement
Timetabled slots to plan access
Tolerating v enjoying
Transport barriers
Weather impacts accessibility
Weather supports sensory experience
Wellbeing
Worth the hard work

Appendix P: Codebook after refinement

Outdoor Provision Transcripts/Field Notes - Phase 1 and 2

Codes after round 2/3 refinement

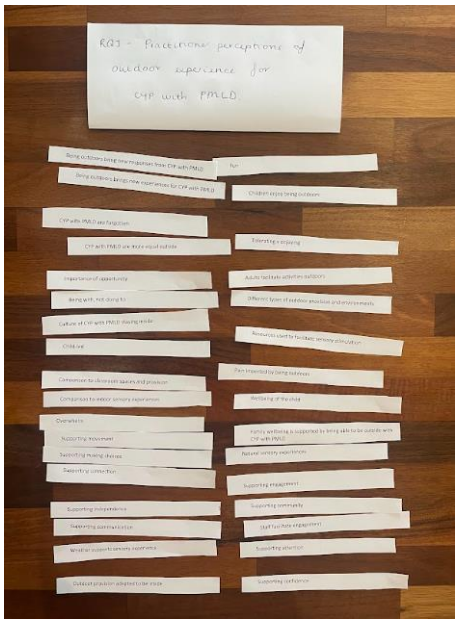
Code name
Accessibility prevents CYP with PMLD being outdoors
Accessibility supports CYP with PMLD to be outdoors
Adults facilitate activities outdoors
Attached to classroom so able to use regularly (merged into 'On-site provision supports access to the outdoors')
Aversion to risk taking
Being outdoors brings new experiences for CYP with PMLD
Being outdoors bring new responses from CYP with PMLD
Being with, not doing to
Child-led
Children enjoy being outdoors
Comparison to classroom spaces and provision
Comparison to indoor sensory experiences
Concerns around safety from parents (merged into 'Parental knowledge and perceptions can be barrier to access')
Culture of CYP with PMLD staying inside
CYP with PMLD are forgotten
CYP with PMLD are more equal outside
Different types of outdoor provision and environments
Environmental features prevent access (merged into 'Accessibility prevents CYP with PMLD being outdoors')

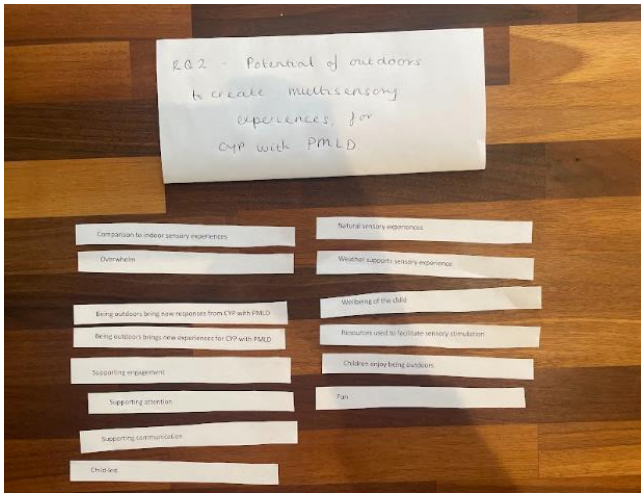
Code name
Equipment barriers (merged into ‘Medical and health barriers and equipment’)
Expectations of outcomes.
Family wellbeing is supported by being able to be outside with CYP with PMLD
Features of outdoor area (merged into ‘Different types of outdoor provision and environments’)
Find support in people around you
Fun
Funding prevents better access for CYP to be outdoors
Getting to know the children to interpret how they feel and think (merged into ‘Importance of knowing CYP well to support them outdoors’)
Giving lived experience (merged into ‘Importance of opportunity’)
How to assess progress
Importance of knowing CYP well to support them outside
Importance of opportunity
Intensive Interaction (merged into ‘Supporting communication’)
Lack of resources (merged into ‘Medical and health barriers and equipment’)
Lack of staff training and experience in supporting CYP with PMLD outdoors (merged into ‘Staff knowledge and training’)
Lack of time
Low staff confidence prevents access
Making a mess
Medical and health barriers and equipment
Medical equipment to be considered (merged into ‘Medical and health barriers and equipment’)
Natural sensory experiences

