**Young children's conceptualisation of images in their familiar environments.**

Sophia Gowers

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The University of Sheffield
Faculty of Social Sciences
School of Education

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**Abstract**

This study adopts a participatory visual mapping methodology to capture young children's interactions with, and comprehension of the visual mode in their familiar environments.  Adopting a social semiotics theoretical framework, this study is designed around two main aims: firstly, to explore the ways young children conceptualise images in their environment and secondly to identify how visual mapping, as a methodological approach, can be used to capture young children's comprehension of, and interactions with the visual mode.

The group of 4 to 5-year-old children involved in the study, are posed as social and active meaning makers with a variety of multimodal engagements, incorporating the visual mode.  As communicative practices are argued to be understood in context with surrounding cultural and social practices, the data for this study were collected in three key locations seen as familiar to the children involved: the home environment, Early Years setting, and a community leisure centre.  In each setting the children captured examples of the visual mode through digital photography, before creating two dimensional maps of their setting with the printed images.  Conversations between the researcher and child were recorded and transcribed, to draw out the meanings expressed by the children.  Thematic analysis was used to identify key themes.

The mapping technique enabled the children to be positioned as both message creators, through the production of their visual maps, and message receivers as they sought to make meaning of the multimodal texts they encountered within their environment.  The use of a mapping activity supported identification of the children's knowledge of the codes and conventions of the visual mode which may not so easily be put into words.  The study revealed that, for children, the context and location of images are important, with the presence of images and artefacts enabling familiarity with a place.  Furthermore, movement was identified as an intrinsic part of their multimodal engagements.

This study contributes to the developing body of participatory visual research methods. The use of mapped representations allowed children's perceptions of the spatial and embodied aspects of meaning making to be foregrounded.  It is now imperative that these perceptions are recognised and supported within the Early Years setting in order to create an environment which not only reflects children's prior experiences but the shifting communication practices of modern society.

# Acknowledgements

**Table of Contents**

**List of Figures**

**Chapter 1**

**Introduction**


**1.1 Introduction**


I developed this study in the belief that young children's communicative practices should be recognised as encompassing a diverse range of modes, besides the written and verbal.  Young children are social and active meaning makers who show interest, knowledge and skills in a variety of "multimodal engagements" (Marsh, 2004).  In understanding communication and representation, multimodality marks a shift beyond the linguistic to approaches which consider the "full range of communicational forms that people use … and the relationships between them" (Jewitt, 2009a, p. 14).  For the majority of my teaching career to date I have worked with young children in their first year of primary school:  The Early Years Foundation Stage.  The idea that there are a range of communicational forms which may be understood and used by children of this age, particularly resonates with my experiences: I continually observed children's engagement and interests in a range of communicational forms, particularly the visual mode.  The expectations of children's meaning making in school differ markedly from my own observations with children seen as coming into school to learn and develop their knowledge of the written mode, through reading it in print or using drawing simply as means of developing the necessary physical skills to form letters (Millard & Marsh, 2001).  Kress (1997, p. 9) argues that in school there is a focus on the "single medium of lettered representation literacy".  Furthermore, once children progress from the Early Years curricula the visual representations that they create, such as those which I continually observed within their multimodal engagements, are not further developed or built upon "as a means for future communication use" in school (Kress, 1997, p. 153).  Despite the increased importance of "new" or "digital" literacies in education, Burnett and Merchant (2015, p. 1) identify that recent curriculum reforms and their associated means of assessment continue to "privilege traditional literacy skills and print text".


Throughout this study I draw upon the work of other researchers including Clark & Moss (2001; 2005; 2011), Yamada-Rice (2010), Marsh et al., (2005) and Kress (1997; 2010).  My focus in this study was to identify how young children drew meaning from the visual mode within their familiar environments.  Following on from Kress' (1997) assertions that children's visual communicative practices are not developed or built upon in school and the recommendations made within Burnett and Merchant's (2015) Charter for 21st Century Literacies, which include acknowledging the multimodal nature of meaning making, I was eager to identify the visual engagements already held by young children on entering primary school.  Furthermore, in reflection of Marsh's

(2004) description of young children as social and active meaning makers I decided that a methodological approach was necessitated which encompassed movement in and around an environment. This is exemplified in the work of Hackett (2014) which illustrates the fundamental role of embodiment in young children's meaning making practices. This led me to the use of participatory visual maps as an appropriate means for capturing young children's interactions with, and comprehension of the visual mode as part of their multimodal engagements whilst recognising the physical and active nature of such meaning making engagements.

In this first chapter I provide an initial overview of the key theoretical concepts underpinning my research, which are further expanded upon in the literature review. I also offer an insight into my personal perceptions and rationale for this study. Given the focus in this study on creating a methodology which allows me to capture young children's active meaning making, I then provide an outline of visual mapping. Finally, I discuss the significance and contribution of my research to the field of study.

## 1.2  Young children as active meaning makers

Young children behave as social and active meaning makers in exploring and interacting with the world around them (Marsh, 2004), whilst Scollon and Scollon (2003) propose that the environments which they inhabit presents patterns of communication across all levels and modes in use. Throughout the study I use Bezemer and Kress' (2008, p. 171) definition of modes as a set of "socially and culturally shaped resources for meaning making". Modes may be thought of as the "content" of the communicative practices of representation and interaction, through which meaning is made.

Meaning making is not a static process. It is suggested that young children's meaning making is supported by their concurrent physical experiences (Daniels, 2016; Hackett, 2014; Mackey, 2010). This is something which I was readily able to observe within my teaching practice. Young children would move freely in and around the classroom environment, visiting and revisiting areas of interest within the early years provision as well as enacting their interests physically. One such example involved children playing with cars in a floor tray, they spent time exploring and playing with the cars before leaving them to make movements in and around the environment looping back to the tray several times. Following this they took the cars away from the tray entirely, transporting them to a sandpit in the outside area before tracing pathways back and forth in the sand using the wheels of the car. My observations are in line with the argument that young children are, as a matter of course, more embodied and more spatial than adults (Christensen, 2003), with children showing complexity in their use of non-verbal, embodied modes of communication (Hackett, 2014).

Research regarding children's understanding of the visual mode is limited, either to studies set in urban Japan (Yamada-Rice, 2010; 2013; 2014), older children (Mavers, 2003) or with primarily a technological focus (Stephen et al., 2008; Wohlwend, 2009). In each of these studies the link between the locations where children's meaning making took place and which aspects of the visual mode they were interacting with were not made explicit.  In order to recognise young children's thinking in the classroom, Bearne (2003) asserts it is important to discover what children think and know about the texts they encounter.  In doing so, one must also acknowledge Burnett and Merchant's (2015, p. 2) observation that the resources for communication are "richer, more diverse and more flexible than before", and therefore take account not only the range of texts which young children engage with but also the locations in which they are encountered.

This study offers an original contribution to the literature by exploring how young children conceptualise images in relation to their physical environment.  Furthermore, I wanted to gain an understanding of how young children developed their knowledge and understanding of the codes and conventions of the visual mode.  I was interested in identifying the links which the children made between examples of the visual mode throughout their environment, and how the children saw these in relation to one another.  I also wanted to find out how children made meaning with images as they moved in and around their environment, how context informed such meaning and the extent to which the children themselves were aware of the relationship between images and the physical environment.

**1.3 Visual mapping**

I had previously encountered the use of visual maps within Clark and Moss' (2001; 2005; 2011) multi-method Mosaic approach and felt that aspects of this could be adapted to gather young children's perspectives on the visual mode.  In this approach young children are viewed as "experts in their own lives" and a framework is provided for listening to young children's perspectives through talking, walking, making and reviewing together.  It is this range of methods, which explicitly encompass a variety of communicative modes, which Clark (2017, p.19) notes is necessary "in order to draw upon the strengths of individual children and to offer a range of opportunities to think".

The method of map making used within the Mosaic approach allowed 2D representations of an environment to be made by children using their own photographs and drawings (Clark & Moss, 2005).   In this instance maps were created on large circles of card with a hole in the centre to enable the young children involved to locate

themselves centrally and think about space "in the round".  The approach acknowledges the role of children and adults as co-constructors of meaning.  The maps which are created may be used as both individual records, created by the child, or as joint records, created in dialogue with an adult or another child.  The maps created provided a means for eliciting the children's ideas regarding their environment.

The use of visual mapping was chosen for this study as a methodology was needed which encompassed the physical nature of young children's meaning making with the visual mode in and around the familiar places they inhabit.  Clark and Moss (2005) demonstrated that visual maps are well suited to eliciting young children's ideas regarding their environment and this could be further adapted to focus on the occurrence of the visual mode within the environment.  Recognising that children are not static, I was keen to capture the sense of movement in and around an environment which served as a backdrop for the children's meaning making practices.  This study is grounded in multimodal social semiotic theory (Halliday, 1978; Kress 2010), which identifies the social and cultural context of communicative practices.  From this, young children's interaction and comprehension of the visual mode should be understood within the context of their familiar environments.  The use of visual maps allows the visual mode and the context in which it is found to be recorded whilst also being a method which young children are able to complete in partnership with the researcher. It was anticipated that the dialogue between the child and researcher during the mapping task would also serve to offer an insight into their perspectives regarding the visual mode, its placement within the environment and the features of it which supported their interaction and comprehension.

**1.4 Aims and overview of the study**

The main aim of this study was to explore the ways young children conceptualise and make meaning with images in their environment.  Given that I was using a particular methodological approach for this study, through the use of participatory visual maps, a secondary aim was to assess the efficacy of this methodology in capturing young children's comprehension of, and interactions with the visual mode.

I conducted my study through the development of case studies of five children, three boys and two girls, who attended the same Early Years setting at a school in England. This was the school in which I worked, however these children were in a class I did not teach in.  Data collection took place with each of the children individually.  Two of the case studies took place within the Early Years setting, two took place in the child's home environment, and a final case study took place in a nearby community leisure

centre.  The three settings were selected as they were all well-known locations which the children visited and ordinarily spent significant amounts of time in each week.

After acquiring consent from the school, parents and children, I conducted my data collection in two stages.  These stages were repeated for each of the children individually.  The first stage centred around the children capturing examples of the visual mode which they encountered within the environment.  I explained the task with the assistance of a children's picture book about maps, "My Map Book" by Sara Fanelli (2006), stating that I was interested in creating a map to show where images could be found in their environment.  I then accompanied the children around the setting as they captured examples of the visual mode using a digital camera.  In the second stage of data collection, I returned to the children the next week with printed copies of their photographs, a selection of paper, glue and mark making materials.  The children then used a selection of their images and materials of their own choosing to create a 2D map of their setting.  Throughout the map making stage of data collection I recorded the conversations which took place between myself and the child.  These conversations were later transcribed and subject to thematic analysis.  A more detailed description of the methodology and means of analysis used is provided in Chapter 3.

**1.5 The research questions**

With my professional role I identified that young children entered the school environment with a wealth of existing knowledge regarding different communicative practices.  Communication and interaction encompass a range of different modes (Kress & Van Leeuwen, 2001b), and I continually observed young children confidently showing great interest and engagement in making meaning with the visual mode.  This was readily evidenced by their knowledge and expertise in relation to a range of media, from magazines and books to television programmes and interactive computer games. During home visits conducted prior to the children starting primary school I found that the children would not only share with me toys and games based on their favourite television programmes, but also ascribe meaning to different images around their home.  Furthermore, within the classroom environment I found that children would not only interact with signs and images as message receivers, but go on to create their own images as message creators in communicating with the adults and children within the setting.  The term "message" is used throughout this study to refer to the single intended meaning conveyed through a multimodal text with an audience in mind.  This reflects the underlying assumption that communicative practices involve both representation and interaction (Kress & Van Leeuwen, 2001a) and draws upon Kress' (2010) concept of a sign-complex which conveys a message which takes account of both the maker's interest and the audience's characteristics.  The dual positioning that I observed of children as both receivers and creators of messages using the visual mode

suggested to me that not only were young children continuously engaged in meaning making, but that they possessed a degree of knowledge and expertise in doing so with the visual mode.

Given the apparent ease and fluency with which young children approached images within their environment I wanted to identify the specific aspects that they were engaging with. This led me to adopt a multimodal social semiotics theoretical framework (Kress, 1997), to understand the ways young children interact with and comprehend the visual mode. I wanted to know if there were particular types of images that children were more interested in, and how they made meaning in relation to these. In addition to this, as I had seen young children interact with images in both their home and school environments I was keen to find out whether such engagements were shaped by the unique context of images or their immediate environment.

In approaching this thesis, I sought to find a means of capturing the wealth of knowledge and skills which young children already held, thus allowing them to represent their own engagements with the visual mode. This necessitated the use of a methodological approach which would not only be accessible to young children and position them as both active meaning makers and informants in their own experiences, but also allow them to demonstrate first-hand the knowledge and expertise they held regarding the visual mode in using this to convey meaning. Drawing upon the Mosaic Approach (Clark & Moss, 2001; 2005; 2011), participatory visual mapping was chosen for this study as this encompassed the physical nature of young children's meaning making with the visual mode in and around the familiar places they inhabit.

The research questions for this thesis are:
1. How do young children conceptualise images within their physical environment?
2. How do children use the visual mode within a mapping activity to convey meaning?
3. How may visual mapping, as a methodological approach, be used to elicit young children's perspectives?

## 1.6 Organisation of the thesis

Following on from this introduction, the thesis is structured in the following order:

Chapter two forms the literature review. Firstly, it presents the multimodal theory which underpins this thesis. It then explores the literature regarding the visual mode.

Next it identifies children's comprehension of the visual mode and their preferences for representation and communicative practices.  Finally, the familiar environments of a child are identified and how these may be recorded through mapping.

Chapter three presents the methodology for the study.  It presents a rationale for the use of both visual and participatory methods with young children.  A clear outline of the data collection process is given, including the visual mapping methodology.  I go on to describe the ethical dilemmas I faced in relation to the use of visual methods and participation and my response to these within the context of this thesis.  I conclude by outlining the process of data analysis.

Chapter four details the overarching results of this study.  This chapter serves to demonstrate how the three main themes of the study were identified through thematic analysis.  It presents each of the children individually and records the themes identified within their data and the research questions these contribute towards answering.

Chapter five presents the results of this study and an analysis of the findings.  It presents the children's individual maps, before considering the themes and subthemes which were identified within the results overview.

Chapter six outlines the key findings of the study in relation to the three research questions.

Chapter seven concludes the thesis.  It identifies the implications of this study for practice, with considerations for both practitioners and policy makers.  Areas for future research are identified.

**Chapter 2**

**Literature Review**

## 2.1 Introduction

This thesis examines young children's conceptualisations of the images they encounter within their environment.  Such images form part of their wider "multimodal engagements" (Marsh, 2004).  As a result, this literature review will start by exploring the concept of multimodality before defining the visual mode as a constituent part of the images which young children encounter and interact with.  Multimodality is an interdisciplinary approach which considers communication and representation "to be more than about language" (Jewitt, 2009a, p. 14).  Developments in research over the past decade have allowed this approach to begin to address questions about changes in society, for example in relation to new media and technologies, as well as those relating to differences in communication and representation, such as those found in different cultures.  Jewitt (2009b) identifies that multimodal approaches allow the development of research tools and frameworks to support the collection and analysis of texts and interactions, including their visual, aural, embodied and spatial aspects.

Communicative practices involve both representation and interaction (Kress & Van Leeuwen, 2001a).  Interaction allows communication to take place, in which we engage in doing something to, for, or with other people.  Such communicative activities are only made possible when linked to some form of representational "content".  It is the nature and construction of this "content", and the process by which this is communicated through interactions which is of particular interest to multimodal theory.  Jewitt (2009a) proposes that the core concepts and terminologies which underpin multimodal theory are in a state of change and fluidity as a result of being taken up and shaped in different ways by different approaches to multimodal research.  In order to ensure clarity within the research presented in this paper a consistent set of terms and definitions for these is necessary, whilst acknowledging the origins and histories for these.  As a result, the initial sections forming this chapter seek to outline the key perspectives within multimodality and identify how the features of communication, representation and interaction are articulated within these before focusing on images as multimodal texts which may be used to convey meaning.

This study focuses on young children's conceptualisation of images and in turn their understanding of the use of the visual mode to convey meaning.  The visual mode may be viewed both individually and as a constituent part of a multimodal ensemble.  A range of evidence identifies young children as social and active meaning makers with a variety of multimodal engagements, including those with the visual mode (Marsh, 2004;

Yamada-Rice, 2010; 2013).  In spite of this growing awareness of children's diverse meaning making practices it has been suggested that young children are viewed as in deficit, with a particular focus on their relative lack of skill in the use of written and spoken modes when entering school (Millard & Marsh, 2001).  The more recent work of Burnett and Merchant (2015) supports this as they claim that in spite of curriculum reforms which have taken place, there remains a tendency to privilege traditional literacies and the written mode through "print text".  Whilst educators are aware of the need to build upon young children's pre-existing knowledge of the written mode, including their prior experiences with environmental print (see Hannon and Nutbrown, 1997), other modes of communication may not be viewed in the same way in educational practice.  Children's wider multimodal communication practices incorporate the visual mode (Yamada-Rice, 2014), and are reflective of wider, evolving means of communication in society which Jewitt (2002) claims are increasingly visual in nature.  Consequently, this study seeks to highlight the pre-existing skills and knowledge which young children hold in relation to the multimodal texts which they engage with in their everyday lives, which educators may subsequently build upon.

The second half of this chapter focuses on what is currently known about young children's communicative practices and highlights the importance of the visual mode as part of their multimodal engagements in a range of familiar environments.  Given Mackey's (2010) assertion that we seek to turn the space around us into the kind of place which is familiar and meaningful, the literature regarding young children's meaning making practices within their familiar environments will be explored including the ways this can be recorded.  Within this study, a visual mapping approach is proposed as providing a means of capturing children's engagements with images within the context of their environments.  As a result, the literature regarding children's understanding of maps and the ways they have been used within previous research is outlined within this chapter ahead of a detailed exploration of maps as a methodological tool which follows in the methodology chapter.

This review of the literature will begin by examining the theoretical framework which underpins this thesis.  This includes an overview of key concepts, a consideration of the different approaches to multimodality and a justification of the grounding of this study in multimodal social semiotic theory.  Following this, the nature of the visual mode and its place in representation and communicative practices is explored.  This chapter concludes by identifying the multimodal nature of young children's communicative practices within the context of their familiar environments and the ways this can be captured using maps.

## 2.2 Underlying concepts in multimodality

Whilst there are different perspectives on multimodality, commonalities and connections may be found between these which may serve as a starting point from which to understand multimodality. Jewitt (2009a) outlines four interconnected theoretical assumptions which underpin the broad conception of multimodality. Firstly, language appears as only one part of a wider multimodal ensemble. In support of this, Norris (2004, p. 3) states that multimodality "steps away from the notion that language always plays the central role in interaction, without denying that it often does". Although language is often positioned as the most significant mode of communication, multimodality upholds the assumption that representation and communication may draw upon a range of modes, all of which have the potential to contribute to the overall meaning conveyed (Jewitt, 2009b). In fact, it is argued that, "particular modes of communication should be seen in their environment, in the environment of all the other modes of communication which surround them" (Kress & Van Leeuwen, 2001a, p. 33). Following on from this, the second assumption Jewitt (2009a, p. 15) presents is that each of the modes present within a multimodal ensemble is "understood as realising different communicative work", with modes being shaped over time by their "cultural, historical and social uses to realise social functions". Modes take on specific roles in a specific context and moment in time; such roles are not fixed but may be described as articulated and situated (see Kress & Van Leeuwen, 2001b). Jewitt's (2009a, p. 15) third theoretical assumption is that people may "orchestrate meaning through their choice and configuration of modes". As a result, the interaction between modes is significant to the overall meaning conveyed, with meanings produced through the co-presentation of modes which co-operate within the communicative event. The final assumption is that meanings communicated through multimodal resources are social. In effect this means that such communications are shaped by the prevailing norms and rules operating, alongside the motivations and interests of its creator in a specific moment and social context (Jewitt, 2009a). The creator may access a multitude of different modes, using these to select, adapt and refashion meanings and it is these which affect and shape the communication that is made.