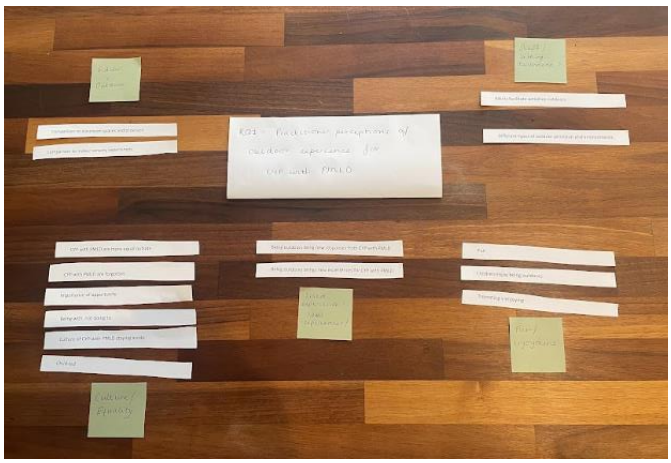
Code name
Not expecting an outcome (merged into ‘Expectations of outcomes’)
On-site provision supports access to the outdoors.
Outdoor provision adapted to be inside
Overcoming staff barriers (merged into ‘Staff knowledge and training’)
Overwhelm
Pain impacted by being outdoors
Parental perceptions can support access
Parental knowledge and perceptions can be barrier to access
Parents don't know how to support their child outside (merged into ‘Parental knowledge and perceptions can be barrier to access’)
PMLD children don't go outside (merged into ‘Culture of CYP with PMLD staying inside’)
Removal of medical and physical equipment to facilitate access (merged into ‘Medical and health barriers and equipment’)
Resources used to facilitate sensory stimulation
Risk assessments
Socioeconomic status impacts access to outdoors
Staff concerns and worry preventing access (merged into ‘Aversion to risk-taking’)
Staff facilitate engagement
Staff feeling alone
Staff knowledge and training
Staff numbers linked to accessibility
Staff perceptions (merged into ‘Staff knowledge and training’)
Staff understanding benefits (merged into ‘Staff knowledge and training’)

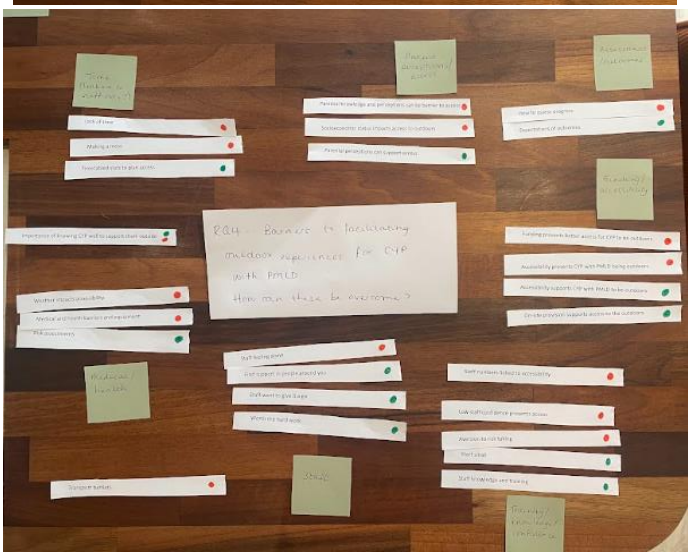
Code name
Staff understanding of how to support outdoors (merged into ‘Staff knowledge and training’)
Staff want to give it a go
Staffing numbers can prevent access (merged into ‘Staff numbers linked to accessibility’)
Start small
Supporting attention
Supporting communication
Supporting community
Supporting confidence
Supporting connection
Supporting engagement
Supporting independence
Supporting making choices
Supporting movement
Timetabled slots to plan access
Tolerating v enjoying
Transport barriers
Weather impacts accessibility
Weather supports sensory experience
Wellbeing of the child
Worth the hard work