As noted within the four underlying theoretical assumptions outlined, it is individual modes which may be combined in order to disseminate multimodal communications. Kress (2010, p. 79) defines mode as "a socially shaped and culturally given semiotic resource for making meaning", with mode classifying a "channel" of representation or communication (Kress & Van Leeuwen, 2001a). The definitions of mode and semiotic resources however are subject to differing perspectives. From a social semiotic perspective, a mode is viewed as "an outcome of the cultural shaping of a material" (Jewitt, 2009a, p. 21), with the daily social interaction of people contributing to the active shaping of modes. Following this, the semiotic resources of a mode come to

display regularities through their uses in communicative practice and can be thought of as the connection between representational resources and what people do with them (Kress, 2010).  The possibilities for expression and representation with a mode may be described as the modal affordance, and this may encompass both the material aspects of a mode as well as its former cultural, social and historical uses.

Modal affordance indicates not only what is made possible through the use of a particular mode but also what that mode may be "best" for, both on an individual basis and also in terms of its inter-semiotic relationships once configured alongside other modes in a particular context.  This may be thought of in terms of what different modes afford for making meaning (Bearne & Wolstencroft, 2007).  Taking the example of children's picture books, which comprise of images alongside writing to produce an overall text, modal affordance raises the question of what the constituent modes on the page, whether visual, written or otherwise, and their arrangements within the overall text may be "best" for.  The written content of the book may be used for "telling", and may make use of vocabulary, sentence structure, grammar and other linguistic devices.  The images on the other hand, may be used for "showing" the reader what is happening and make use of size, layout, shape, and colour.  Modes do not stand alone within a text, the relationships between modes may themselves realise meanings through particular modal combinations, different weightings of modes (Martinec & Salway, 2005) or modal density in an ensemble (Norris, 2009).  Colour, size and shape are not limited solely to images and may be employed through the use of font and typography to enhance and give greater meaning to the written content within an ensemble.  The affordance specifically of the visual mode, within the context of the United Kingdom, will be explored in a subsequent section.

A slightly different conception of mode may be found in the work of O'Halloran (2004) and O'Toole (1994).  Following on from Halliday's (1978) linguistic perspective, language, mathematical symbolism and images may be seen as semiotic resources rather the modes.  Given that semiotic resources consist of systems of meaning that realise different functions, choices may be made between the systems of meaning of different semiotic resources in order to convey meaning.  Taking the semiotic resource of language as an example, meaning may be realised not only through written text, a visual mode, but also through spoken language, an oral mode.  In selecting different modes for communication, the meanings realised may change, for example as identified by O'Halloran (2008) in the case of mathematical symbolism.

An important distinction may be made at this point between media and mode, as this may be thought of in terms of a dichotomy between content and expression.  Media may be thought of as the "material resources used in the production of semiotic products and events" (Kress & Van Leeuwen, 2001a, p. 22), and this may include both

the tools and the materials used.  Key to media is the specificity of their production for a particular purpose. Media relates to the manner of dissemination employed whether through letter, film or e-mail.  Van Leeuwen (2005) identifies that such specificity may be thought of as having both cultural, in the presence and availability of resources such as computers, paper and ink, and natural influences, in the physiology of our vocal apparatus.  In the case of road signs, the traffic sign itself is the medium whereas the red border and image inside it is the mode (Kress, 2010), with the overall message conveyed resulting from the combination of modes in the culturally recognised medium of signage at road junctions.  In addition to this, it may be argued that although different media may provide the resources for multimodal communication, they do so in a way which lends themselves to the foregrounding of particular modes.  The medium of road signs, which are viewed predominantly from a distance, lend themselves to the use of image as these may be seen and understood at a glance from afar with any written content merely confirming the message being conveyed.  In summary, media may be thought of as supporting the expressive act of communication. Mode on the other hand relates to the content of a communicative act.  As previously suggested, modes may be identified as semiotic resources and it is these which allow the "simultaneous realisation of discourses and types of interaction" (Kress & Van Leeuwen, 2001, p. 21).

**2.3 Multimodal theory**

In identifying the approaches to multimodality, Jewitt (2009b) outlines three branches in the development of multimodal theory in educational research, and the key figures within these: the social semiotic approach to multimodal analysis associated with the work of Kress and Van Leeuwen (2001a); a systematic functional grammar (SFG) multimodal approach to discourse analysis associated with the work of Toole, Baldrey, Tibault and O'Halloran (see O'Halloran, 2004; 2008); and multimodal interactional theory such as the work associated with Scollon and Scollon (2003).  The shaping of these branches of multimodality has resulted in differing degrees of emphasis being placed upon context, the relations between modes and modal systems, and the role of those communicating.  Consequently, each of these branches offers a unique perspective to multimodality which stem from differing historical perspectives.

The branches of social semiotics and systematic functional grammar (SFG) originate from the work of Michael Halliday (1978; 1984).  Within "Language as Social Semiotic", Halliday (1978) contested literacy studies of the time which he felt gave "no consideration that becoming literate might be a social process" (Hall, 1987, p. 3).  In contrast to traditional literacy studies Halliday's work put forward the idea that "representation and communication are motivated by the social" (Kress, 2005, p. 6). Van Leeuwen (2005) outlines that the notion of "semiotic resource", which is central to

multimodal social semiotics, originated in Halliday's work in which it is argued that the grammar of language is neither a code, nor a set of rules for producing correct sentences but a "resource for making meanings" (1978, p. 192).  Such semiotic resources may be integrated to communicate meaning through texts, with the term text in such instances being used to signify a cohesive unit of meaning in communication rather than as a synonym for writing.  Halliday outlined that the communicative message conveyed by texts may be understood as complex "signs".  Such signs, according to Halliday, are a material instantiation of the social functions of language (Jewitt, 2009b), realised as three metafunctions which operate simultaneously to make meaning: (1) the ideational, (2) the interpersonal and (3) the textual.  Bearne (2009) indicates that the ideational component involves decisions about the interpersonal component, between author and audience, and these are realised in textual form, as a cohesive unit of meaning, which communicates ideas and intentions in a coherent manner.  This represents a shift in focus to the way communication is shaped by the way people use it to convey meaning.  It is meaning which drives the approaches taken to communicate with an audience, whether they are readers, listeners or watchers, and in turn influences the structure of the text.  This approach to multimodality takes into account a range of non-linguistic components of communication including image, music, sound, gesture, movement and colour alongside written and spoken language (Kress & Van Leeuwen, 2001a).

### 2.3.1 Social semiotic theory

Social semiotic theory identifies that in order to understand advances in communication practices consideration must also be made of social changes, given that the two are reflected in each other (Yamada-Rice, 2013).  Meaning arises in social environments and social interactions, with the social being "the source, the origin and generator of meaning" (Kress, 2010, p. 54).  Kress signals that the focus of social semiotics is the generation of meaning, or "sign-making", in social interactions rather than its use.  Within social semiotics distinct strands may be identified which draw upon either the linguistic or the semiotic perspective of Halliday's (1978) theory, resulting in differently placed emphases and approaches.

Drawing upon the semiotic aspects of Halliday's work, Kress and Van Leeuwen (2001a) highlight the ways in which the three types of social meaning may be realised visually through composition, modality and framing.  They use the term "grammar" to describe the ways in which depicted elements may combine in visual statements which alter the meaning and complexity depicted.  Grammar in this sense is an overarching term which describes the regularities and patterns of a particular mode which a culture has produced, and is distinct from the linguistic use of the term.  Kress and Van Leeuwen's work on visual communication provided a basis for extending and adapting the social

semiotic approach to multimodality across a range of modes.  Through the evolution of this approach to multimodality, growing emphasis was placed upon the context of communication and the shaping of signs and meanings (Jewitt, 2009b).  In analysing sign-making as a social process, theorists such as Kress and Van Leeuwen expanded the realm of reference to draw not only on the work of socio-linguists, including Goffman (1975), Bateson (1973) and Hall (1987), but also to approaches offering an insight into non-linguistic modes such as those from art history, iconography, film theory and musicology.

### 2.3.2 Multimodal discourse analysis

An alternate approach to multimodality which uses Halliday's (1984) social systemic functional grammar (SFG) as its central theoretical framework may be found in multimodal discourse analysis.  In contrast to the social semiotics of Kress and Van Leeuwen, which uses the term "discourse" to identify macropolitical and social interests, multimodal discourse analysis as used by O'Halloran (2004) approaches "discourse" at a microtextual level, investigating how semiotic resources interact and impact upon each other within a text to convey meaning.  This perspective on multimodality builds upon O'Toole's (1994) application of SFG to examine the constituent structure of art images, for which a framework was produced to document the systems of meaning as well as the realisation of the three metafunctions; ideational, interpersonal and textual.  Drawing upon the Hallidayan linguistic principle of Rank Scale (Halliday, 1984), the framework sought to interpret displayed art in terms of a hierarchy of meaningful units as well as relating these meanings to the contexts in which they are situated.  This approach to visual analysis was extended by O'Halloran (2004; 2008) to describe the grammatical systems that constitute the meaning potentials of semiotic resources and the metafunctions as being able to provide a platform for "conceptualising semiotic resources and for analysing the ways semiotic choices integrate in objects and events" (O'Halloran, 2009, p. 101).  Consequently, the analytical focus is on accounting for the presence of semiotic resources and how these may be integrated in multimodal artefacts, events and texts.  Baldry and Thibault (2006) approach this by defining the variables present in a multimodal text and how they combine to make meaning.  In multimodal discourse analysis the text itself, rather than the sign-maker, may be said to be the focus of this perspective on multimodality.

### 2.3.3 Multimodal interactional analysis

A third key perspective on multimodality may be found in multimodal interactional analysis.  The environment may be said to present patterns of communication across all levels and modes (Scollon & Scollon, 2003).  It is against this backdrop that individuals

behave as social and active meaning makers in exploring and interacting with the world around them.  This perspective draws upon the work of Kress and Van Leeuwen (2001a) on multimodality in addition to ethnographic studies of identity construction, which identify the ways identity may be constructed on multiple levels in multiple modes (Jewitt, 2009b).  By combining interactional socio-linguistics, intercultural communication and multimodal semiotics, Scollon and Scollon (2003) were able to explore how the physical and material characteristics of language may give meaning to everyday interactions.  This perspective places emphasis on the nature of context and situated interaction, with individuals placed as "social actors" who may employ a variety of modes to bring into being social interactions, identities and relations.  Norris (2004, p.4) outlines that the goal of the multimodal interactional analyst is to "understand and describe what is going on in a given interaction" and that this includes the analysis of what individuals express and react to and the ways in which ongoing interaction is co-constructed as a social process.  In contrast to the previous two perspectives outlines, Jewitt (2009b, p. 34) claims that the perspective of multimodal interactional analysis "shifts attention from representation and communication to interaction".  In doing so it expands the focus of interactions from linguistic to explore how people mediate interaction through the use of movement, gaze, gesture, posture, space and objects in a given context.


**2.4 The visual mode**


As previously identified, all communication is multimodal in nature (Kress, 2010), with young children identified as social and active meaning makers who access a variety of multimodal engagements (Marsh, 2004).  It is the presence of the visual mode within a multimodal ensemble and the ways in which it is not only used to convey meaning but how this is then interpreted, which is of particular interest within the following study.  Following on from Jewitt's (2009a) assertion that multimodality marks a shift beyond the linguistic, it is argued that multimodal communication and representation need not privilege those with more "adult" or advanced linguistic skills as a range of forms may be used.  This is significant when considering the positioning of the competencies and capabilities of young children within the dominant models of communication and learning of school settings which Hackett and Yamada-Rice (2015) argue tend to prioritise adult perspectives through their grounding in written and spoken language.  For children within the primary school age range, Taylor (2014) identifies that the National Curriculum values face-to-face communication in terms of standard spoken English, however multimodal micro-analysis of the classroom conversations held between pupils across a range of subjects highlighted the importance of embodied aspects of communication.  For example, within an observed Science lesson in Year 5, pupils used gaze, gesture, posture and facial expression alongside speech in order to collaboratively construct knowledge.  A greater discussion regarding the positioning of

spoken and written language in relation to other forms of communication both historically and within the classroom environment is given within methodology chapter in arguing the case for the use of visual methods in participatory research with young children.  Within this chapter the visual mode shall be described and defined, with a view to aiding such later discussion.

In considering the visual mode, it will be viewed both individually and as a constituent part of a multimodal ensemble.  The term "text" shall be used in line with the Halliday's (1978) definition to signify a cohesive unit of meaning in communication rather than as a synonym for writing or the printed word.  Throughout the definition and description of multimodality in the preceding section, reference has been made to four core components of meaning: mode, medium, modal affordance and inter-semiotic relations.  The implications of these four components for the visual mode in meaning making and communication will be further explored within the subsequent sections.  These will be used to highlight the importance and use of the visual mode within multimodal communicative practices, with a particular focus on the interaction and comprehension of young children.

## 2.5 The visual mode as distinct from other modes

In describing and defining the visual mode, it is necessary to consider what distinguishes it from other modes and the ways in which such differences may be identified.  Dondis (1974) describes the visual mode as being a "whole body of data" which may be used in the composition and comprehension of messages.  Whether used on a functional basis or for artistic expression, the body of data which Dondis describes comprises of component parts which combine to give an overall message or meaning.  The component parts or resources of the visual mode differ from those of the spoken or written mode, given that verbal literacies through grammar and syntax readily establish the limits and constraints of their usage, with the apparent lack of organisation and readily defined limits and regularities within the visual mode posing difficulties for their definition and description.

One way of looking at the visual mode is to consider what it is about it that makes it a mode.  Kress (2003) makes the assumption, in line with the semiotic theory of Michael Halliday (1978; 1984), that "any fully functioning human semiotic resource must have the potential to meet three demands" (Kress, 2003, p. 66), thus fulfilling the metafunctions of language.  Firstly, in order to fulfil the ideational component semiotic resources must enable the representation of the state of affairs or events in the world.  Secondly, it must allow representation of social relations between those involved in communication in fulfilling the interpersonal function.  Finally, the textual function

requires that semiotic resources allows such communication to be represented as a message or "text" which is coherent both internally and in terms of its environment (Kress and Van Leeuwen, 2001a).

The semiotic resources of the visual mode enable these three demands to be met through composition, modality and framing.  They enable visual images to be configured to design interpersonal meaning, present the world and events in specific ways and finally to realise coherence (Jewitt, 2009a).  Composition is the placement or arrangement of elements within an image, and as a result "the way they are integrated into a meaningful whole" (Kress and Van Leewuen, 2006, p. 176).  As a consequence, composition relates directly to Halliday's (1978) textual metafunctions.  In the case of photographs, the image produced originated from a physical position in space, and it is the vantage point of the camera which "dictates" the resulting composition (Klett, 2011).  Following on from this, "framing" refers to the ways in which elements within a visual array may be given separate identities or represented as belonging together, with framing being able to "connect" or "disconnect" elements (Jewitt & Oyama, 2001).  Framing may achieve disconnection in a number of ways through the creation of visual discontinuity.  This may be created through the use of framelines of varying thickness, the inclusion of empty space between elements and also through contrasts of colour and form.  In contrast, connection may be achieved through similarities of colour and form, vectors which connect elements and the absence of framelines.  In photography, framing may be decided not only at the point of offering the camera lens to the scene but also when making a print of the image, through cropping or adding borders to the image through physical or digital means (Lister & Wells, 2001).  Overall the discontinuity or continuity between elements expresses how they are separated or made to belong together (Kress & Van Leeuwen, 2001a).  According to Jewitt (2009a), this meaning potential may be made more precise through both the context and the specific means of framing chosen.

Modality refers to the extent to which an image is believable with Jewitt and Oyama (2001, p. 151) suggesting that modality refers to the "reality value" of an image. Different stances toward reality are unique to the mode being used for communication and are not similarly encoded in different modes (Scollon & Scollon, 2009).  Kress and Van Leeuwen (2006, pp. 160- 163) identify eight markers which help determine the modality of an image: colour saturation, colour differentiation, colour modulation, contextualisation, representation, depth, illumination and brightness.  Any extreme in a particular modality sub-category causes the believability of an image to suffer, whilst the mid-range within each sub-category is where the believability of each image is strongest.  Such markers are not fixed in nature, reflecting the social and cultural influences of meaning making.  In the case of a message being conveyed through a text, both the message creator and message receiver's assessment of such modality cues are

"social, dependent on what is considered real (or true, or sacred) in the social group for which the representation is primarily intended" (Kress & Van Leeuwen, 2006, p. 158). It is for this reason that Kress and Van Leeuwen (2006) assert that visual truth is not absolute.

**2.6 Making meaning through the visual mode**

The potentials of different modes for meaning making has a fundamental effect on their choice in differing instances of communication and interaction (Kress, 2010). Indeed, Dondis (1974) notes that a bias towards visual information is not difficult to identify within human behaviour. Visual information may be sought to reinforce knowledge, find a more direct source of information or be chosen due to its close ability to replicate real experiences. As previously identified, the semiotic resources of the visual mode enable this to be achieved through composition, the arrangement of constituent elements, framing, the connection or disconnection created between elements, and modality, the reality value or believability of the image. Given the apparent potentials of the visual mode for meaning making, this raises the question of how meaning may be drawn by the viewer or audience, and how this may match or differ from the intentions of the image creator.

The overall meaning of texts containing the visual mode comes from the arrangement and combination of different visual elements. According to Bearne (2009) text grammars "represent expectations that certain texts will be structured according to developed conventions" (p. 157). In line with social semiotic theory (Halliday, 1978; Kress, 2010), the grammars of text may be "culturally developed, mediated and maintained" (Bearne, 2009, p. 157), however there is still the possibility for individual agency. As a consequence, rather than grammar being positioned as a fixed set of rules, the concept of patterns of communication and representation allows for flexibility, transformation and creativity (Kress, 2003). A central component to multimodality is the concept of design and intentionality (Cope & Kalantzis, 2000; Kress, 2003; Kress & Van Leeuwen, 2001a), which emphasises not only the social relationships of any communicative act but also the possibilities for transformation as texts are constructed and disseminated.

The work of Roland Barthes (1915- 1980) identifies that the meanings which are drawn from images are not self-evident and there is no universality in how we understand what we see. When considering photography, the effects of the image on the viewer are identified as distinct from the photographer, and also from the object photographed (Barthes, 1993). Barthes identifies two levels of meaning; the immediate visual impact denoted meaning, or first order meaning, with the cultural

meaning which is then attached to it referred to as the connoted or second order meaning.  It follows that the recognition of what is registered by the image or photograph, for example a photograph of a car, would form the denoted meaning whilst the connoted meaning would come from the possibilities of the image to give meaning beyond or even contrary to the authors' intention.  When considering young children's interpretation of images and signs within their local environment, a multitude of examples may be found in Yamada-Rice's (2014) study of children demonstrating both their denoted meaning, for example in recognising the trains, cars or dogs depicted in street signs, as well as the connoted meaning they attribute by drawing from their first hand experiences both of the images depicted in their physical forms or from making links to similar texts they have experienced elsewhere.

As touched upon previously within this chapter, different modes and media may afford different meaning (Bearne & Wolstencroft, 2007), and it follows that presenting the visual mode using different media may in turn convey different messages.  The affordance of a mode is shaped by what it has been repeatedly used to mean and do, the social norms and conventions that inform its use in a given context and the material of the medium itself (Lemke, 2000).  Reading a story featuring well known characters in a printed book affords a different experience to watching a television or film narrative featuring the same characters.  The nature of the material by which the book is made allows pages to be turned by hand, thus enabling the reader to skip sections, alter the pace of reading, or return to previous pages within the book to check details or recapture the narrative flow.  On a film, although fast forwarding and rewinding are possible this creates a very different experience to that of a book.  Affordances are also related to different messages according to whether they are presented solely in the written mode or through a combination of the written and visual mode.   The written mode is necessarily chronological in nature and sequenced according to time, for example through the plot of a story or a sequence of instructions.  In each case the maker of the text tells the reader the message.  If on the other hand, the visual mode is used this may similarly involve an element of sequencing or chronology but may also utilise a spatial element in terms of how elements are arranged individually or in relation to other images or the written mode.  The maker of the text shows the reader their message and may use devices including: arrows, shading, text boxes, font, colour. It is in such instances that the visual mode is demonstrably more than "ornamentation" or "illustration" (see Kress, 2010), but becomes a vehicle for taking the reader through the overall design and conveying the message in a particular manner.  Kaminski (2019) identifies that the aesthetic effect of picture books is created through the "interplay of pictures and words" as the written and visual mode combine on the page, however a further layer is added when picture books are read aloud and experienced as a multimodal text of sound and images.

One way of identifying what a particular mode contributes within a multimodal ensemble is to consider its functional load. The functional load refers to the relative status or weighting of a mode within an ensemble (Martinec & Salway, 2005). When conducting a content analysis of the texts which young children captured through photography in their local urban environment, Yamada-Rice (2013) categorised the functional load of the visual and written modes. The original text, from which the child's photograph resulted, was categorised as being either visual mode dominant with the written mode secondary, written mode dominant with the visual mode secondary, purely visual, purely written, or with equal weight given to the written and visual mode. This categorisation is useful in considering not only which modes are present, and the degree to which they contribute to the overall meaning of a text, but it also points to the types of texts which young children show interest in.

It is clear that the composition of a multimodal text, incorporating the visual mode, involves a great degree of design and intentionality in bringing together the constituent elements to convey meaning. Whilst this may be achieved through framing, modality and the affordances of particular modes there are also social and cultural factors which play a role in how the message is understood and interpreted by an audience in the light of their own experiences. Furthermore, in considering how young children make meaning with images it is not only a case of considering what the visual mode affords, but also the implications of working with learners whose text experience is mainly multimodal.

**2.7 Children's interactions and comprehension of the visual mode**

In exploring the literature regarding young children's conceptualisations of images and their understanding of the visual mode, it has been necessary to consider previous studies which not only look at meaning making with the visual mode, but also those which explore children's wider use of multimedia and texts which incorporate the visual mode.

Yamada-Rice's (2014) description of the communication practices of 3-year-olds in urban Japan illustrates how they make meaning with the visual mode primarily through their engagements in the physical world. Drawing upon the theories of Freire and Macedo (1987), Lynch (1960) and Mackey (2010) it is argued that young children develop their understanding of their physical environment, or "first world", at the same stage in life as they begin to make sense of texts, with their knowledge of texts representing their "second world". Yamada-Rice identifies that the children in her study engaged within their environment as akin to reading a physical text, "learning the rules and conventions of the ways in which users interact with the urban landscapes"

(p. 162).  Furthermore, the visual texts they encountered within the urban environment, including signs and notices, supported their understanding of how to navigate and respond to the rules and expectations placed upon users of the environment.  Whilst Yamada-Rice identifies the way images inform children's use of the environment, what is less clear are the potential links they made between the images they encountered throughout their environment, and how the children saw these in relation to one another.  If the environment is viewed as forming a wider, overarching physical text it follows that individual images can be positioned as component parts which contribute not only individual meaning, but also contribute to the overall meaning provided by the environment.  This would subsequently inform children's developing knowledge of deriving meaning from "second world" texts.  As a result, in identifying young children's interaction and comprehension of images within their familiar environments, this study seeks to further Yamada-Rice's findings and examine the links which children make between examples of the visual mode throughout their environment, and how the children perceive these in relation to one another.

Young children's developing comprehension of the visual mode is suggested to be supported through their wider interests and engagements.  Yamada-Rice (2014) identified that children's understanding of the visual mode in the urban environment develops through their engagement with texts, including comics, animation and digital games which interest them.  In exploring young children's experiences of the visual mode within the home setting a similar pattern of engagement is observed.  Within the home environment, Yamada-Rice (2010) noted that young children use a range of media including DVDs, drawing, picture books and websites to engage with the visual mode within the home environment as part of their wider multimodal practices.  The two studies build a picture not only of young children engaging within the visual mode as part of their multimodal practices across the home and urban environment, but also of children showing confidence and skill in using a range of multimedia devices.  At the outset to this study I identified young children as being message receivers and creators in relation to multimodal texts; the findings of these two studies reinforce the need to consider the full range of communicational forms which such messages may take.  Furthermore, the dual positioning of children in this study enables further exploration of their sensitivity to Kress' (2010) concept of a sign-complex which conveys a message which takes account of both the maker's interest and the audience's characteristics.  This study uses Yamada-Rice's (2010; 2014) identification of children's interests being supportive of their comprehension of texts as a starting point to consider their awareness of the ways such texts may be structured, through modal affordances and grammars, to meet the needs of an audience and continue to capture their interest.

Young children's engagement with the visual mode does not occur in isolation, reflecting the social and cultural context of communicative practices (Halliday, 1978). Young children interpret images in the light of their experiences alongside their families and peers.  For example, Yamada-Rice (2014) notes a child visiting a setting and identifying that a sign outside meant no pushchairs as their younger sibling had not been allowed to come inside in his pushchair on a previous visit.  In the case of screen-based media, Stephen et al. (2008) observed that children's engagements with these took place in the home environment alongside other family members, with their demonstrations of how they used technology reflecting their interactions with others rather than as a solo activity.  Finally, in the school environment young children were found to engage in groups alongside their peers to design and create props which then allowed them to enact their engagements with technology and screen-based media in print-centric classrooms (Wohlwend, 2009).

The meaning which children draw from images is argued to be shaped by their emerging knowledge and understanding of the codes and conventions of the visual mode.  Yamada-Rice (2013) identifies that young children's comprehension of the codes and conventions of the visual mode develops through first hand exposure in relation to the physical environment.  This reflects their physical experiences in the first world informing their understanding of the contents of text in the second world.  The knowledge gained in this manner may later be applied in more abstract forms across different multimodal texts, in a similar manner to that proposed by Mackey (2010) in the case of the written mode.  There appear to be limitations to young children's understanding of the codes and conventions of the visual mode; Young children appear to be able to infer meaning from the texts they encounter, but not explain which aspects of the visual mode convey this.  Evidence of this may be found in Yamada-Rice's (2014) study in which children were able to identify the meaning depicted in signs, but not identify how the use of colours or shapes generated such meaning and make generalisations across texts based on this emerging knowledge.  The children were not able to identify that the colour red, which they encountered in a number of environmental signs, was associated with warnings and that a red circle with a line through it meant "no" across texts.  Thus, although Mackey (2010) implies that knowledge gained from first and second world engagements may be applied abstractly across texts, this does not appear to be a skill which young children possess or able to articulate.

Although Yamada-Rice's studies took place in urban Japan, which is acknowledged to have a higher "quantity and variety of texts utilising the visual mode" (Yamada-Rice, 2014, p. 155) compared to the United Kingdom (see Yamada-Rice, 2011a; 2011b), they are still relevant to this study as Yamada-Rice (2014) argues the use of the visual mode is increasing globally.  Furthermore, a number of authors suggest that communication

within Western societies is increasingly multimodal, with a noticeable shift in emphasis towards the visual mode (Jewitt, 2002; Kress, 1997; Pink, 2001).  This raises the question of how young children conceptualise images within their environment.  Whilst Yamada-Rice (2011a; 2011b) used visual content analysis to compare urban street scenes in London and Tokyo, there is a gap in the research regarding young children's views on the images they encounter around them, including the extent to which they are sensitive to different modes of communication.  Within their Charter for 21st Century Literacies, Burnett and Merchant (2015) identify the need to recognise and build on student's existing textual practices and acknowledge the changing nature of meaning making.  This further raises the question of what young children's preferences are in relation to representation and communicative practices.

In considering the range and variety present within literacy practices, Bearne (2003, p.98) highlights that children's familiarity with "new forms of representation and communication" mean that their conceptualisations of text differ from "those adults who were brought up in a more print-dominated world".  In support of this observation, Kress (2003) asserts that the texts which are encountered on a daily basis combine image and language in increasingly complex ways whilst Jewitt (2002) suggests that such practices are reflective of wider, evolving means of communication in society.  In accessing multimodal texts children experience "transition, translation, transduction" (Kress, 1997, p. 39), as they make sense of the range of modes presented across an increasing range of media.  Transduction entails "re-articulation of meaning from the entities of one mode into the entities of the new mode" (Kress, 2010, p. 125), something children may achieve in representing sound or movement as part of a pictorial element of a text or recording speech through print.  Significantly, Bearne (2003) considers that children have greater difficulty in translation, conveying the pictures in their mind into written or spoken words.  This potentially presents a challenge to both research design and educational practices in providing a means for children to articulate their multimodal engagements in ways that reflect their existing familiarity with particular forms of representation and communication.

The creation of multimodal texts offers the opportunity to both explore and extend the experiences and knowledge held by young children.  Kervin and Mantei (2017) explored the literacy practices of young children through the creation of multimodal stories about their familiar school and community environment.  The children, who were aged 5 to 6 years and in their first year of schooling in Australia, used both paper-based and digital resources, including drawings and images from Google Maps, to create stories about their familiar school and community environments.  The resulting texts were then recorded as audio files and through the use of a tablet-based story telling app.  The approach to this study recognised the ability of young children to use a range of modes to make meaning, something the authors felt "appears to happen quite

naturally".  The use digital technologies alongside paper-based resources was felt to offer children opportunities to draw upon the affordances of the modes selected as part of the creation of the story.  This approach reflects Burnett et al.'s (2014, p.90) conceptualisation of literacy, not solely as a set of skills, but as a practice which necessitates the exploration of what people "do" with literacy.  As a result, there is a clear focus in Kervin and Mantei's study on children's "authorship", with the text creation process providing a means for children to consider the ways their message may be conveyed across modes.

Within educational practices, Burnett and Merchant (2015, p.2) identify that promoting 21st Century Literacies necessitates a recognition that the "resources for communication are richer, more diverse and more flexible than before".  In line with Kress' (2010) assertion that all communication is multimodal in nature, Burnett and Merchant argue that as literacies are always multimodal, an explicit recognition of the range of modes available for representation and communication would enable students to explore, develop and convey meanings in ways which may otherwise be overlooked.  Bearne (2003, p. 98) suggests that the identification of children's views and knowledge regarding "the texts they encounter and the intertextual ways they choose to represent their meanings" would support educators to recognise such multimodal practices.  This in turn would enable the provision of contexts in which multimodal practices may be considered critically (Burnett & Merchant, 2015), including analysis of the conditions in which texts are produced and move towards the creation of a "frame of reference" which Bearne (2003, p. 99) argues is needed to enable articulation of the features of texts.

Within Yamada-Rice's (2010; 2013; 2014) studies, the comments the children made in conversation with the researcher were used to infer their understanding of the codes and conventions of the visual mode.  This could, however, present a challenge to young children conveying their perspectives regarding the visual mode as Bearne (2003) suggests that this would require them to translate their internal pictorial texts into a verbal form using the spoken mode.  Should the children use their own images to convey meaning, their use of the codes and conventions of the visual mode may be identified in the ways they edit and adapt their texts to convey meaning.  As Kervin and Mantei (2017, p.722) note, young children's capacity to capture and manipulate photographs and images provides a means of articulating "concepts and ideas that may be beyond their ability to represent with their current language knowledge".  Therefore the incorporation of children's images into a map text would offer an alternate insight into young children's knowledge and use of the visual mode which reflects their current preferences for representation and communicative practices.  As a result, a greater discussion of the visual methodology adopted in this study follows in Chapter 3.

**2.8 Familiar environments**


The familiar environments of a child are broad and varied.  These may include, but are in no means limited to, the home, Early Years setting, parks, public transport, shops and cafes.  Burbules (2004) uses the terms "space" and "place" to distinguish between those locations which are familiar and meaningful.  Places have both the objective, locational dimension of spaces, but in addition to this have a subjective importance to an individual or group of people.  When people are within such familiar places "they know where they are and what it means to be there" (Burbules, 2004, p. 174).  Powell (2016) further extends this concept by highlighting the embodied nature of meaning making, suggesting that "place is on the move".  This emphasises the active and ongoing nature of meaning making.  Drawing upon the work of Malouf (1985) and Freire and Macedo (1987), Mackey (2010, p. 330) identifies that from babyhood onwards individuals seek to turn the space around them into the kind of place which is familiar and meaningful.  It is through our engagement with the environment around us that we develop our early sense of the world (Malouf, 1985).


Familiar environments are significant in young children's comprehension and interaction with the visual mode as part of their wider multimodal engagements.  It is within such environments that children are presented with what Kress (2003) identifies as the complex combinations of "image and language" in everyday texts.  Significantly, Kervin and Mantei (2017) note that whilst theories related to school literacies, home literacies and community literacies exist within educational discourse, the experiences of young children span these domains.  It has been suggested that young children's learning with digital technology, including screen-based media which support the visual mode, takes place in the two main arenas of the home and Early Years setting which they attend (Plowman, Stephen & McPake, 2010).  Furthermore, their multimodal knowledge and practices may also be observed in their play across a range of contexts (O'Mara & Laidlaw, 2011; Pahl, 2005), with children pretending a range of digital media into being, making explicit reference to their preferred digital media content and re-enacting characters and scenes from texts which are predominantly visual in nature such as comics and television programmes.  Within the Early Years classroom environment, children are found to draw upon their "growing repertoires for meaning making" in order to assign meaning to the space and materials around them (Daniels, 2016, p.23).  Finally, as part of their journeys throughout the local environment children are faced with a range of multimodal texts, including the visual mode, such as street signs, shop hoardings, posters, food menus, maps and product packaging (Yamada-Rice, 2011a; 2011b; 2014).


A range of cross-disciplinary research identifies the way in which people construct meaning as they inhabit space and place.  This includes the study of embodiment

(Christensen & O'Brien, 2003; Casey, 2001), ethnography (Powell, 2016), movement (Ingold, 2007) and the senses (Pink, 2009) which play a role in the way that individuals experience space and place.  Looking more closely at the individual experience of young children, their movement around and through their environment is argued to be an important way in which meaning is made, reflecting their communicative practices as being "frequently grounded in the embodied and non-verbal" (Hackett & Yamada-Rice, 2015, p.32).  Hackett (2014) used hand drawn sketches to record the zigging and zagging movements made by a group of four children under the age of 36 months within their monthly visits to a museum over the course of a year as they moved in relation to objects of interest.  Hackett argues that such movements are an act of communication, and that in understanding children's meaning making practices attention must be paid to the full range of communicative modes, including movement. As a result, it is apparent that young children's multimodal engagements and interactions with the visual mode do not occur in a static manner but may also be argued to encompass significant spatial and embodied aspects.  This concept was revisited from a posthuman perspective by Hackett and Somerville (2017) who identified through the reanalysis of field notes taken during the museum study that young children's literacies are not only embodied sensory experiences but are "embedded in and inseparable from their entanglement with the world" (p.388).  Thus, any consideration of children's engagements with images in their environment must also take into account the ways they move and interact within the context of the environment itself.

### 2.8.1 Mapping the environment

Maps are a powerful means of conveying detailed information about a place or physical environment.  Despite occupying a range of different media, maps may be argued to utilise the affordances and grammars of the visual mode in order to communicate meaning.  As described within the preceding sections Kress and Van Leeuwen (2001a) use the term "grammar" to describe the ways in which elements of the visual mode may combine which alter the meaning and complexity depicted within multimodal ensembles, whilst different modes may be said to afford different meanings through what it is possible for them to do and the meanings they are best suited to provide (Bearne & Wolstencroft, 2007).  The visual mode is well suited to meaning making in maps through the use of composition, framing and modality.

It is the visual nature of maps which allow the purpose and communicative power of maps to be extended beyond representing the geophysical terrain.  Although maps may be thought of as signposting the physical location of buildings, landmarks, routes and geographical features, additional layers of meaning regarding how these places are perceived and used may also be included.  The activity of mapping may be described as

a "multisensory research method" due to its ability to evoke relationships between place, lived experience and community (Powell, 2010). Lynch (1960) describes a physical environment which is "legible" in the sense that it may be recognised, organised into a coherent pattern and imagined. A legible city, therefore, consists of key components such as pathways, landmarks, districts and edges which are all easily identifiable and may be grouped into an overall pattern. In the same way that meaning may be drawn from the spatial arrangement and relationships between entities within the visual mode (Scollon & Scollon, 2003), sense may be drawn from the arrangement and relationships between physical components. Lynch (1960) describes mapping as a tool to represent how persons perceive the relationships between space, place, and the social and physical features of the environment.

In common with other multimodal texts, individual agency is present within the production of maps, with the patterns of representation described earlier as visual grammars allowing for flexibility, transformation and creativity (Kress, 2003). Design and intentionality are central to multimodality (Cope & Kalantzis, 2000; Kress & Van Leeuwen, 2001b), which emphasises the social component of any act of communication, including the "possibilities for transformation as texts as constructed" (Bearne, 2009, p. 157). Burbules (2004, p. 175) illustrates this point by asserting that a map "simplifies, selects, and schematizes the original", with these activities making the individual version of the space into a known, subjective place. Furthermore, certain choices are made whilst others are not because they allow the individual to represent things in the space which are meaningful and of personal significance to them. Powell (2016) describes how the process of mapmaking has a "self-organising force" which serves to produce people's understanding of place. It is suggested that this understanding is drawn from a range of sources including past experiences and emergent understandings of place, with process of map making and meaning making being open ended in nature. This complements Clark's (2011) view that participatory maps created with young children do not just provide a record of what is seen, but incorporates the range of sensory and embodied experiences which take place over time. As a result, within a single physical space there is the possibility of multiple maps, each constituting different subjective places. Given the central position of individually created visual maps within this study, this opens up the possibility to examine young children's emerging awareness of visual grammars in the creation of their map text. This is further expanded upon within methodology and proposed means of analysis presented in Chapter 3.

### 2.8.2 What do young children understand by maps?

Given the focus of this study on young children's comprehension and interactions with the visual mode within their local environments, or "places" as described by Burbules

(2004) using visual maps, it is necessary to consider what young children understand by maps and mapping.  This is especially important given the relative scarcity of previous research involving participatory mapping with young children, other than the Mosaic Approach (Clark & Moss, 2001; 2005; 2011).  With this is mind, it is perhaps unsurprising that a number of authors including Flewitt (2011) have called for the widening and developing of research methods which reflect the communicative choices made by children and the ways in which "their modal choices are shaped by the physical and human resources" (p. 308) within their familiar environments.  In considering what children understand by maps and mapping, it is necessary to consider both the underlying knowledge and skills required to comprehend a map in relation to the physical environment, and how this fits into young children's communicative practices.  The following section draws upon cross-disciplinary literature in order to determine what is currently known about young children's understanding of maps and mapping activities, whilst an outline of the specific mapping technique adopted in this study may be found in the methodology chapter.

One of the purposes of maps is as a tool for representing physical landscapes (Powell, 2010).  This in turn invokes the ability to understand the spatial or geometric connections between locations.  In developing spatial awareness, two of the key geometric abstract concepts involved are an understanding of angle and metric distance (Izard, O'Donnell & Spelke, 2014).  Angles may be found in both two-dimensional line drawings, such as those found in maps, and in the contours of three-dimensional objects, such as the arrangement of walls within a building (Izard & Spelke, 2009).  In geometry, metric distance may refer to the length of an object as well as the distance between two points, landmarks or objects (Izard et al., 2014).  When considering the literature surrounding the development of spatial awareness and the ability to abstract geometric concepts including angle and metric distance, a range of evidence suggests that young children hold the skills and understanding necessary to use such concepts in order to navigate by simple geometric maps of their environment.  Morrongiello et al. (1995) identify that children as young as two are able to use their knowledge of angles to identify short cuts between two points, with this ability improving with age.  In addition to this, in a study of preschool children's sensitivity to angles and the metric properties of two-dimensional figures Satlow and Newcombe (1998) found that these two concepts, which underpin spatial awareness, are so pervasive that children are able to generalise the name of two-dimensional shapes, including triangles and squares, to disrupted figures with cut off corners or interrupted sides, provided that these retained the metric and angle properties of the original shape.

A central component of map reading is the ability to relate two-dimensional figures to the three-dimensional environment of the real world (Shusterman, Lee & Spelke, 2008).

The types of maps used in everyday life may contain a mixture of geometric and nongeometric information in order to communicate meaning. Different types of maps may also convey spatial information in different ways according to the needs of their audiences: road maps present metric information, whilst schematic Tube maps carry topological information about the connections between stations, which distort the distances and angular relations between such points (Izard, O'Donnell & Spelke, 2014). In spite of the different levels of spatial information presented by maps, young children are argued by Izard, O'Donnell and Spelke to demonstrate the ability to relate the geometric properties of two and three-dimensional spatial arrays to one another. Children as young as three or four years of age are also found to identify and use information regarding length and distance represented in linear maps to inform their placement of three objects in relation to one another (Huttenlocher, Newcombe & Vasilyeva, 1999).