Appendix Q: Photographs showing process of manual theming



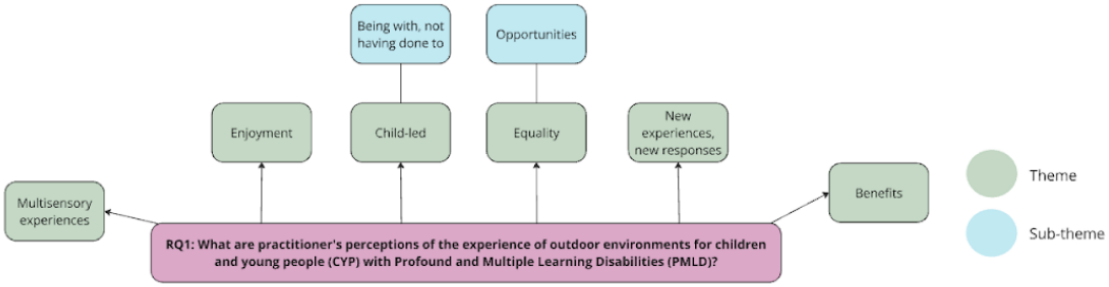




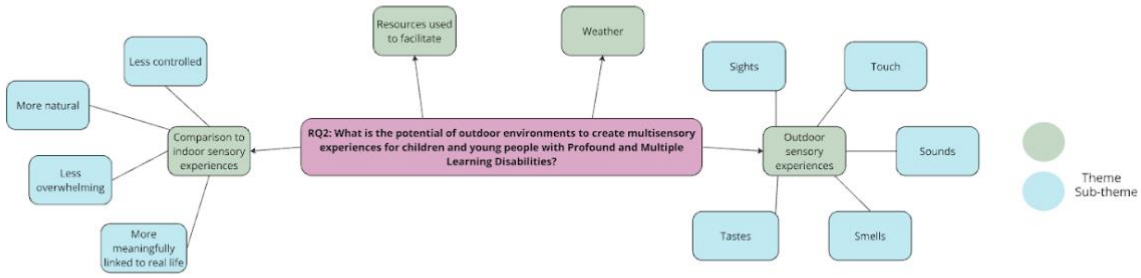


Appendix R: First development thematic maps

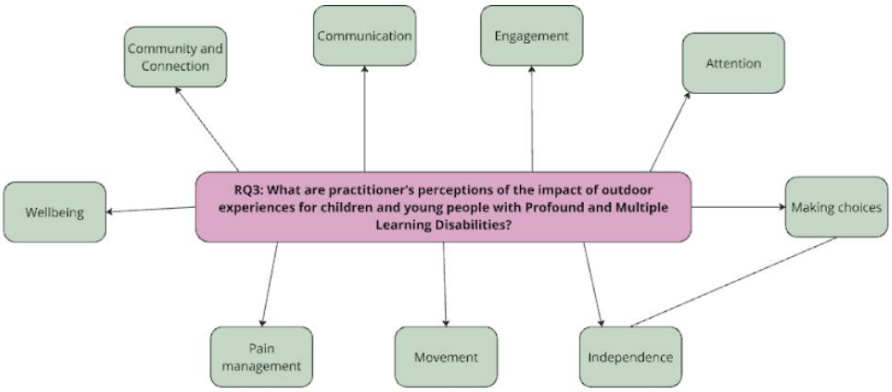
RQ1



RQ2

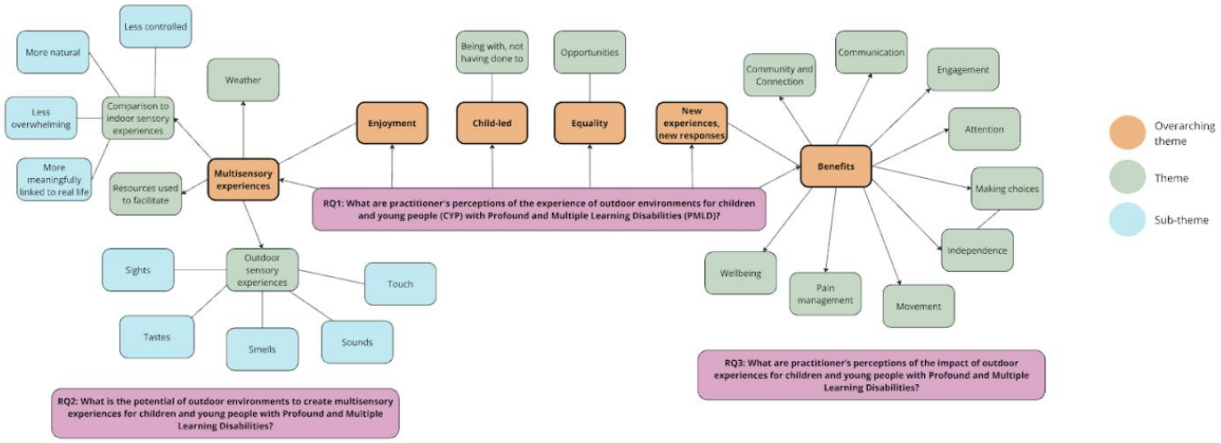


RQ3

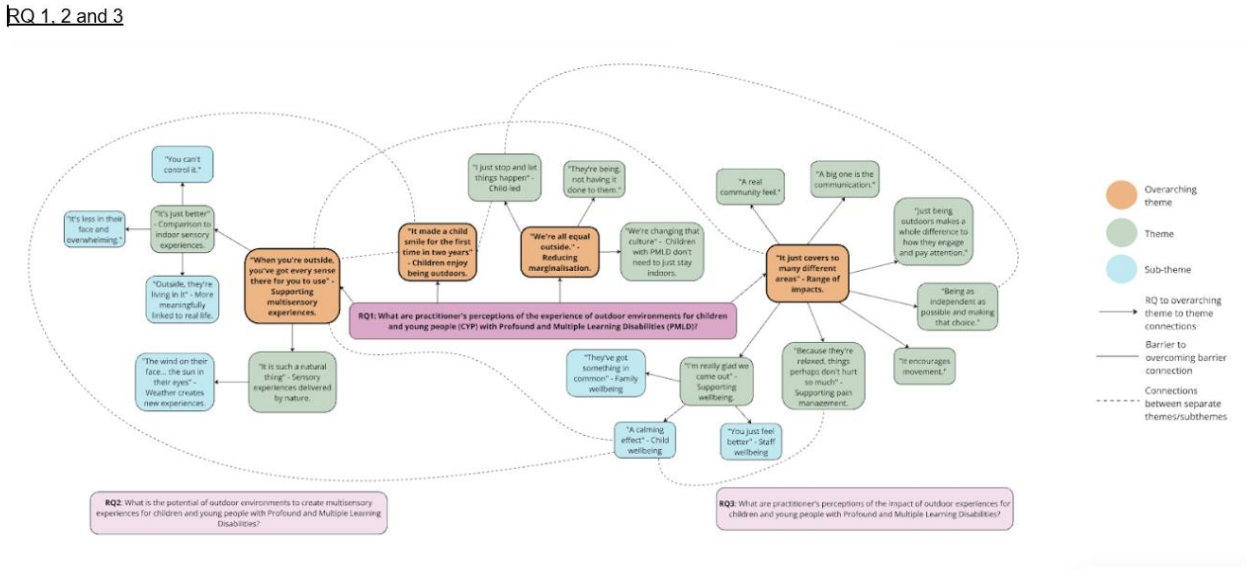


Appendix S: Second development thematic maps

RQ1,2,3



Appendix T: Third development thematic maps



Appendix U: Theme name descriptions

<u>Theme descriptions:</u>

- *"When you're outside, you've got every sense there for you to use" - Supporting multisensory experiences.*

The outdoor environment consists of features that can stimulate multisensory experiences for a range of senses.