A two-way relationship exists between maps and the environment which they represent. For example, you could find objects or landmarks within the environment and relate this to a position on a map, or conversely you could identify a point of interest on a map before locating this within the environment. These two approaches are described as a placement task, starting from the environment, and a search task, which starts from the map itself (Izard, O'Donnell & Spelke, 2014). The use of a placement task has been observed to be easier for young children to access (Huttenlocher et al., 2008), whilst the nature of such placement tasks provides no corrective feedback and therefore may be argued to allow young children to construct their own representation of the environment around them and the features within it which they find most salient. As a result, the use of a placement oriented task is adopted within this study in order to articulate young children's mapped representations of their familiar environment in manner which also reflects Burbules' (2004) notion of "place".

Whilst the studies described so far have focused on children's ability to relate maps accurately to their environment, the focus of this study is quite different. Rather, it seeks to understand how young children conceptualise images in the environment around them as part of their multimodal meaning making. In concurrence with Clark (2010a, p. 315), map making is viewed as an "active process of meaning-making which can occur as children assemble the maps", rather than focusing solely on the completed map as an end product. Furthermore, a key part of this study is in the use of photography to capture aspects of the local familiar environment, with Clark (2010b) offering a timely reminder that child-led photography is about "meaning making, not fact finding". Maps offer a way to document "place feelings and associations", rather than accurate geographical or topographical representations (Clark, 2011; Hart 1979).

Throughout the Mosaic Approach (Clark & Moss, 2001; 2005; 2011) young children were asked to reflect upon what it means to be "in this place".  This links back to Burbules' (2004) distinction between space and place and invokes the notion of familiarity and subjective understanding being necessary to truly inhabit a place.  Within the Mosaic Approach mapping was identified as a means of recording the information provided by children during tours of their Early Years setting.  As it was recognised that creating a two-dimensional representation of a place may pose difficulties, photographs were used in order to connect the physical features and lived experiences within the environment to map making (Clark & Moss, 2001).  This approach links both the visual and sensory aspects of photography (Pink, 2006).  Throughout the Mosaic Approach the children's maps were created in the round, with a hole in the centre of a large circle to identify the child's position at the centre of their environment.  Clark (2011) continued to adopt this method when working with young children in their first year of primary school and they were able to use such circular maps to identify important places to go in their school through the placement of photographs and drawing.

One example of the use of maps to draw upon children's understanding of a familiar environment may be found in a study conducted by Kervin and Mantei (2017) in Australia.  A task was designed for one primary school class, comprising of 20 children aged 5 to 6 years in their first year of formal schooling, which brought together storytelling and their understanding of the known environment of the school.  Children were introduced to the concept of birds-eye view maps through the use of a picture book before being given the opportunity to create their own map of the school using paper and coloured pens, alongside a 2D puppet figure.  The maps were further innovated and enhanced when children were given access to Google Maps through a tablet device, as children were able to refer to images of their school from both an aerial and street view thus demonstrating children's ability to engage not only with the concept of maps, but to participate in what Izard, O'Donnell and Spelke (2014) identify as a placement task in representing on a map the features they observe within the environment.  The child-created maps then served as a basis for storytelling activities, both oral and digital.  Support for Burbules (2004) notion of a known 'place' is found in Kervin and Mantei's identification of children's recent experience of the school context being significant in allowing them to visually represent and talk about their understandings.  In addition to this their familiarity with the setting enabled participation as children were able to bring their existing knowledge and experiences to the task.  A further key observation from the study may be found in children's use of their 2D puppet character.  Kervin and Mantei suggest that the movement of these characters around the map "provided concrete spatial resources to prompt children's recall of familiar events and practices" (p. 723), however when considering this activity in the light of Hackett's (2014) observations of the embodied practices of younger children the possibility arises that it is this type of meaning making movements which

the children in the study are reflecting.  The movement of the puppet characters is noted to support children's creative interpretations of events and it may be that it is the act of movement which children draw upon in order to support and convey their own meaning making.  This raises the possibility of maps being used not only to record environments and the spatial locations of objects of interest, but also a representation of the experiences and engagements which taken place within them.

## 2.9 Conclusion

In summary, the three perspectives on multimodality offer their own particular emphases and approaches in understanding communication, representation and interaction.  Social semiotic theory acknowledges the connections of communication to social and cultural practices (Kress, 2010); multimodal discourse analysis is concerned with how the physical and material locations of text are situated (see Baldry & Thibault, 2006), whilst multimodal interactional analysis focuses on how meaning is made through the use of multiple modes of communication as opposed to just language (see Scollon & Scollon, 2003).   Such differing perspectives in turn enable researchers to ask different questions of an event or text, requiring differing types of data and which in turn lend themselves to the application of a different analytical approach.

This study will be grounded within multimodal social semiotic theory in order to understand the social lives of young children as they interact with and comprehend the visual mode.  In particular, it is anticipated that this approach will enable the influences of the social and cultural practices of the home and Early Years setting, which are an intrinsic part of young children's daily lives, to be recognised.  Multimodal social semiotic theory extends upon Halliday's (1978) construction of communicative practices in its application to the visual mode (see Kress & Van Leeuwen, 2001a), and can be used to understand young children's communicative practices surrounding the visual mode as being inseparably linked to both the wider social and cultural practices in their lives.  Multimodal Social Semiotic Theory will form a central part of the methodology of this project in enabling young children to map their engagements with images in their environment and represent the comprehension of them through the visual mode.

In common with other modes, the visual mode can fulfil the metafunctions of language necessary for communication, whether presented in isolation or within a multimodal ensemble alongside other modes.  The visual mode offers a representation of events, the social relations between those involved in communication and represents the communication which takes place as a message or "text" (Kress & Van Leeuwen, 2001a).  Young children's understanding of images stem from their experiences with

both their physical environment and texts which occur in parallel (Yamada-Rice, 2014), with their wider interests supporting their engagements with the visual mode across a diverse range of media (Yamada-Rice, 2010).  Young children demonstrate a developing knowledge of the codes and conventions of the visual mode, which are informed by the location and context of an image and their prior experiences as part of their family practices (Yamada-Rice, 2013).  Whilst children are confident in inferring meaning from the images they encounter, they do not demonstrate the ability to identify which aspects of the visual mode convey such meaning, or the ability to apply their knowledge abstractly across texts as proposed by Mackey (2010).  There are relatively few studies regarding young children's understanding of the visual mode, with their knowledge of the codes and conventions being an area which requires further research particularly in the ways children are able to use the visual mode to convey their own meanings.  It is also identified that in considering young children's communicative practices, such as those with the visual mode, consideration must also be given to the multimodal nature of their meaning making including their movements within the environment. Therefore, this study seeks to identify how young children conceptualise images within their familiar environments and use the visual mode to convey meaning as part of their multimodal communicative practices.

The use of participatory mapping as a visual research method opens up possibilities of eliciting and capturing the experiences of young children in a range of contexts.  As a result, it provides a basis for further exploration on aspects of their lives which may not so easily be put into words given the extent of children's communicative practices which are suggested to be grounded in the embodied and non-verbal (Hackett & Yamada-Rice, 2015).  Drawing upon the work of both Kervin and Mantei (2017) and Hackett (2014) it is noted that maps offer the ability to capture not only the occurrence of objects and images of interest, but also the nature of the children's spatial and embodied engagements in relation to their meaning making practices within the environment.

The next chapter presents the methodology for the study.  It presents a rationale for the use of both visual and participatory methods with young children in addition to a clear outline of the data collection process, including the visual mapping methodology.

**Chapter 3**

**Methodology**


**3.1 Introduction**


The focus of this thesis is identifying young children's perspectives regarding images in their environment and their use of the visual mode in maps to communicate meaning. This study is grounded in multimodal social semiotic theory (Halliday, 1978), which identifies the social and cultural context of communicative practices. From this, young children's interaction and comprehension of the visual mode, and more broadly images, should be understood within the context of their familiar environments. In reflection of wider changes in communicative practices Jewitt (2002, p. 183) suggests that a shift has taken place from the "organisational rules of the page to the organisation rules of the visual". Such practices are not recognised within the wider literature. Yamada-Rice (2011b) identifies that although research may acknowledge the increasing place of the visual mode in communication practices, it is less significantly researched than either the written or oral modes within education. Whilst there are formal ways of describing, analysing, critiquing and making meaning through the visual mode (see Kress & Van Leeuwen, 2001a), these need to be extended beyond those for specialist use and extended to mainstream education and modern communicative practices. Furthermore, there are currently very few studies which seek to identify young children's interaction and comprehension of the visual mode or provide methods for capturing this.


In order to identify previous studies and their associated methods in relation to children's conceptualisation of images and their understanding of the visual mode, it has been necessary to consider not only those which look at meaning making with the visual mode, but also those which explore children's wider use of multimedia and texts which incorporate the visual mode. Within this body of existing research, a number of different methodological approaches are used. As discussed within the preceding literature review chapter these include studies with young children in urban Japan (Yamada-Rice, 2010; 2013; 2014), and in relation to ICT practices in the home (Stephen et al., 2008) and school (Wohlwend, 2009) environments. Given that each of these previous studies has informed and shaped the methodological approach taken by this thesis, a brief overview will be given of the existing research, before outlining the organisation of the rest of this chapter in which my own methods and methodology shall be detailed.


Within the Early Years age range, Yamada-Rice (2010) explored young children's experiences of the visual mode within their homes in Japan, and subsequently within

the Japanese urban environment (Yamada-Rice, 2013; 2014).  In both studies, a significant proportion of the data was collected using visual methods, including photographs taken by the children to capture examples of the visual mode.  In the urban environment, children were accompanied on walks around the local area over a six-month period and asked to photograph visual texts that interested them.  Yamada-Rice (2014) identified that the aim of these monthly walks was to establish patterns of interaction with the visual mode, with the researcher acting as both observer and interviewer as they engaged in conversation with each of the children.  A further aim explored within the case studies was the examination of how comprehension of visual texts may be affected by their context and location within the environment.  In line with geosemiotic theory (Scollon & Scollon, 2003), which argues that meaning is tied to a physical setting, the children's movement and location of texts within the landscape was considered important in understanding their meaning making practices.  The children were given stop motion cameras to wear in order to record their comprehension and interaction visually, whilst questions posed by the researcher during the walk were audio recorded.  Hackett and Yamada-Rice (2015, p.39) explain that the use of this combination of predominantly visual methods was intended to "capture the complexities of the various levels at which the research field related to the visual mode" including the visual nature of the urban environment, the images existing within the landscape and the children's photographic recording of images which interested them.

Other research into young children's meaning making practices within home and school settings has focused more broadly upon multimedia and ICT practices.  In understanding young children's ICT practices in the home Stephen et al., (2008) adopted an in-depth case study approach within the home environment and selected a number of methods which they claimed would maximise the children's potential to contribute to the research.  These included surveys and interviews with parents and a series of activities with the children.  Activities conducted between the researcher and children included a mapping exercise, in which stickers showing technological items were placed onto a map of the living room, a picture sorting task, discussion of photos showing the child engaged with ICT and a demonstration activity.  In contrast to Yamada-Rice (2010; 2013), Stephen et al., (2008) identified that it was talking directly with the children during each of the activities which allowed the researchers to gain a deeper understanding of their engagements which would otherwise have been overlooked.

A further, alternate means of exploring young children's interactions with multimedia and ICT within the classroom environments of two schools in the US was adopted by Wohlwend (2009).  This time video recordings were made of children aged five to seven years as they played and enacted technological practices in what Wohlwend argued to

be "print-centric classrooms" (p. 118). Within the data collection process, a checklist was made to record the availability and variety of play materials in order to evaluate the "play- and print- richness" (p. 122) of the kindergarten and first grades classrooms within the two schools, whilst field notes were made to accompany video recordings of the children's small group interactions. The video recordings were then subject to mediated discourse analysis in order to identify the tools, materials and places in which children combined the communicative practices of reading, writing, playing and designing. Next, the group activities of young children were coded to identify instances in which two or more practices took place, with a focus on those which incorporated both play and design. Children's group activity in such instances were identified as a "collective meaning making event" and subject to further microanalysis using mediated discourse analysis to understand how children "combined play and design to keep play going, clarify the meanings of shared pretense, to construct social bonds and to strengthen cohesion of affinity groups" (Wohlwend, 2009, p. 124). During such recorded collective meaning making events children produced artefacts which were analysed for modes, with Wohlwend later concluding that the children were able to imagine a range of technological objects and events into being in spite of their relative scarcity within the classroom environment itself.

Hackett and Yamada-Rice (2015) argue that the use of visual methods allow different modes and communicative practices to be foregrounded, which in turn enables the complex ways in which the visual mode is given meaning to be understood in different social contexts. This thesis seeks to understand young children's interactions and comprehension with the visual mode in the three differing settings of the home, school and local community which in turn mark three different social contexts. It was therefore decided that the use of visual methods would enable the use of the visual mode to be foregrounded in each environment. In addition, there is a strong desire to treat children as key informants in their own experiences, with Stephen et al., (2008) identifying that talk with children during an activity can elicit additional detail and information about children's experiences which may otherwise be overlooked. When this idea of placing children as informants in their own experiences and experts regarding their own environments is applied to Wohlwend's (2009) concept of an environmental checklist, the creation of an environmental map by the children lends itself to being a visual record of the instances of the visual mode which are not only present but that they deem to be interesting or noteworthy and may serve as a basis for further discussion about their modal engagements. Furthermore, a child produced map is considered to be an artefact, in the same manner as the technological items the children created using solely paper and pencil in Wohlwend's study, and therefore allows young children's meaning making with the visual mode to be explored and analysed.

At the outset to this study there were several interlinked aims.  Firstly, there was a desire to understand how young children conceptualise the images that they encounter within their familiar physical environments.  Secondly, given young children's comprehension and interactions with the visual mode, as exemplified in their interest in images within their environment, I wanted to identify the extent to which they could apply this knowledge to convey meaning.  Within the context of this study I use a mapping activity, in which visual maps were produced to represent the images children encounter within their environment, as an opportunity for the children to communicate to an audience using the visual mode.  The final aim resulted from the proposed methodological approach for this study, which draws upon the mapping techniques utilised within the Mosaic approach (Clark & Moss, 2001; 2005; 2011; Clark, 2017).  I wanted to establish how visual mapping may be used as a participatory tool to elicit the perspectives of young children.

For clarity, the research questions, which relate to young children's conceptualisation of images within their familiar environments and the use and suitability of visual mapping as a research tool, were numbered as follows:

1.  How do young children conceptualise images within their physical environment?
2.  How do children use the visual mode within a mapping activity to convey meaning?
3.  How may visual mapping, as a methodological approach, be used to elicit young children's perspectives?

This chapter is organised in five sections.  It begins by identifying the research paradigm and my rationale for adopting a participatory research approach.  Within the research strategy section, I discuss the type of case study I adopted.  Following this I outline the research design; I discuss my reasons for using visual methods, argue the case for using visual maps within the data collection process, and finish by outlining the data collection process itself.  I go on to describe the ethical dilemmas I faced in relation to the use of visual methods and participation and my response to these within the context of this thesis.  I conclude by outlining the process of data analysis.

## 3.2 Research paradigm and positionality

Before describing the research design and methods it is necessary to identify my personal approach or "researcher positionality" (Sikes, 2004).  In selecting the research methodologies and methods to be used, the particular ontological and epistemological position held by the researcher is of great influence (Greenbank, 2003), therefore it is

necessary to identify the philosophical stance which guides my own approach to research.  In addition to this, the values and beliefs of the educational researcher are said to "permeate" their work (Carr, 2000), and so I feel it necessary to identify my own beliefs surrounding young children's involvement in the research process. I begin by stating my ontological and epistemological position, before offering a discussion on engaging in participatory research with young children.  I conclude this section by highlighting my own professional role and the implications of this for my research.

### 3.2.1  My ontological position

Ontology may be defined as the philosophical study of the nature of reality (Jackson, 2013), in which there are different perceptions of what is known.  In adopting an interpretivist approach, I acknowledge that reality is subjective, and that there may be different or "multiple realities" (Cohen et al., 2011).  The conception of reality as a social construction is a much subtler approach than positivism and focuses on experiences (May, 2001), with the notion of "truth" being relative to individuals and communities (Sikes, 2004).

My interpretivist approach is reflected in my desire to explore the perspectives of young children and, as Wellington (2000) identifies, gain a deep insight into their personal experiences.  In contrast to positivism, which is guided by the notion of a singular "truth" waiting to be uncovered objectively through predominantly quantitative means, an interpretivist paradigm is typically qualitative in nature and places importance in individuals and the highly personal meanings they convey (Cohen et al., 2011).  Whilst a positivist approach would seek to make generalisations, research conducted from an interpretivist stance emphasizes "depth and detail" (Hughes, 2001).

### 3.2.2 My epistemological position

Epistemology is the theory of knowledge, therefore epistemological assumptions are those regarding the nature of knowledge, what it constitutes and what it is possible to know, understand and represent (Sikes, 2004).  In other words, the epistemological perspective is "a way of understanding and explaining how we know what we know" (Crotty, 1998, p. 3).  Identifying my own epistemological position is important as it is argued to inform the choice, purpose and goals of a study (Snape & Spencer, 2003).

In concurrence with Wellington et al. (2005, p.102) my belief is that knowledge is "experiential, personal and subjective" and so in gaining knowledge regarding

phenomena it is necessary to use methods which engage with and explore the individual experiences of people. I recognise that this particular epistemological position strongly informs my study. The focus of the study on understanding how young children comprehend images in their environment, reflects my belief that their experiences will be subjective and differ from my own and each other. The theoretical background to the study, multimodal social semiotic theory, was chosen as it recognises that communication practices are inseparably linked to wider social and cultural practices (Halliday, 1978; Kress, 2003), and will allow young children's interaction and comprehension of the visual mode to be understood within the context of their lives.

Given my epistemological position that knowledge and communication is socially constructed, it follows that methods must be used which "ask questions of the people involved in the phenomena being researched" (Sikes, 2004, p. 21). In this study it is therefore necessary to seek answers directly from the young children who encounter images in their environment.

### 3.2.3 Participatory research with young children

At the start of this section it was identified that my own values and beliefs regarding children's involvement in the research process would be identified as they "permeate" (Carr, 2000) each stage of my study, and this is more prevalent due to my interpretivist stance (Greenbank, 2002). Research from an interpretivist perspective is "often carried out with people, in places, creating events from within" (Sharp, 2009, p. 5). I now seek to offer a discussion regarding my own views on engaging in participatory research with young children, given that I am seeking their perspectives regarding the visual mode in their familiar environments. It is these views which in turn shape the research methods and methodology chosen for this study.

From the outset I knew I wanted to find out how children understood the images which surrounded them in their everyday environments, but this in turn raised questions regarding how to best involve them within the research process. In order to effectively capture young children's perspectives there must be some degree of ownership by the children themselves within the research process, with all methods chosen being reflective of their existing preferences and experiences (Christensen & James, 2000). Rather than selecting special techniques and methodologies it is more a case of identifying techniques which reflect the children being studied, with attention paid to the "culture of communication" of children as a way of guiding methodological practices (Christensen, 2004). In doing so, children's prior interests and engagements are not only paid attention to but become embedded as part of the methodology. The

treating of children as informants in their own environments and experiences shifts the focus to research "with" rather than "on" children (Christensen & James, 2008).

Prior to conducting the study, a range of alternate methods of data collection were considered, however I did not feel that they met the requirement of treating children as informants in their own experiences. In line with Christensen and James (2008) I wanted my study to reflect research *with* children. Semi-structured interviews and questionnaires have been used successfully in previous studies to ascertain parental views on digital technologies (O'Hara, 2011), and the views of practitioners as part of a "guided enquiry" process (Stephen & Plowman, 2008). In this study, however, children are held as active meaning makers and so it follows that they should be considered as vital informants of their own experiences with the visual mode, rather than deferring to their adult caregivers. An inevitable difficulty in capturing the thoughts, experiences and actions of a young child aged 4 to 7 years is in finding a method which is accessible and developmentally appropriate. Any method used to articulate children's perspectives should reflect their preferred methods of responding and interacting (Smith, Duncan & Marshall, 2005). It is highly questionable whether children are familiar with the format of questionnaires or interviews, or that these would reflect a situation in which young children felt confident and capable in responding. In selecting an appropriate method for this study, it is not just a case of finding alternate methods of research, but the adoption of practices which "resonate with children's own concerns and routines" (Christensen & James, 2008, p. 8).

In essence I sought methods which are participant friendly, rather than child friendly (Fraser, 2004). Taking this approach moves away from the concept of the "uni-directional power and meaning dynamic" which Procter and Hatton (2015, p. 50) identify in visual research, whereby the adult holds power over the child whilst the child provides meanings to adults. Identifying children as participants better matches the recognition of children as "social actors" who possess the ability to influence their social circumstances (Christensen & Prout, 2005). In such instances power relationships may be negotiated and shifted by the children when taking part in the research. Referring to a case study in which secondary school pupils took part in a project which used creative arts to elicit their views on staying safe, Procter and Hatton (2015, p. 56) suggest that the use of visual methods widens the notions of empowerment by making participants "schooled identities" visible and allowing them to challenge these. Building upon Millard and Marsh's (2001) claim that schools may focus on written and spoken modes of communication and the relative lack of skill which young children may possess in these areas, Burnett and Merchant (2015) state that recognition is needed within education of the diverse and rich forms which communication practices may take. The use of visual research methods within this study is argued to enable young children to articulate their existing skills and competencies, thus enabling them to challenge

existing conceptions which may be held regarding their meaning making practices across a range of settings, including the school environment.

### 3.2.4 My professional role

Whilst the discussion so far has focused on my positionality, in terms of the beliefs and values which I held in engaging in the study, it is also necessary to identify my position *in* the study itself. At the time of conducting the study I was the Inclusion Manager of the school which the children involved in this study attended. My role gave me the opportunity to use my familiarity with the school setting and its context within the wider community, but also informed my approach to the research process due my prior experiences of working with the children and their families in this setting.

Young children's comprehension and interaction with the visual mode is of particular interest within my professional role, given the increasing impetus and body of evidence surrounding the impact of Early Interventions for pupils (Higgins et al., 2014). Rather than viewing young children as in deficit, I look to identify and start from the skills, knowledge and expertise which they already have. This is all the more apparent when considering young children who are about to enter school for the first time and this point of transition is of particular interest to me. I strongly agree with Marsh's (2000) assertion that it is imperative that the values and signifying practices of the home environment are recognised and valued when young children enter school and feel that this should be extended to their communication practices including those with the visual mode. It is this stance which guides my interest in identifying how young children, in their first year of primary school, understand images in their environment. Following this I also feel that the environments and settings which it is necessary to consider include the home, and leisure setting in addition to the Early Years setting of the school.

My professional role influences my commitment to involve the children as much as possible throughout the study. A key element of my role as Inclusion Manager is in capturing the child's voice and perspectives and involving them in decisions which relate to their education. I found elements of this are reflected in Veale's (2005) notion of involving both the researcher and child throughout the different levels of the study in the sharing of information, the production of knowledge, and in being responsible for data collection. Both my professional role and position within this study reflect my "personal value" (Clough & Nutbrown, 2012, p. 64) that children have a fundamental right to be considered and consequently I view them as essential contributors within my research.

One of the potential limitations of my dual role of researcher and member of the school's senior leadership team, was that this may have influenced the ways in which the children responded during the research. Within the wider literature on research with children, I identified the warning that children may seek to illustrate through drawing what they find easy to portray or images they perceive may please the researcher, whilst their experience of challenge when using cameras may lead to them taking fewer photographs (Fargas-Malet et al., 2010). Given that I was seeking to use children's visual maps in my research which involved elements of drawing in combination with the photographs they had taken, I felt that this point was important to consider. Christensen and James (2000) suggest that one way of overcoming this limitation is to emphasise to the children that I am not looking for a completed product which is "right" or "wrong". To support this stance, I provided the children with a selection of mark making materials, paper as well as their photographic images in order to allow them to select which combinations they wished to use in creating their maps whilst removing any time constraints on their participation. Throughout the data collection and map production phase of the research I stressed to the children that I was interested in finding out about the images in their environment which interested them and where they were located.

In accordance with established ethical protocols I sought the full consent of the children, their parents and the school before commencing the study. A discussion surrounding insider research and the role of gatekeepers in the research process follows within the ethics section of this chapter.

## 3.3 Research strategy

A case study methodology was used for this study to reflect the individual nature of the Early Years setting and also to capture detailed information about the experiences of the young children involved in the study. The Early Years setting which the children attend is within a single urban primary school in the East Midlands of England. Consequently, as it is not possible to gather large amounts of information about a range of children from rich and varied backgrounds the context lends itself to being an exploration of the experiences of this specific set of children. Case studies involve bringing together demographic, interview and observational data to produce a "thick" description (Geertz, 1973) which offers detailed information not only about particular behaviours but the context for these.

I had two main aims when working with the five children in this study. Firstly, I hoped to illustrate the range and diversity of visual imagery with which young children engage and allow the influences of their differing settings to be made apparent. In the

introduction to this study I had previously stated that one of my key motivations for this study was a desire to capture the knowledge which individual children held, which informed their meaning making activities with the visual mode in their given setting. Secondly, I wanted to be able to draw out commonalities and differences in how the children approached the mapping task itself. By including a number of children, I was able to look at the different styles and approaches to mapping each of the children used and gain a greater insight into the extent to which visual mapping may be used as a methodological approach.

A key reason for adopting a case study approach was my desire to gain an insight into a particular issue (Yin, 2014), in this case young children's comprehension of, and interactions with the visual mode. Notably a similar case study methodology has been adopted in other studies in order to identify children's experiences of new technologies in the home (Stephen et al., 2008), to observe how children in print-centric classrooms are able to "pretend" technology into being through imaginative play (Wohlwend, 2009) or to assess their comprehension of the visual mode in their local environment (Yamada-Rice, 2013; 2014). As a result, there is evidence that this type of research strategy is well suited not only to collecting data regarding young children's meaning making engagements, but also to answering questions regarding their understanding of the visual mode.

## 3.4 The research context and participants

My research focused on five, 4 – 5-year-old children who attended the same Early Years Foundation Stage class within a primary school, with data collection taking place across the three locations of the school, home and a community leisure centre. Each of these settings represents a physical environment in which meaning making takes place.

The physical environment plays a key role in both young children's exposure to mode and in their meaning making practices around these. In the same way that meaning may be drawn from the spatial arrangement and relationships between entities within the visual mode (Scollon & Scollon, 2003), it can be argued that sense may be drawn from the arrangements and relationships of objects and features within the physical environment including images. A range of previous works emphasise the physical nature of meaning making. In the seminal work of Lynch (1960) cognitive mapping is used to identify the ways in which individuals perceive the relationships between space, place, social and physical features of the physical and built environment. As previously identified within the literature review, Lynch's "legible" city is organised into a coherent pattern comprising landmarks, districts, paths, nodes and boundaries. The work of Seyer-Ochi (2006) regarding the cultural histories of a neighbourhood adds to this idea

of meaning making within the environment.  Describing the concept of the "lived landscape", individuals are positioned as making sense of built and historical layers.

A wide body of research suggests that children learn about their physical environment at the same time as they learn about the features and relationships of mode, however until recently these have centred on children using this knowledge and comprehension to aid their early literacy development.  For example young children's exposures to the written mode through print within their local environment is argued to stem from their physical engagement with their environment (Purcell-Gates, 1996), whilst Freire and Macedo (1987, p. 30) propose that the physical environment of the child serves as the setting for their first experiences of reading, and therefore the written mode, as it forms an "arena of perceptual activity".  Mackey (2010) on the other hand suggests that as young children gain greater understanding of the world, their ability to engage with more complex text increases.  Although Mackey uses text to refer to those primarily comprising the written mode, a much broader definition of text was adopted at the outset to this study.  It is therefore argued that the concept of young children's physical engagement in meaning making with the written mode may be applied more generally to their learning and engagement with multimodal texts, including the visual mode.  Thus, in understanding children's perspectives regarding images it is essential to consider the different physical environments in which they are encountered.

Data collection for this study took place in three different locations: the home environment, the Early Years setting, a community leisure centre.  I initially chose to investigate young children's perspectives regarding images in the home and Early Years setting as Plowman, Stephen and McPake (2010) propose that these are the main arenas in which learning takes place.  This perspective is broadened by Kervin and Mantei (2017) who acknowledge current literacies discourses and propose that young children's experiences span the domains of home, school and community.  In line with Lynch (1960) and Seyer-Ochi (2006) I recognise the different layers which make up an environment, including those which are culturally and socially shaped, and felt that the inclusion of a community setting would offer an insight into young children's meaning making in relation to these.  I included a community leisure centre setting as this was identified as a key location which children in the study visited several times a week.  All three locations were naturalistic settings the children are familiar with.  Within this section I seek to present the three settings in which the research took place as well as the children who participated.

### 3.4.1 The Early Years Setting

The English urban primary school which features in this study is situated in a large town in the East Midlands.  The school, although of average size, is currently oversubscribed, with its catchment area being made up of the terraced streets which directly surround the school.  The majority of pupils are from White British backgrounds, with the proportion of pupils who speak English as an additional language being below the national average.  Levels of deprivation in the residential areas surrounding the school are below the national average.  As identified within the research paradigm at the time of the study I was employed as the Inclusion Manager of the school.

The Early Years setting referred to throughout the study is the school's Foundation Stage base.  At the time of the study this comprised of two classrooms for Reception classes, one Year 1 classroom, a large open plan middle area and two further enclosed outdoor areas.  The children within the Reception classes were either 4 or 5 years of age and had begun their first year of primary schooling in the September, whilst the children in the Year 1 class, all 5 years of age, were the youngest children in their cohort.  Older Year 1 children are taught in further classrooms elsewhere in the school building.  Each class within the Foundation Stage base is taught by a full-time class teacher, supported by teaching assistants to the equivalent of 20 hours total support across the week.  The children within this study were in the class taught by the school's Foundation Stage Leader.

### 3.4.2 The home setting

The two home settings visited during this study were located within the school catchment area.  Both of the houses were identically sized terraced houses typical of the local area.  I visited two girls from different families in their respective homes.  During my visits the children were at home along with their mother, although each of the children ordinarily lived with their father and an older sibling in the same home.  The two home settings had previously been visited by the children's class teacher as part of transition arrangements prior to starting primary school.  Prior to conducting data collection in the home environment, it was decided that the areas to be photographed by the children, and subsequently mapped, would be the downstairs living spaces within the home.  These were the same rooms that the visiting teacher would have been invited into during the transitional home visits and it was felt important that in my dual role as researcher and member of school staff that I was acting in the same manner as any other teacher from the school who visited the family.

### 3.4.3 The community setting

Prior to undertaking this thesis, I recognised that young children visit locations other than the home when they are not at school and that this is an important component of their meaning making practices and would inform their perspectives in relation to images.  I identified the community leisure centre as being a key location as it was not only within the vicinity of the primary school, but one which the staff and families were very familiar with.  The school used the grounds of the leisure centre regularly for sporting events as well as for swimming lessons.  As a member of staff at the school I had also heard this location mentioned a number of times by children.

The leisure centre itself comprises outdoor playing fields, a swimming pool, gym, café, shop and indoor sports halls.  The locations within the leisure centre which were photographed and mapped were in and around the roller skating rink including the main entrance, hallways and entrance to the skating rink itself. This specific area was chosen by the child participating in the study as one which he visited several times a week with his parent to skate and play roller hockey.  I allowed this aspect to be led by the child as I wanted him to capture an environment which he was highly familiar with and one which he would have had previous engagements with images and the visual mode in.

### 3.4.4 The participants

In selecting the participants for this study, I felt it important to identify selection criteria as my first step.  This was completed not only to clarify in my own mind which children I felt could contribute to the study, but also to make my choices transparent.  I sought children who had joined the school in September and would therefore be either four or five years of age.  I wanted to include both genders, but as I had not planned to make direct comparisons between boys and girls, I did not feel that I needed an equal number to participate.  Given the predominantly White British intake of the school I felt that this was a self-selecting feature with all children who participated in this study being of White British ethnicity.  Finally, I sought to include the children within the study who were at ease within the school environment.  In the school in which the study took place the wellbeing and involvement of children within the Foundation Stage is assessed throughout the academic year by the class teacher using the Leuven scales (Laevers, 2009).  Well-being focuses on the extent to which children feel at ease, act spontaneously, show vitality and self-confidence.  Involvement on the other hand, relates to whether the child is focused, engaged and interested in various activities.  As I was introducing a new task for the children to complete, through the mapping activity, I felt it was important to only include children who would not be made uncomfortable,

distressed or pressured by their inclusion.  As a result, my final selection criteria was to only include children who displayed high levels of wellbeing and involvement as reported by their class teacher.

After gaining permission from the Headteacher to conduct the study, my next step in selecting participants was to consult their class teacher who at the time of the study was also the Foundation Stage Leader.  Although I knew the majority of families at the school, I felt that she had a greater knowledge of the individual children in her class than I did.  I articulated to her the selection criteria that I had devised, and this reduced the number of potential participants accordingly.  The class teacher then provided me with information regarding which families homes she had previously visited as part of her existing transition arrangements and I agreed with her that these families were more likely to agree to me as another member of staff also visiting their home in a research capacity.  Finally, the class teacher was keen to identify one child to me who had significant sporting interests outside of the home and school contexts and was a regular visitor to the community leisure centre.  This process of reducing the list of potential participants down according to my criteria led to five children being identified.

I approached the parents of each child individually to invite them to attend a group information session.  During this meeting I explained the aims, methods and expected outcomes of my study.  This was aided by my use of a parental information sheet (see Appendix A).  I gave the parents the information sheet and consent forms to take away and asked that they return these to me the following week should they wish for their child to participate in their study.  When working with each of the children I explained the aims and methods of the study verbally.  The steps I took to ensure that the children and their families were treated ethically are expanded upon within the ethics section of this chapter.

I will now provide an overview of the five children who participated in the study and describe them in relation to the environment in which they collected data with me.  As the Foundation Stage Leader identified children who met my criteria for selection, she was also able to provide me an overview of their interests and family background.  All children have been given pseudonyms to anonymise their identities.  The five children were aged between four years and two months and five years of age when I first met them in September.

### *Max*

Max was four years and seven months old at the start of the study.  He took part in the early years setting where he attended as part of a class of 28 children.  Max was the eldest child in his family and had one younger brother.  His teacher described Max as

being a very confident, chatty child.  He had particular interests in vehicles and using tools and equipment to make and fix things.

*Joey*

Joey was four years and two months old at the start of the study and the youngest child taking part.  He was the second child to participate in the early years setting.  Joey was the second youngest child of six.  He was described by his teacher as being quietly spoken and would often watch others carefully before joining in a task.  Joey had a love of superheroes and cartoons.

*Molly*

Molly was four years and six months old at the start of the study.  She took part in the home environment in which she lived with her parents, older sister and two pet cats.  Her teacher told me that she was very interested in animals and sociodramatic play.

*Emily*

Emily was five years old at the start of the study, making her the eldest participant.  I visited Emily at the home in which she lived with her parents, younger sister and pet cat.  Emily was described by her teacher as being very creative and would often spend long periods of time drawing or engaged in craft activities.  Emily was also an avid reader.

*Jeffrey*

Jeffrey was four years and ten months old at the start of the study.  I met with Jeffrey at the community leisure centre where he attended roller skating and hockey training several times a week with his father.  Jeffrey was the youngest child of five, with a relatively large age gap of twelve years between Jeffrey and his next sibling.  His teacher identified Jeffrey for the community setting study due to his extensive sporting interests.

**3.5 The research design**

As identified within the preceding section a case study approach is adopted within this thesis in bringing together data in order to gain an insight into young children's meaning making with the visual mode.  Flick (2007, p.2) identifies qualitative research as an "umbrella term for a series of approaches".  Within the introduction to this chapter a number of different methodological approaches have previously been

adopted by researchers in exploring young children's meaning making with the visual mode and multimodal texts more broadly.  Although the research conducted by Yamada-Rice (2010; 2013), Wohlwend (2009) and Stephen et al. (2008), adopted a case study approach the methods adopted and therefore data collected to inform their case studies varied widely.

Yin (2014, p. 29) suggests that research design is a "logical problem and not a logistical problem" with the methods of data collection being subsidiary to the matter of collecting the right kind of evidence to answer the research questions.  As a consequence, within this section the use of visual methods and visual mapping will be justified as providing the data that is required to answer the questions of how young children make meaning with images in their environment and secondly how visual mapping, as a methodological approach, may be used to capture young children's comprehension of, and interactions with the visual mode.  It is then following this that the logistical details regarding the stages involved in the data collection process will be outlined.

### 3.5.1 Visual methods

Visual methods enable researchers to explore the "lives of others" through the analysis of images (Banks, 1998).  Given the focus of this study on understanding young children's comprehension and engagement with the visual mode, this is a study which naturally lends itself to visual methods.  Not only may the use of visual methods provide an alternative to word and number-based research, "slow down observation and encourage deeper and more effective reflection on all things visual and visualizable" (Prosser & Loxley, 2008, p. 1), they are also argued by Stephen et al. (2008) to allow access into the private lives of young children as partners in the research process. Although the Early Years setting may be seen as a public space in which children encounter and interact with the visual mode, these individual acts and the meaning made through these may otherwise go unrecorded.  The use of visual methods in answering the research questions will be justified with reference to both its suitability for participatory research with young children and its ability to capture a moment of interaction, allowing this to be revisited and re-examined.

Prosser and Loxley (2008, p. 2) identify four main types of visual data: found data, researcher created data, respondent created data and representations.  Found data may comprise pre-existing visual artefacts, from a range of public and private sources and archives, as well as secondary research material.  Such data may be analysed in its own right, as it provides access to a "secondary visual reality, which is often no longer directly accessible" (Pauwels, 2011, p. 7), or used as a springboard for theorising

(Weber, 2008).  In contrast, both researcher and respondent created data are instigated by the researcher and as a result may be provoked or prompted to record specific events and phenomena visually.  Whilst the researcher has greater control over the production process in researcher created data, respondent created data may provide a unique perspective which may then be analysed and made sense of by the researcher (Pauwels, 2010).  Examples may be found of both cameras or paper and pencil being used by respondents, including school children (Prosser, 2007), migrant children (Clark-Ibanez, 2007) and pre-school children in Japan (Yamada-Rice, 2010) and Malta (Deguara, 2019) to capture aspects of their culture and experience.

When it comes to reporting and disseminating research Prosser and Loxley (2008) refer to representations as occurring within the two interrelated strands of visual representation of word and number-based research visually and the visual representation of visual research.  They suggest that the indexicality of words and multiple interpretations of images is often used as an argument to present research findings through words (Prosser & Loxley, 2008, p. 42), however not all knowledge can be reduced to language with visual images having the potential to be both evocative and communicate what words cannot say (Eisner, 2008; Gauntlett, 2007).  One such example of the visual representation of visual research is Yamada-Rice's (2011a) comparative study of the urban landscapes of Tokyo and London which presents found images from the two cityscapes in order to raise questions regarding the educational impact they might have on children living there.  Although these are simple examples of each of the four main visual data types, within the "Integrated Framework for Visual Social Research" Pauwels (2010) provides a detailed overview of the wide variety of options and opportunities which researchers have when using visual data in the study of society and culture.