- *"It is such a natural thing" - Sensory experiences delivered by nature.*

Whilst outside, specific resources and activities do not necessarily need to be facilitated to create multisensory experiences as features of the outdoor environment do this naturally. Multisensory experiences outdoors include sight, touch, smell, sounds, and taste.

- *"The wind on their face... the sun in their eyes" - Weather creates new experiences.*

This links to the theme of natural sensory experiences but focuses specifically on the sensory impact of different weathers, e.g. heat, cold, wind, sun, rain, and how this is experienced by the children.

- *"It's just better" - Comparison to indoor sensory experiences.*

Practitioners regularly compared the outdoor sensory experience to those that can be achieved inside, for example within sensory rooms. All practitioners expressed

that they preferred outdoor multisensory experiences, for a range of reasons separated into sub-themes below.

- *"Outside, they're living in it" - More meaningfully linked to real life.*

Discussions were had around the separation between indoor sensory experiences and real life, whereas the sensory nature of the outdoors is explicitly linked to what they're experiencing in the moment and helps them to make sense of their world.

- *"It's less in their face and overwhelming."*

Practitioners talked about indoor sensory experiences often being overwhelming e.g., all lights and sounds being turned on at once, whereas outdoor experiences were felt to be more calm.

- *"You can't control it."*

Outdoors sensory experiences are delivered by nature and therefore not controllable by practitioners, unlike indoor ones which are usually turned on and off by adults. This means that nobody necessarily knows what to expect and is experiencing it first-hand, for the first time, at the same time. This links to CYP 'not having done to' or having less control than adults around them.

- *"It made a child smile for the first time in two years" - Children enjoy being outdoors.*

Practitioners spoke about the different ways in which they can see the children they support particularly enjoy being outdoors, e.g. smiling, vocalisations, body movements etc. Some staff spoke about how they can see clear differences in the enjoyment had by children outdoors v. indoors.

- *"We're all equal outside." - Reducing marginalisation.*

Societal barriers can be fewer outdoors which increases equality and reduces marginalisation. Access to the sensory experiences outside are described as being accessible for everyone, regardless of disability.

- *"I just stop and let things happen" - Child-led*

Practitioners felt that the outdoors is a particularly useful space for experiences to be child-led and enable greater control and exploration. It was discussed that removing classroom barriers and expectations of outcomes supports this.

- *"They're being, not having it done to them."*

Linked to equality, many children with PMLD consistently have things 'done to' them, from learning experiences to medical/personal care. The outdoors provides an equal space for CYP to 'just be' alongside people they have relationships with.

- *"We're changing that culture" - Children with PMLD don't need to just stay indoors.*

Practitioners spoke a lot about many children with PMLD not accessing the outdoors at all due to a range of reasons, which has led to a culture of this not being expected for them. The staff believe in the value of outdoor experiences and want to change this culture to support children with PMLD to access the same spaces as other children.

- *"It just covers so many different areas" - Range of impacts.*

Overarching theme describing the wide range of impacts and benefits of outdoor experiences that were discussed by practitioners, subsequently separated into individual themes/sub-themes.

- *"A big one is the communication."*

The outdoors supports children with PMLD to express themselves and be more motivated to communicate in their individualised way.

- *"Just being outdoors makes a whole difference to how they engage and pay attention."*

Being outdoors supports children with PMLD to be more engaged and attend to their surroundings.

- *"It encourages movement."*

Being outdoors supports children with PMLD to move more, whether this may just be hand movements to touch natural materials, or getting out of their wheelchair to explore their surroundings.

- *"Because they're relaxed, things perhaps don't hurt so much" - Supporting pain management/health needs.*

Being outdoors supports relaxation and can be a distraction, which in turn can have a positive impact on the pain regularly experienced by children with PMLD.