Given the apparent potentials of using visual methods this then raises the question of how these may be particularly well-suited to participatory research with young children.  Hackett and Yamada-Rice (2015) draw upon a range of studies to problematise the dominant models of communication and learning which they argue tend to prioritise adult perspectives through their grounding in written and spoken language.  It is not suggested that children are not able to use language effectively to communicate; Taylor's (2014) multimodal microanalysis of the primary classroom conversations between pupils revealed that they used speech alongside a range of embodied modes of communication as part of their meaning making practices, making apt choices from the range of semiotic resources available. In spite of this the primary National Curriculum values face-to-face communication with utilizes standard spoken English.  Finnegan (2002) claims that the valuing of spoken language over other means of communication stems from wider historical paradigms of child development as linear sequential progressions which not only preference but also mark the superiority of

adults over children.  As previously identified, both Kress (1997) and Marsh and Millard (2000) highlighted the apparent focus within schools of mastering the written mode, something which Burnett and Merchant (2015) suggest represents the privileging of traditional print-based literacies in spite of more recent curriculum reforms.  This is significant as it requires young children to shift from their preferred means of responding, such as drawings and jottings which utilise aspects of the visual mode (Millard & Marsh, 2001), to those preferred and valued by adult educators.  Whilst many of the studies identified so far focus on children's perspectives regarding the texts they produce and engage with, Sakr, Connelly and Wild (2015) consider practitioners' views of the image-based texts children create within the Early Years environment.  Drawing upon classroom observations and interviews with practitioners in three Early Years setting in the UK, it was found that when children's artwork is displayed within the classroom it is often accompanied by a written caption created by the teacher which they claim stems from a desire to record evidence of progress in a child's communicative ability, particularly in relation to writing.

The use of visual methods is argued to not only provide an accessible means for children to record aspects of their lives, but may also help to redress the suggested "power imbalance between adults and children in research" (Procter & Hatton, 2015, p. 50).  As previously identified, methods used to elicit children's perspectives should reflect their existing preferences and experiences (Christensen & James, 2000), but this approach may be taken one step further when using visual methods as images are so central to children's lives and experiences (Prosser & Burke, 2008).  Echoing Kress' (2003) assertion that language and image are combined in increasingly complex forms, young children live in a world where images are presented to them daily on screens, street hoardings (see Yamada-Rice, 2011a), packaging and their clothing (Flood & Lapp, 1998).  Prosser and Burke (2008, p. 407) argue that whilst words are the domain of adult researchers, "images and their mode of production, on the other hand, are central to children's culture from a very early age and [are] therefore empowering".  The notion of "empowerment" being achieved through participatory research is not without its critics as it is argued to imply that young children are otherwise un-empowered in their daily lives (see Procter & Hatton, 2015).  At this point it must be stressed that within this project it is not taking part in the research itself which is argued to empower young children, rather that a methodology is sought which matches their existing skills, experiences and preferred modes of responding and this is more readily achieved through visual research methods.  A greater discussion on children's participation within visual research is given in a following section.

### 3.5.2 Visual maps

Pink (2001) proposes that researchers may make use of images and photography in order to represent and better understand the world around them. Consequently, photographs and images may be used within the research process to represent the worlds of young children at home and within the Early Years setting. One such way of representing the worlds of young children is through the method of "visual mapping" which uses photographs to identify key environmental features and locate these in relation to one another on a map or plan drawing. Within traditional maps, symbols and markings exist to represent reality, on the other hand visual maps use photographs to capture 'real life' images and place these within an outline of an environment.

One famous example of visual maps being used, albeit within multi-method research, may be found within the Mosaic approach (Clark & Moss, 2001; 2005; 2011; Clark, 2017). This approach focuses on viewing children as "experts in their own lives" and offers a framework for listening to young children's perspectives through talking, walking, making and reviewing together. The method of map making allowed 2D representations to be made of sites using children's own photographs and drawings. This method was used successfully to elicit children's ideas in the development of an outdoor space at a preschool (Clark & Moss, 2005). In this instance maps were created on large circles of card with a hole in the centre to enable the young children involved to locate themselves centrally and think about space "in the round". The approach acknowledges children and adults as co-constructors of meaning and maps which are created may be used as both individual records, created by the child, or as joint records in dialogue with an adult or another child.

Visual mapping is proposed to be a method which allows researchers to identify features of the home environment and the private spaces of a child which may not otherwise be readily accessed (Stephen et al., 2008). Such a method can be particularly advantageous within the context of a study of children's ongoing engagement with images in their environment as it allows the researcher access to private spaces including those within the home environment without the need for multiple physical visits. Indeed, Stephen et al. (2008) used photographs taken in the home environment with family members as a first stage in beginning research conversations with children, rather than going directly into the home environment in the first instance. Negotiating access to the private spaces of children is central in positioning them as informants in their own experiences and although it is possible to make multiple physical visits into the home environment with consent from parents, this does not mean that the children are prepared to engage in such encounters. A further, more detailed discussion on the role of children as participants follows in the subsequent ethics section. An apparent strength of visual mapping whether it concerns the mapping of texts occurring within

the home or within the Early Years setting is that it allows the same types of information to be collected from both sites, thus aiding subsequent comparative data analyses, as will also be described in a following section.  The method of visual mapping therefore opens up the possibility of further comparative studies across different environments including the Early Years setting and home.

One of the key reasons for incorporating a mapping element into the project was the desire to capture the ways in which the spatial location and contextual placement of images in the Early Years environment support young children's emerging understanding of the visual mode, and the extent to which they themselves identify this.   Moving around their environment is argued to be an important way in which children make meaning (Hackett, 2014), with "children's communicative practices frequently [being] grounded in the embodied and non-verbal" (Hackett & Yamada-Rice, 2015, p. 32).  In addition to this the "logic" of visual rules includes the properties of both space and size (Bezemer & Kress, 2008).  If children make meaning through movement, it could be that as part of this movement they are experiencing and making sense of the relative proximity and size of multimodal ensembles to one another as well as within the wider context of the environment.  What it means to be larger, smaller, near or far is something which can be experienced first- hand in relation to objects in the immediate environment.

Within the data collection process, the mapping activity is argued to offer a way of replicating and making sense of young children's movement within the environment.  In moving, organising and selecting from the printed photographs, which they have previously taken of images within their familiar environments, the children have an opportunity to demonstrate their understandings of the spatial relations of images to one another, as well as the wider environment.  This activity would fit into contemporary communication practices which allow individuals to be "the remakers, transformers, of sets of representational resources" (Kress, 2000, p. 160).  Furthermore, adopting an approach which includes a creative task is suggested to help in sustaining interest with consultative focus groups indicating that young people did not want to take part in a study that involved "just sitting and talking" (Bagnoli and Clark, 2010).

Familiarity with the environment to be mapped and materials used are identified by Kervin and Mantei (2017) as being supportive features.  In their study, which took place in a first year primary school class in Australia, children aged 5 to 6 years were able to create hand drawn birds-eye view maps of their familiar school environment.  The authors reflected that as the children all had recent experience within the school setting they were able to visually represent and discuss their understandings.  One element of the research involved shared storytelling using puppet figures on the map and the focusing of the task "on a shared context enabled all children to participate as

they brought their knowledge and experiences to the task" (Kervin & Mantei, 2017, p.726). The children in the study created multimodal stories, using their maps as backdrops for 2D puppet figures. It was noted that the movement of their puppets within the context of the map provided concrete spatial resources which supported their recall of familiar events and practices. Within this thesis, the three settings chosen are identified as familiar to the children. As a result, it is anticipated that this familiarity will be supportive of young children's engagement, both in the creation of the visual maps and in enabling children to articulate their experiences and practices within the settings in relation to the images and the visual mode.

Involving young children in the creation of visual maps as part of the research process, allows them to demonstrate their knowledge and competency in using the visual mode to represent their lives. In exploring primary school children's use of the visual mode in communication, Mavers (2003) analysed the mind maps children aged 9-10 years created on the theme "Computers in My World". The maps provided an insight into children's representational practices and capabilities, through which Mavers asserted that they were able to maximise on the modal affordances of the visual through drawing effectively, economically and skillfully to communicate. Although in this instance children created maps by hand drawing rather than arranging photographs, it was the use of image-based maps which may be argued to have allowed the children to communicate succinctly and effectively in ways which may not have been so easy with words. The ways in which the images are framed, positioned on the page and related to one another allows their constituent parts to be classified into non-hierarchical "families" and suggest pathways for reading. Allowing the children to capture their responses through a map allowed them to use size, spacing, distancing and positioning to separate groupings and place individual nodes into a relationship with one another thus demonstrating their knowledge of the "patterns of representation" which the grammar of visual design makes available (Kress & Van Leeuwen, 2001a). As a consequence, allowing young children to position their own photographs onto a visual map will enable them the opportunity to represent not only their experiences of images but also to provide an insight into their knowledge of the ways the visual mode can be deployed to communicate meaning.

As previously identified, Prosser and Loxley (2008, p. 2) argued that there are four main types of visual data: found data, researcher created data, respondent created data and representations, whereby research is presented through visual means. The method of visual mapping, which combines photographs which are taken and then arranged to represent physical locations within a given environment, such as the home, is a form of respondent created data. Weber (2008) identifies that the images produced by participants may not only be used as data, but that these may themselves elicit or provoke other data. In the case of visual mapping as a method of eliciting the child's

voice, the researcher provides the camera to young children who are participating so that they may decide what they consider important to be kept as a still image (Flick, 2009). Such research presents a participatory method of visual data collection and involves young children as partners in the creation, production and potentially discussion of visual maps. A key strength of this approach is the authority it gives to young children as experts in their own experiences. Hart (1997, p. 165) suggests that child-made maps can provide a valuable insight for others into children's everyday environment because it is based on the features which they feel are most important, therefore it provides a basis for further discussion on aspects of their lives which may not so easily be put into words.

Children are identified as being competent, knowledgeable and confident in the use of new technologies (see Marsh et al., 2005; Plowman, 2015), therefore encompassing these skills as users of digital technologies which foreground the visual mode as part of research into their engagement with the visual mode is a fitting approach. It not only showcases the extent of their ability and autonomy in putting into practice a range of image framing and capturing techniques, but also represents a research method which children are already familiar with and have experience of. Yamada-Rice (2010) used photographic images taken by 4-year-olds to explore their access to, and use of new technologies for communication and meaning making in the home. The children used digital cameras to record their home practices, before using software to place their photographs under headings in a printed book based upon children's responses to the images. The researcher suggested that this method allowed the children control over data collection and presentation, with the visual representation of findings matching the methods used to collect these. Although in this case a book, rather than a map was produced from the images children collected it may be said that both techniques would be appealing and accessible to young children as partners in the research process. Within the following study, children will be supported to create a map by the researcher, placing their own photographs in different spatial locations within their own individual map.

### 3.5.3 The data collection process

I conducted the fieldwork between October 2015 and June 2016. A pilot study was conducted within a home environment setting initially in order to confirm the research design and is reported in section 3.5.4. I decided to complete the data collection in its entirety for each child before moving on to the next, pairing the children according to their setting. This was done to avoid changes taking place within the environment between the photography phase and mapping phase, which will be described in detail within this section. A timeline for the data collection process, including key locations, is presented in Table 3.1.

Table 3.1

*Data collection schedule*

| Date | Setting | Activity |
|------|---------|----------|
| October 2015 | Home | Pilot study (see section 3.5.4) |
| October 2015 | Early years | Photography and mapping phases with Max |
| November 2015 | Early years | Photography and mapping phases with Joey |
| January 2016 | Home | Photography and mapping phases with Molly |
| February 2016 | Home | Photography and mapping phases with Emily |
| March 2016 | Community | Photography and mapping phases with Jeffrey |

The data collection process for this study took place in two phases: a photography phase and a mapping phase. The photography phase took place approximately one week before I returned with printed copies of their digital photographs to allow completion of the mapping phase. As previously stated, I completed the mapping and photography stages with each child individually before starting data collection with the next child.

### *The photography phase*

The photography stage was the first point at which I met with the children individually. I explained the task to them with the help of the picture book "My Map Book" by Sara Fanelli (2006), as I sought to demonstrate to them that you could use pictorial representations to record the different things you might find in, or associate with, a particular place. A similar approach was taken by Kervin and Mantei (2017) who used a picture book to explain the concept of birds-eye view maps to a class of children aged 5 to 6 years. Debate exists within early childhood research regarding the extent to which children's participation is scaffolded (see Lambert & Clyde, 2000), particularly in relation to visual methods (Clark, 2010b). As identified by Clark and Moss (2005), my role as researcher was to provide the tools to make the photography task achievable, whilst it is the children who engage in knowledge building. An example page from the book is shown in Figure 3.1. The "Map of My Bedroom" shows a fictitious bedroom setting from a bird's eye perspective, with familiar bedroom objects depicted spatially within it.
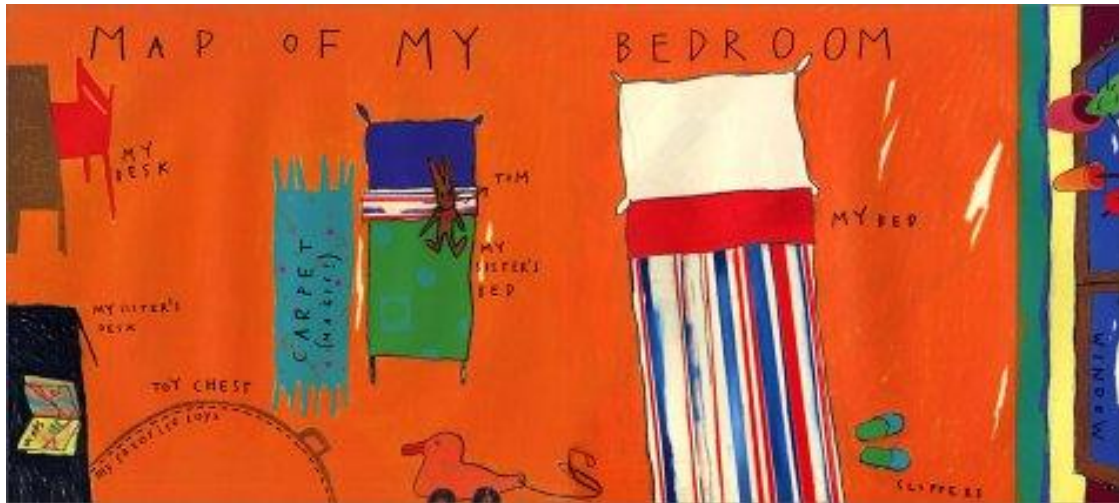
Figure 3.1. *Example bedroom map from My Map Book*

Next, I showed the children example photographs of a range of images. This included photographs that I had taken of a book, a magazine, a computer game, a screen, a poster and a birthday card (see Appendix B). I chose these photographs as I didn't want to limit children's conceptualisation of the visual mode as being solely print based and wished to display different multimedia which they may ordinarily encounter as part of their physical environment. I explained to the children that we could use a digital camera to take their own photographs of images in their environment. I told them that I would print the photographs and that they could use these to create a map like the ones shown in the map book. I chose not to show the children a completed map as I did not wish to show them an example which they may attempt to replicate, I felt that the examples in the map book which used drawings rather than photographs left the task open enough for the children to take the lead in the overall design of the map which they were to create.

Once the task instructions and explanations were completed I accompanied the children around the environment as they used a digital camera to take photographs. I did not offer feedback to the children regarding the photographs that they took, although I did offer some support on using the digital camera when this was requested by the children. Typically this was when the camera switched itself off, or buttons did not work. I did not impose a time limit on the photography phase but allowed the children to leave the task once they had taken as many photographs as they wished. Once the children had left I took brief notes regarding the rooms or areas which they had visited and any significant events that had occurred during the photography.

*The mapping phase*

I returned to the children around one week later to complete the mapping phase.  I took printed copies of the digital photographs, materials for creating a map and the copy of "My Map Book" by Sara Fanelli (2006).  Throughout this phase I used a digital recorder to capture the conversations which took place.

I started the mapping phase by showing the children the printed copies of their photographs and allowing them to browse through them.  During this time they recalled what was depicted in the photographs verbally to me.  Next, I showed the children an assortment of paper, glue and mark making materials explaining that they could use any of these to create a map showing where they found their images.  I had the copy of "My Map Book" on display and the children were free to read this if they wished.  Multimodal social semiotic theory (Halliday, 1978) suggests that in comprehending images there is a need to understand the context and location of the texts comprising them, given that the images inclusion and placement within texts has been constructed by the social and is inextricably linked to their meaning.  As a result, a central part of the methodology centres on the production of maps by young children to show their encounters with visual mode, in their own local environments whether they be at home, school or within the wider community.

As the children completed the mapping activity I conducted a focused conversation (Clough & Nutbrown, 2012) in order to find out more about their meaning making with the visual mode.  The questions asked were used to elicit children's knowledge of the overall message conveyed by the image as a "text" (Halliday, 1978), a cohesive unit of meaning in communication.  Drawing upon the interview approach taken by Yamada-Rice (2013), this included questions relating to the producer, production methods and purpose, thus demonstrating the extent to which they understood the image's meaning.  This also enabled discussion which allowed the children to critique the use of the visual mode, and how the affordances of the visual mode were being used to convey a message.  These questions reflected my positioning of children as both message creators and receivers and provided a context in which multimodal texts may be considered critically, in line with the recommendations of Bearne (2003) and Burnett and Merchant (2015).  By mapping the images and describing their choices regarding the location of the images on the map, the children were given the opportunity to express their comprehension of how the location and context of texts affected the meanings conveyed.  Furthermore, the children's ability to use their own photographs in creating a map showed their knowledge of how images, and the visual mode, could be used to convey meaning.  I prepared questions which I could use, however I wanted to be responsive to the children and engage in a two-way conversation so not all questions were asked of all children.  An example of the questions I asked is shown in Table 3.2.

Table 3.2

*Example focused conversation questions*

| Subject area | Question |
|---|---|
| Message conveyed | Who is the picture for?<br>Why do you think it is so big/ small? |
| Producer | Who do you think made this? |
| Location | Where else have you seen this?<br>Why do you think the image is here? |

### 3.5.4 The pilot study

A pilot study was carried out with one child, who I shall call Ben. Due to the timing of this taking place in the school half term data collection took place within the home environment. The picture book "My Map Book" by Sara Fanelli (2006) was used in order to introduce the concept of mapping. It was discussed that maps could be used to show where things are located and the ways these could be placed in relation to one another. Next, I shared example photographs of media featuring the visual mode which I had taken in my own home (Appendix B). Following on from Bearne (2009) and Yamada-Rice (2010), I was keen to capture young children's ideas regarding the occurrence of visual mode in their environment through both screen and paper-based media. The examples photographs included a range of examples which I felt a young child would be familiar with including books and magazines as well as pictures of technological devices such as a tablet computer. I explained that these were items which I had found in my home and that I was interested in finding out whether there were similar items and images in his house. I then explained to Ben that we would use a digital camera to take photos of the images in his home.

I divided the pilot study data collection into two phases, a photography phase and a mapping phase, conducted on two separate visits to the home. During the photography phase I accompanied Ben as he took photographs within his home environment. He explained that he wanted to take the photographs in the lounge as it was the room he was in most of the time and was his favourite room. A range of photographs were taken independently by Ben within this room. Whilst Ben captured images of examples of the visual mode, I recorded on a sketch of the room the areas which he accessed and the order of these. Later in the same week I returned with the printed copies of Ben's photographs to complete the mapping phase. The images were

placed onto an A3 sheet to show where the different objects which used the visual mode could be found.

The methodology and methods trialled within the pilot study appeared to be readily accessible and understood by Ben.  He expressed his familiarity with maps and mapping during the picture book introduction and was able to apply this to the mapping exercise itself.  This observation matches those of Kervin and Mantei (2017) who found that a class of children aged 5 to 6 years were able to create birds-eye view maps of their familiar school environment using paper and coloured pens, having had the concept explained to them using a picture book.  This complies with the assertion that any methods used to elicit children's perspectives should reflect their existing preferences and experiences (Christensen & James, 2000).  In producing his map Ben started by marking the door into the room in the bottom right hand corner of the page before placing any his photographs.  This placement reflects both a landmark and edge in what Lynch (1960) describes as a "legible" environment.  The photographs were placed in a manner which matched their actual spatial locations, with Ben choosing to stack in order the photographs of the television, gamepad and console as these were located and used together in that area of the room.  The map was completed with Ben drawing a chair, thus locating himself physically in relation to the multimodal ensembles he is interested in within his home environment.  This emphasises the physical nature of meaning making.
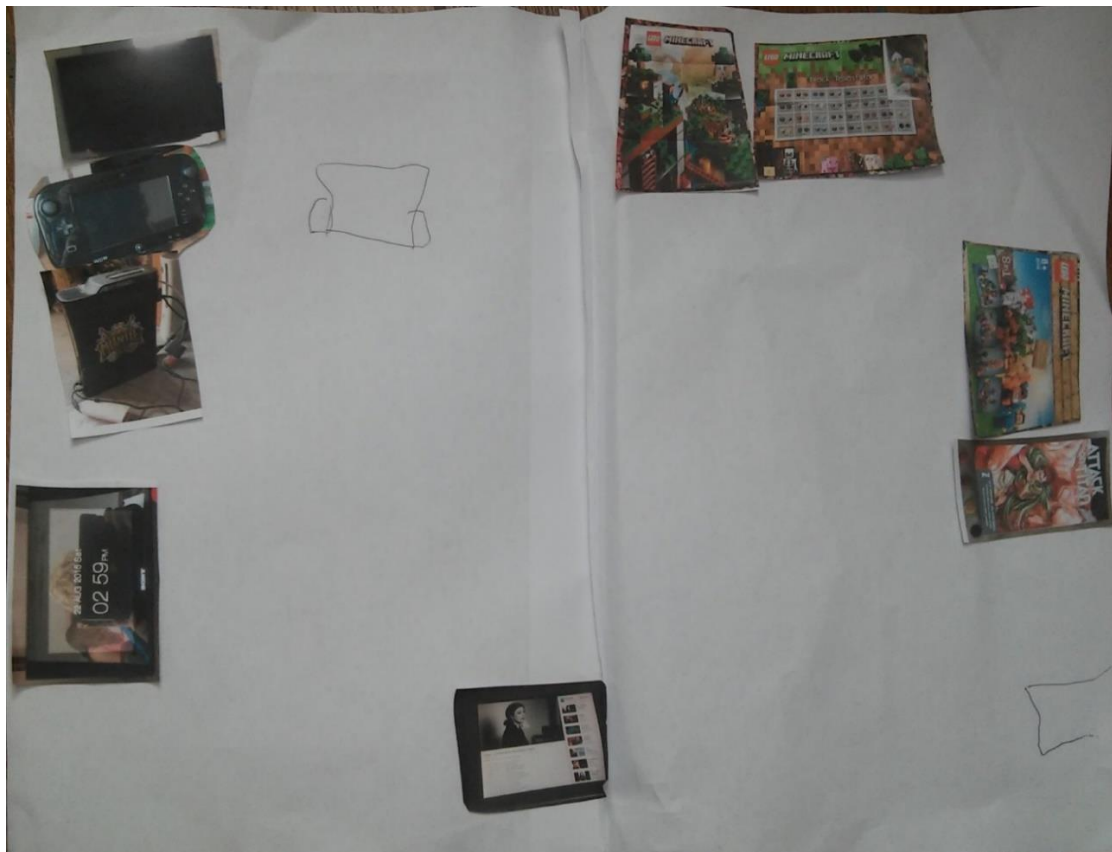


Figure 3.2- Ben's map of his lounge

Upon examination of the individual photographs it became apparent that Ben was recording not only examples of the visual mode within multimodal ensembles, but also the digital media capable of presenting these. Although I was interested in young children's conceptualisations of images within the environment in both paper and screen-based media, I had not anticipated that the media alone would feature in photographs and especially those, like the Xbox console, which did not feature screens. I did not attribute this to Ben not understanding the activity. Ben showed knowledge of what the different media were capable of; when considering taking a photograph of a radio he told me, "I can't take a photo of that because it doesn't do pictures, you can only listen to it". Different media afford different meaning, and this is linked to their material form (Bearne & Wolstencroft, 2007), with the visual mode being able to take on different meanings when presented using different media. Given Ben's apparent awareness of a range of media, when conducting the study I included questions within my focused conversations to explore young children's understanding of images in relation to a range of different media.

There were several aims in conducting the pilot study. As Yin (2014) suggests, it helped me develop and refine my research questions, test my methodological approach, and trial my data collection process. I found the pilot study provided a good opportunity to assess whether the two phases of data collection I had planned, namely the photography phase and mapping phase, were accessible to young children. This included both an assessment of whether the introduction of the task and subsequent instructions to the child were clear, but also the identification that this type of activity was within their existing methods of responding and interacting as suggested by Smith, Duncan and Marshall (2005). I felt that this was reflected in the way Ben was readily able to take part in the two phases of data collection and the relative ease with which he created his map with minimal support from myself. I also found the pilot study to be a good opportunity to practice holding focused conversations. This led to me developing and refining the list of potential open-ended questions which I the used within the final study.

On reflection, some aspects of the data collection process did not work well during the pilot study and this encouraged me to make changes ahead of commencing my final data collection. I had wanted to capture the order in which Ben visited the images in his environment and record his physical movement in relation to these. During the pilot study I attempted to jot this down and capture field notes as he moved around the home environment and took his photographs, however I soon identified that this limited my interactions with Ben, as well as my ability to respond to his remarks, when taking his photographs. I ultimately felt that the act of taking notes was encouraging me to observe from a distance and positioned me in a formal role which did not fulfill

the needs or aims of my study.  Consequently, for the data collection of the study itself I decided to jot down brief notes regarding the rooms or areas which they had visited and any significant events that had occurred during the photography phase once the child had left.


**3.6 Ethics**


This study was conducted in line with the guidelines provided by The University of Sheffield Research Ethics (The University of Sheffield, 2014) and the British Educational Research Association, Ethical Guidelines for Educational Research (BERA, 2011).  In addition to this, wider literature was consulted in order to ensure that my research with young children conformed with ethical standards.


Once my research design was finalised I completed the University of Sheffield, School of Education Research Ethics Application Form which was submitted for panel approval. Within the review application I presented my research aims and methodology, including the planned use of photographs and audio recordings within the data collection process.  I included information regarding access, consent, and my aims for meeting the ethical guidelines, with reference to issues of confidentiality and the assurance that the children who participated in the study will be respected and protected.  I received written confirmation that my application was approved (Appendix C).


A number of ethical considerations were necessary for the proposed study and this required me to look beyond the ethical protocols of the university and consult the wider literature.  From the outset, the study proposed to elicit the child's voice and position young children as informants in their own experiences.  The methods used reflect the "child's voice" in order to make sense of their interactions with the visual mode (Dockett & Perry, 2007), however this raises questions regarding informed consent and those who may act as gatekeepers in the research process.  Whilst the methods of the study seek to offer children the opportunity to demonstrate their skills and competencies in capturing photographs of the visual mode in their school environment, it is important that both assent and consent are given for who and what may be featured within the images used.  A second consideration to be made is that of insider research given that the proposed study is to be carried out by a member of the school staff who may draw upon the shared understandings and trust of those around them through previous shared experiences (Costly, Elliott & Gibbs, 2010).


The following section shall outline the procedures undertaken in gaining access, consent and assent for the research.  This is followed by a discussion of the ethical

considerations taken in using images and the issues of confidentiality in their use as data in the research process.

### 3.6.1 Informed consent

Informed consent is defined by Alderson and Morrow (2011, p. 101) as "the invisible activity of evaluating information and making a decision, and the visible act of signifying the decision".  As part of the process of acquiring informed consent, potential participants must be provided with unambiguous information regarding the purpose, nature, commitment and implications of the study in an accessible manner, in order to make an informed decision about whether or not they wish to participate in a study (Coady, 2001).  Informed consent is argued to be driven by the notion of freedom and autonomy, whereby participants agree voluntarily to participate without physical or psychological coercion, threat or pressure (Alderson, 2004).

The participants of this study were all young children, four to five years of age, and I felt it necessary to consider the extent to which they could be deemed to give informed consent.  In line with my earlier argument that the use of written and spoken language within research may prioritise adult perspectives (Hackett & Yamada-Rice, 2015) and mark the apparent superiority of adults over children (Finnegan, 2002) it could be determined that young children are vulnerable with respect to giving consent.  Flewitt (2005) problematises the notion of "informed consent" with young children and identifies the inherent challenges in explaining the nature and intended outcomes of exploratory research, due its unpredictable nature.  Flewitt instead proposes that consent relies upon the development of relationships centered upon reciprocal trust and collaboration, suggesting that consent is provisional and negotiated on an ongoing basis.  Whilst I sought to position young children as informants in their own experiences, I wanted to ensure that they were equally well informed about their participation within the study itself.

I found it useful at this point to consider the World Medical Association Declaration of Helsinki (World Health Organisation, 2001) which identifies that although a child cannot be considered legally competent to give consent, they may give "assent to decisions about participation in research" (p. 374).  This statement fitted in with the participatory approach I adopted in this study.  It seemed natural that if I were to identify young children as competent, confident users of technology (Marsh et al., 2005; Plowman, 2015) who are *also* reliable informants in their own experiences (Christensen & James, 2008) then I should also be able to deem them capable of making an informed decision.

From the outset of this study I identified that children are active meaning makers who engage in a range of multimodal practices.  As a consequence, I hold the belief that young children possess the capability to make on-going informed decisions regarding their participation in research provided that methods which both reflect and facilitate their preferred modes of communication are used, as suggested by Danby and Farrell (2005) and Heath et al. (2007).  As a result, I shall explain the research methods and aims with reference to both a children's picture book "My Map Book" by Sara Fanelli (2006) and example photographs (see Appendix B).  This approach is similar to that taken in Deguara's (2019) study of four year old children's preferred means of drawing, where assent was obtained both verbally and through the use of an image-based booklet.  Greig et al. (2007) recommend that whenever the assent of a child is sought, this should be in addition to existing parental consent, thus I shall seek the assent of the children participating after obtaining written parental consent.

### 3.6.2 Issues of access

A further ethical consideration prior to conducting this study related to my gaining access to both the children and their families as well as their familiar environments. Linked to this consideration is that of insider research given that during this study I was employed within the school as the Inclusion Manager and such I am able to draw upon the shared understandings and trust of those around me through previous shared experiences (Costly, Elliott & Gibbs, 2010).  As a result, this section seeks to explore the considerations I took in gaining access to participants whilst ensuring their ethical treatment by myself as an "insider-researcher" (Griffith, 1998).

Access to conduct research may be thought of as an "emergent process" of gaining entry to research participants and settings over a sustained time (Carey, McKechnie & McKenzie, 2001, p. 319-320).  Within the research process this involves the approaching of gatekeepers, whose role it is to protect the interests of others, in order to gain their permission for the research to proceed (Greig et al., 2007).  For this study I identified the Headteacher and Foundation Stage leader as gatekeepers within the school environment, whilst parents were gatekeepers to both the children and the home and community environments.  Table 3.3 shows the steps I took in approaching and gaining access from the respective gatekeepers.

Table 3.3

*Gaining access from gatekeepers*

| Date | Event | Actions |
|---|---|---|
| August 2015 | Meeting with Headteacher and Foundation Stage Leader | • Explain the aims and objectives of the study<br>• Provide copies of the information sheet and parental consent form<br>• Obtained verbal consent from both the Headteacher and Foundation Stage Leader<br>• Requested the Foundation Stage leader identify children according to my selection criteria |
| September 2015 | Second meeting with Foundation Stage Leader | • The Foundation Stage Leader provided a list of children who met the selection criteria<br>• Discussed my planned meeting with parents<br>• Discussed the children's existing use of digital cameras as part of their classroom provision |
| September 2015 | Meeting with parents at the school | • Explain the aims and objectives of the study<br>• Provided copies of the information sheet and parental consent form<br>• Obtained parents' written consent |

My position within the study was subject to additional ethical considerations, given my dual role as both school Inclusion Manager and researcher. The insider-researcher is someone whose previous experiences give them "a lived familiarity with the group being researched" (Griffith, 1998 p. 361), in this case myself as a school employee who has existing relationships with the children within the school and their families. Merton (1972) identifies two the opposing positions of the outsider, who can observe human interaction with detachment and distance, and the insider, who has engaged in the experiences of the group and possesses empathic understanding. Given the locally and culturally situated basis of multimodal social semiotic theory (Kress, 2005), it may be argued that any investigation into the modes of communication used by a particular group necessitates a researcher who has an awareness and familiarity of their practices and wider contexts. In this study I felt that my position as a fellow user of the school environment and my knowledge of the local area would support my interpretation of the children's maps and aid the focused conversations which I conducted.

### 3.6.3 Seeking informed consent and assent

My choice of school setting resulted from being employed at the time of the study as the school's Inclusion Manager.  As outlined in Table 3.3 I met with the Headteacher and Foundation Stage Leader prior to commencement of the study in August 2015 in order to gain their consent to conduct data collection within the school and seek their permission to approach parents regarding my study.  I explained the aims and methods I intended to use and provided copies of the information sheet and parental consent forms for reference.  Verbal consent was obtained from both members of staff.  As the Foundation Stage Leader was also a class teacher within the school's Early Years environment I outlined my participant selection criteria and asked her to identify children who may be able to participate within the study.

A second meeting with the Foundation Stage Leader took place in September 2015, once the children had started attending school full time.  She provided me with a list of children who met my selection criteria and showed high levels of wellbeing and involvement as measured using Leuven scales (Laevers, 2009).  She also discussed with me the fact that children had access to digital cameras and tablet computers as part of the continuous provision with the Early Years environment, confirming my assumptions that children participating within this study would be confident in using digital cameras as part of the data collection process.  Finally, I confirmed to the Foundation Stage Leader that I would be approaching parents of the children that she had identified individually before inviting them to attend an information meeting.

Parents are important gatekeepers in research with young children, particularly where this involves a visit to the home environment (Greig et al., 2007).  From the outset of this study I sought to establish and maintain good relationships with parents, an act which Nutbrown (2011) identifies as being of the utmost importance.  Although many of the parents already knew me within my professional context as Inclusion Manager, I felt that it was essential that the parents recognised that the research I was conducting was separate from this role and that all participation was entirely voluntary.

At the end of September 2015, I held a parental information meeting at the school in order to explain the aims, objectives and methods to be used within my proposed study.  I provided information sheets (Appendix A) to each of the parents as well as parental consent forms (Appendix D).  During the meeting I emphasised to the parents that even if they gave written consent, the decision regarding whether or not to participate would ultimately be up to their child and that within the context of the study data collection would cease should the child show any sign that they no longer

wished to continue.  Parents were given the opportunity to ask questions during the meeting, whilst the information sheets provided my contact details should the parents have further queries as the study progressed.  I confirmed with parents which setting their child would be collecting data in and agreed to confirm the mutually convenient dates and times with the families involved in the home and community settings.  The parents of each of the children involved in the study gave written consent for their participation by returning the signed consent forms to me.

### 3.6.4 Gaining the children's assent

Once I had obtained written permission from the parents, I turned my attention to gaining the assent of the children to participate.  As previously stated I believe that young children are able to give assent to participate in research, as reliable informants in their own experiences (Christensen & James, 2008), provided that appropriate methods are used to support their informed decision making (Heath et al., 2007).  This reflects the participatory approach which I took within this study, in which I feel that children are able to take decisions in research.  In contrast to adult-centred research gatekeeping systems which may only consider the parents' views and consent (Morrow & Richards, 1996), I gave children the ultimate decision on whether to participate.  Thomas and O'Kane (1998) identify this position as seeking the children's "active agreement" on top of the parents' "passive agreement" (p.339).

Within research with children, I perceive parents and child as having two distinct roles in relation to consent and assent.  Both Alderson and Morrow (2011) and Nutbrown (2011) agree that parental consent provides an assurance that the children's interests are safeguarded: they are best suited to anticipate any possibilities of undue risks, distress or embarrassment.  Informed assent on the other hand, is defined by Cocks (2006, p. 257) as "the sensitizing concept in gaining the children's agreement".  It is the children themselves who are actively participating in the research and so it is important to consider their views and feelings in taking part.  Given my professional role during the study, I sought the children's assent to ensure that their approval was genuine rather than given as an act of compliance towards a perceived authority figure (Harcourt & Conroy, 2011).

The process of gaining informed assent reflects a relationship of trust which develops between the researcher and the researched (Flewitt, 2005).  I had already begun to develop this relationship through my work within the school, where I would ordinarily spend time in classrooms as part of my role as Inclusion Manager.  I was also present as a member of the school's leadership team during transition meetings prior to the children starting school in September.  The children knew who I was, however I felt that

this alone was not sufficient to support the children's understanding of the complex notions, procedures and responsibilities of data collection highlighted by Dockett and Perry (2007).  Central to this study is the premise that young children have a range of pre-existing multimodal engagements, including those with the visual mode.  As a result, I felt that presenting information about the research process visually, in addition to my verbal explanations, would help to show the children what would be required of them in participating in the study.  I also sought to demonstrate to the children what their role would be in the data collection process.  I used the picture book "My Map Book" by Sara Fanelli (2006) to give children an overview of what was meant by maps and mapping, whilst I used a picture mat (Appendix B) to demonstrate to the children that they would be asked to take photographs of the images within their physical environment.  Previous researchers have used storyboards (Hall, 2010) and personalized books (Deguara, 2015) however I felt it was important that the visual aid I used matched the text type, a visual map, that the children would be producing.  It was also noted that Kervin and Mantei (2017) used a picture book as a stimulus when introducing a mapping activity to a class of 5 to 6-year-old children and this led to the production of birds-eye view maps of the school environment.

Throughout the data collection process, I sought the children's "provisional consent" (Flewitt, 2005, p.556), reflecting the fact that their approval and continuing participation was conditional and negotiable.  This required me to become attuned to the children's means of communication and remain vigilant to their responses (Cocks, 2006).  As a result, I took account of both their verbal and non-verbal cues, interpreting these in order to ensure that their assent was ongoing and genuine.  I informally checked with the children that they wished to continue the data collection activity and requested their verbal permission to audio record our conversations during the mapping activity.

The children communicated their assent to me in their eagerness and excitement to join in with the activity.  On the occasions that I visited their classroom for reasons other than data collection the children expressed disappointment that they weren't going to be taking pictures or looking at their photos today.  On rare occasions the children showed some signs of "dissent" (Morrow & Richards, 1996, p.95), where they appeared to pause their participation, a situation also encountered by Yamada-Rice (2013).  Such instances occurred predominantly in the school environment where the child participating spotted something happening elsewhere in the classroom and wanted to go and investigate or wanted to go and talk to a friend.  Such instances were only ever temporary and rather than reflecting a situation of genuine discomfort or disinterest in the research process, the children were seen as acting as gatekeepers to their own involvement in the research process (Corsaro, 2005).  As previously stated, in engaging in the study I identified the need to be attuned to the children's wishes

(Cocks, 2006). I felt able to interpret these temporary pauses in participation and attributed these to their not wishing to participate at that moment in time, rather than their wish to withdraw from the study. This example reflects the importance of the researcher's ability to understand and be sensitive towards the feelings and reactions of the child throughout the research process (Nutbrown, 2011). As part of my ongoing assessment of children's assent, I also upheld the ethical principal that they had the right to withdraw from the study at any time. This was specified not only in writing to parents, but also verbally to the children during each of the data collection phases and their decision would have been respected had it arisen at any point within the study.

### 3.6.5 Images and confidentiality

The collection of visual images is subject to the same ethical considerations as other forms of educational research; however elements of this method require additional thought particularly in terms of acquiring informed consent. Permission to take photographic or visual images, such as those used in a visual map which may include images from the home environment, concerns not only the site of the image itself, given that this is a private location where one would not ordinarily expect to be observed, but also permission for the reproduction of such images, from all individuals within the household, with a clear indication of the intended uses of the images and whether they will be edited in any form (Cohen, Manion & Morrison, 2011).

Prosser, Clark and Wiles (2008, p. 2) contend that:

> "Visual methods, and the data they produce, challenge some of the ethical practices associated with word and number based research, in particular around informed consent, anonymity and confidentiality, and dissemination strategies."

Furthermore, they suggest that the ethics in visual research are less well developed than in numerical and text-based research. One key difficulty of using visual images in research is that anonymity and confidentiality may be difficult to maintain, given that the whole purpose of the images used within the visual map lies in the environment of the respondents in question. Whilst Prosser et al. (2008) and Clark (2006) offer a range of ways of anonymising images including the blurring of identifying features, use of pseudonyms or taking images showing only the back of the person, Nutbrown (2011) offers a critical view of using such techniques for images involving young children.

With reference to the ethics of using young children as research participants, Nutbrown (2011) points to a tendency to pixilate images, particularly the faces of children, as a "crisis of representation" which demonstrates the "othering" of children in research. This assertion is interesting when considered in contrast to the views of others including Stephen et al. (2008) who feel that involving children within the research process empowers them. This raises the question of whether this 'empowerment' is

contingent on who is pictured in the photographs, and also whether the selection of images on the basis that they picture inanimate objects, rather than individuals, may be said to be empowering children as partners in a collaborative research process. When attempting to capture and understand young children's engagement and comprehension of the socially constructed visual mode, surely the environment should include all of those individuals who may be pictured or depicted within it. If we impose criteria on what can and cannot be included in such photographs we are defining the type of data which is then collected. One potential solution to this which is used in the following study is asking children to describe and explain the photographs within their visual map in dialogue with the researcher. This allows children to include the social aspects of their experiences around the visual mode, without the need to photograph the people and events involved in these directly. Procter and Hatton (2015) assert that asking consent to use images at the start of the research project is insufficient and that it is important for children to make these decisions as the project develops. In line with this, the subsequent conversations regarding the images allow children to continue to give consent to their use within the project.

## 3.7 Data analysis

There were several interlinked aims for this study. Firstly, to understand how young children conceptualise images within familiar physical environments. Secondly, in asking children to participate in a mapping activity I sought to identify how they make use of the visual mode to communicate meaning. Finally, given the methodological approach for this study, I wanted to establish how visual mapping may be used as a participatory tool to elicit the perspectives of young children.

The purpose of this section is to outline and justify the means of data analysis adopted in meeting the aims of the study. I collected both audio and visual data and so a consideration of my means of analysis in relation to these is identified first. I also outline the ways in which social semiotic theory (Halliday, 1978), the components of text (Jewitt, 2009b) and previous participatory research with children including the Mosaic approach (Clark & Moss, 2001; 2005; 2010) guide the analysis of my data. Following this, my use of Thematic analysis (Braun and Clarke, 2006) is outlined. For clarity, the research questions together with their corresponding means of data collection and analysis are outlined in Table 3.4.

Table 3.4

*Proposed means of data analysis*

| Research question | Methods of data collection | Means of analysis |
|---|---|---|
| 1. How do young children conceptualise images within their physical environment? | Visual mapping<br><br>Audio recording<br><br>Focused conversation | Thematic analysis (Braun & Clarke, 2006) guided by:<br>Social semiotic theory (Halliday, 1978)<br>Text metafunctions (Jewitt, 2009b)<br>Mosaic approach (Clark & Moss, 2001; 2005, 2010) |
| 2. How do children use the visual mode within a mapping activity to convey meaning? | | |
| 3. How may visual mapping, as a methodological approach, be used to elicit young children's perspectives? | | |

### 3.7.1 Analysis of visual maps

In deciding on my means of analysis for the visual maps I drew upon two key sources: The Mosaic approach (Clark & Moss, 2001; 2005; 2011) and Halliday's (1978) notion of text.  This study is influenced by the Mosaic approach and so I felt it necessary to consider the ways Clark and Moss analysed the visual data, including maps, which they collected within their multi-method approach.  Unlike the Mosaic approach, this study also draws upon social semiotic theory and as a result I viewed the children's visual maps as texts, used to communicate their perspectives regarding images within their environment.

Within social semiotic theory Halliday (1978) used the term text to signify a cohesive unit of meaning in communication, rather than as a synonym for writing.  As identified within the literature review chapter, texts comprise three metafunctions which operate simultaneously to make meaning: (1) the ideational, (2) the interpersonal and (3) the textual (Jewitt, 2009b).  Given my conceptualisation of the children's visual maps as texts this it turns allows them to be interpreted in terms of the metafunctions which they comprise.  The ideational component, or subject matter, of the map text is identified as being images in the environment.  The interpersonal component, or use of social interaction, may be evidenced through the children's use of their photographs

and annotations within the map text to convey their experiences and ideas.  Finally, the textual component refers to the creation of coherence.  Within a map text this could be achieved through the use of composition, modality and framing which enable visual images to be configured to design interpersonal meaning, present the world and events in specific ways and finally to realise coherence (Jewitt, 2009a).  Meaning drives the approaches taken to communicate with the audience (Bearne, 2009), in the case of this study the children's perspectives regarding images in their environment shape the creation of their individual visual maps.

The Mosaic approach used map making as part of a multi-method approach for listening to young children's perspectives, positioning them as "experts in their own lives" (Clark & Moss, 2001; 2005; 2010).  In common with the visual maps produced in this study, the method of map making in the Mosaic approach allowed 2D representations to be made of sites using children's own photographs and drawings.  The Mosaic approach maps were analysed as a piece of evidence which fits into a wider picture, resulting from the range of diverse data collection tools used.  As part of the commitment to listening to children's perspectives, a strong emphasis was placed on listening to their interpretations of data.  Rather than adopt formal analytic methods, themes were identified, from the range of data collected, in the light of the children's perspectives (see Clark & Moss, 2001; Waller, 2006).  Clark and Moss (2005, p. 81) identify that "listening and learning cannot be separated", and so any analyses made from the data collected must start from the children's voices.

The children's voices are not only apparent in their verbal utterances, but also in their use of the visual mode to communicate meaning through their map text.  As argued previously within this chapter, the use of visual methods allows different modes and communicative practices to be foregrounded (Hackett & Yamada-Rice, 2015); they provide an alternative to word based research (Prosser & Loxley, 2008) which may provide an accessible means for children to record aspects of their lives and help to redress the "power imbalance between adults and children in research" (Procter & Hatton, 2015, p. 50).  Images are central to children's lives and experiences (Prosser & Burke, 2008).  In identifying children's perspectives regarding images in their environment, I sought to consult the children's ideas and views as elicited through both their audio recordings and their visual maps.  As a result, in analysing the data I collected, I sought to identify themes based not only on what I heard the children say but also on what they showed me in their visual maps.  Given the grounding of this study in social semiotic theory (Halliday, 1978) I used the three text metafunctions (see Jewitt, 2009b) to guide my identification of themes and reflect upon whether what the children were showing or telling me related to either the ideational, the interpersonal or the textual component of their map text.

### 3.7.2 Audio recordings

My focused conversations with the children during the mapping activity were audio recorded.  I used these audio recordings to create a transcript of my conversations with each child, including both their spontaneous utterances as well as their responses to specific questions which I had pre-planned to include as part of our focused conversations.  A transcript may be thought of as a "selective arrangement" (Sandelowski, 1994, p. 311) produced specifically for the purposes of analysis.  The transcript is the product of the interaction between the recording and the transcriber, who listens to the audio recording and makes choices about what to preserve, and to represent what is heard in a written format (Braun & Clarke, 2013).  Rather than seeing this as a flaw, I take Davidson (2010) and Dawson's (2009) guidance and view the act of transcribing as being an integral part of my analysis and an invaluable means of getting to know my data.

According to Braun and Clarke (2013) a good orthographic transcript signals not only what is said and who is speaking, but also records in written form all verbal utterances made including actual words and non-semantic sounds.  In addition to this, nothing should be corrected or edited into standard English.  Any editing of the data may make participants sound more fluent and more like they are using written language (DeVault, 1990), whereas the purpose of collecting spoken data is to capture how individuals express themselves.  This second point is perhaps more significant in research with young children which, as I have previously argued within this chapter, may not only prioritise adult perspectives through their grounding in written and spoken language (Hackett & Yamada-Rice, 2013) but also reflect a power imbalance in which the child provides meaning to an adult researcher (Procter & Hatton, 2015).

### 3.7.3 Thematic analysis

Thematic analysis is a method for identifying themes and patterns of meaning across a dataset in relation to a research question (Braun & Clarke, 2013).  Although this is a longstanding, albeit "unbranded", qualitative method of data analysis, I draw upon the work of Braun and Clarke (2006) specifically in my approach to thematic analysis.  Braun and Clarke identify thematic analysis as being a highly flexible method for analysing data which can be used within different theoretical frameworks to examine the ways in which "events, realities, meanings, experiences and so on are the effects of a range of discourses operating within society" (2006, p.81).  This stance allows for the social and cultural context of communicative practices and, as such, I felt that thematic analysis could be used to successfully within the framework of multimodal social semiotic theory (Halliday, 1978) which underpins this study.

I chose the method of thematic analysis to interpret my audio transcripts as I felt this was well suited to the focused conversation approach I took.  There were not a prescribed set of questions which all children were asked to answer, and any questioning I did use was in direct response to the children showing me something of interest to them, for example individual photographs or an aspect of their map, or a part of the conversation initiated by the children themselves.  Furthermore, each conversation took place within a different environment at a different time.  As a result, there were no limits on what the individual children might say, and I needed a means of analysis which reflected this.  Flick (2014) identified that thematic analysis in research is "founded on analysing subjective viewpoints" (p. 423), a factor which I felt was highly important in considering young children's perspectives on images within their familiar environment which would inevitably invoke reference to their wider experiences and multimodal engagements.

I applied Braun and Clarke's (2006, p. 82) definition of the word theme as "some level of *patterned* response or meaning within the data set".  First, I read through the individual transcripts for each child and used colour to highlight different aspects of their responses (see Appendix E).  For example, where I felt they were describing the types of images they liked or where they were describing their decision making process aloud in creating their visual maps.  Next, I compared my highlighting for each child in order to identify whether there were similarities between the conversations, indicating a pattern across my audio data set.

I then turned my attention to the children's visual maps, looking for patterns in relation to visual data.  I followed similar steps to those carried out for my audio data, but this time allowed my interpretations to be guided by consideration of the three text metafunctions: the ideational, interpersonal and textual (Jewitt, 2009b).  First, I looked at the visual maps for each child individually.  I considered each map text as a whole, identifying the type of map it represented, and noted any features of the map text which I felt were most prominent.  Next, I considered each of the text meta-functions individually.  In relation to the ideational component, or subject matter, I considered which images in the environment the children had captured in their photographs, noting whether they were of particular types of images or presented through specific media.  For the interpersonal component, I looked for evidence of the children using their photographs and other annotations within the map to convey their experiences and ideas.  Finally, in considering the textual component I looked at the ways the children created overall coherence within their maps.  As identified previously within this chapter and the literature review chapter, I anticipated that this could be achieved through the use of composition, modality and framing in order to present the world and

events in specific ways (Jewitt, 2009a).  I brought together my notes for each individual map, comparing whether there were similarities or patterns across the visual data.

The final step in my thematic analysis was to bring together the audio and visual data.  I had compiled notes for individual transcripts and maps as well as identifying patterns in the two data types across the five children.  I now looked to whether there were overlaps between what the children told me, and what they showed me.  For example, a child might discuss verbally seeing signs or posters within their environment whilst a map produced by another child may feature photographs of posters that they saw within their environment.  This suggested a potential theme relating to children's awareness of messages or information being presented within the environment through images.  The themes from both the visual and audio data were compiled and reduced to create three main themes.

I didn't want to lose sight of the individual children within my analysis so created tables which recorded the responses of each child in relation to the three main themes, as well as subthemes which stemmed from these (see Chapter 4).  Braun and Clarke (2013) outline stages in conducting thematic analysis which points to the use of maps to show the linkages between themes, however I found that by creating thematic tables which attributed responses to individual children I was able to maintain a link back to the map texts that the children created.  As outlined previously, the maps texts were created by the children individually, using their own photographs, to represent the images in their familiar environment.  I present an overview of the themes and subthemes that I identified in the overarching results chapter.

## 3.8 Summary

In this chapter I have discussed the research methodology used in this study.  I adopted a multiple case study in bringing together data in order to gain an insight into young children's conceptualisation of images in their environment and the ways they themselves may use of the visual mode to communicate this.  Positioning children as competent informants in their own experiences, which encompass a range of multimodal engagements, I then explained the methods I used to involve the children within the research process.  The use of visual methods is argued to provide not only an accessible means for the children to record aspects of their lives including the environments they inhabit but may also help to redress the power imbalance between adults and children in research which privileges written and verbal modes of communication.  An important section of this chapter was my description and justification of the use of visual mapping.  I identified two phases within the data collection process, which brought the individual child's photographs together to create

a visual map representing the occurrence of images in their familiar environment. The maps were my main sources of data and were supported by audio recordings taken of the children engaging in focused conversations with myself during the mapping activity. The means of analysis used to interpret the children's visual maps was described in which I planned to use thematic analysis.

In the next chapter, I present the main themes identified within the data in an overarching results section before using the three themes identified in order to structure my presentation of the results. I conclude by discussing the research findings.

**Chapter 4**

**Overarching Results**


The children completed visual maps of their familiar environments in two stages. During data collection the children first used digital cameras to capture examples of the visual mode within the context of their familiar environments, before using printed copies of their photographs alongside mark making materials to create participatory visual maps. Throughout the mapping phase the children's spontaneous remarks were audio recorded whilst their conceptualisation of images in their environment was further explored through the use of focused conversations. The familiar local environments which were represented by the children in their maps reflected Burbules (2004) identification of place as having a subjective importance to an individual or group and within this study included an Early Years setting, family homes and a large community leisure centre. The location and age of each child at the start of the study is shown in the table below, the participants and settings are described within greater detail within the methodology section.


Table 4.1

*Overview of the participants*

| Early Years setting | |
|---|---|
| Max, 4 years 7 months | Joey, 4 years 2 months |
| **Home setting** | |
| Molly, 4 years 6 months | Emily, 5 years |
| **Community setting** | |
| Jeffrey, 4 years 10 months | |


In line with previous discussions regarding children's meaning making and communicative practices, which may frequently be grounded in the embodied and non-verbal (Hackett & Yamada-Rice, 2015), and the desire to reflect young children's preferred modes of communication within the research process (see Christensen & James, 2000) two key sources of evidence were considered in parallel when drawing out the results and outcomes of this study. The participatory visual maps which the children created from their photographs and deep personal knowledge of their environment formed one aspect and were viewed in conjunction with the transcripts taken during the mapping activity itself which included focused conversations, alongside non-verbal utterances, movement and gesture.


The visual maps and audio transcripts were subject to thematic analysis as described within the preceding data analysis section. My thematic analysis of the visual maps was informed by social semiotic theory (Halliday, 1978) and the metafunctions of text

(Jewitt, 2009b): I examined the map texts to identify the ideational, interpersonal and textual components.  The audio recordings of the conversations, which took place whilst each child completed the mapping activity, and the notes I took immediately following completion of the activity were transcribed.  The transcripts and visual maps were then examined for emergent themes, before these were reduced to key themes and subthemes.  Each of these themes and subthemes were considered in order to identify how they related to the original research question.

For clarity, the research questions, which relate to young children's conceptualisation of images within their familiar environments and the use and suitability of visual mapping as a research tool, were numbered as follows:

1. How do young children conceptualise images within their physical environment?
2. How do children use the visual mode within a mapping activity to convey meaning?
3. How may visual mapping, as a methodological approach, be used to elicit young children's perspectives?

Once the visual maps and audio transcripts were analysed, the themes, subthemes and research questions which they related to were recorded onto a table to allow commonalities and differences to be identified.  Upon examination of the overall themes, three main themes became prominent.

Theme 1- Relating images to their physical locations

Theme 2- Awareness of the visual mode being used to communicate meaning to an audience

Theme 3- Linking images with play, interests and activities which may take place in other environments

The themes and subthemes for each focused conversation are shown in the following table.  The three main themes which were identified during conversations with each child are highlighted in a separate colour, alongside the subthemes these encompassed.  Each of the themes and subthemes are also related to a numbered research question (RQ) where applicable.

Table 4.2

*Overview of themes and subthemes*

| Child | Theme | RQ | Sub theme |
|---|---|---|---|
| Joey, 4 years 2 months Early Years setting | Relating images to their physical locations | 1, 3 | • Relating images to their physical location<br>• Use of place names to identify images<br>• Noting similarities between images found in same type of location. |
| | Awareness and use of mapping conventions | 3 | • Editing and adapting map to reflect where images were found in physical location |
| | Awareness of the visual mode being used to communicate meaning to an audience | 2, 3 | • Cutting down images to identify and show specific area of interest (framing)<br>• Awareness of composition, modality and framing to communicate meaning through the visual mode. |
| | Identifying area of interest in visual arrangements | | • Grouping images of similar object of interest<br>• Cutting down images to identify specific area of interest (framing) |
| Max, 4 years 7 months Early Years setting | Awareness of the visual mode being used to communicate meaning to an audience | 2, 3 | • Identifying messages as being for kids or adults<br>• Use of written mode to communicate meaning on map (captions/ labels)<br>• Messages left for others who might access that space |
| | Awareness and use of mapping conventions | 3 | • Reference made to other maps seen/used |
| | Relating images to their physical locations | 1, 3 | • Checking images against physical location before placing on map<br>• Link to order images visited<br>• Relating images to their physical location |
| | Linking images with play, interests and activities which may take place in other environments | 1, 3 | • Referring to images at home which are similar to those in school |

| | | | |
|---|---|---|---|
| **Molly, 4 years 6 months**<br>**Home setting** | <mark>Relating images to their physical locations</mark> | 1, 3 | <mark>• Mapping a journey using the images<br>• Use of positional and directional language in order to describe location of images<br>• Use of own images to supplement photos on map<br>• Use of lines to connect images to signify movement through environment<br>• Relating images to their physical location</mark> |
| | <mark>Linking images with play, interests and activities which may take place in other environments</mark> | 1, 3 | <mark>• Link between different media- physical toys, TV, computer to pursue an interest/ play<br>• Link to family practices- having engaged with images alongside family member/ pets<br>• Connection made between home/school- craft items brought into the home, similar resources</mark> |
| | <mark>Awareness of the visual mode being used to communicate meaning to an audience</mark> | 2, 3 | <mark>• Link to patterns/ repeating colours/ decorations<br>• Certain colours signifying 'precious' or valuable (silver/ shiny)<br>• Images described as pretty, purpose to look nice</mark> |
| | Identifying area of interest in visual arrangements | | • Cutting down images to identify specific area of interest (framing) |
| **Emily, 5**<br>**Home setting** | <mark>Relating images to their physical locations</mark> | 1, 3 | <mark>• Relating images to their physical location<br>• Use of place names to identify images<br>• Editing and adapting map to reflect physical locations<br>• Movement around environment in order to establish relative distances between images</mark> |
| | Awareness and use of mapping conventions | 3 | • Use of written mode to support map (labels/ captions) |
| | <mark>Linking images with play, interests and activities which may take place in other environments</mark> | 1, 3 | <mark>• Link between home and school- reading schemes,<br>• Images included book covers/ book case</mark> |
| | <mark>Awareness of the visual mode being used to communicate meaning to an audience</mark> | 2, 3 | <mark>• Different texts identified as being aimed at different ages<br>• In relation to books- stated adults prefer words, children prefer lots of pictures<br>• Colours used to engage people, make it more interesting and make them look at it</mark> |
| | Identifying area of interest in visual arrangements | | Cutting down images to identify specific area of interest (framing) |

| | | | | |
|---|---|---|---|---|
| | Relating images to their physical locations | 1, 3 | • Link to order someone might see the images as they move through the environment<br>• Relating images to their physical location<br>• Collection of images in same area identified as covering the same topic<br>• Spatial location/ placement of images supporting understanding | |
| | Awareness and use of mapping conventions | 3 | • Overview given of what map shows- limits and boundaries | |
| | Linking images with play, interests and activities which may take place in other environments | 1, 3 | • Relating favourite images to favourite activities<br>• Described having seen similar images elsewhere before (warning signs/ restaurant) | |
| | Awareness of the visual mode being used to communicate meaning to an audience | 2, 3 | • Awareness of brands, logos and slogans<br>• Brands logo telling you where you can buy more of the same products<br>• Images are tailored to what someone else might like to see<br>• Use of colours for a purpose (warning signs/ increased visibility/ adding interest)<br>• Identifying who message creator is<br>• Identifying target audience and how the message may be different for different ages (adults/ 'little kids'/ my friends) | |
| Jeffrey, 4 years 10 months Community setting | Awareness of composition, modality and framing to communicate meaning through the visual mode. | | • Choices made whether to cut down or use whole images on map (framing)<br>• Overlapping images in order to show they were photo of the same thing from different angles (composition) | |

The table demonstrates the research questions each of the main themes contributed to.  Given the apparent breadth of research questions each of the main themes were able to contribute towards answering, it was decided to use the three main themes as a basis for discussing the overall results of the study.  Structuring the results in this format also provided a means to explore such findings in a manner which avoided unnecessary repetition, with each of the three main themes being explored in the subsequent results chapters.  The children's responses and maps will be discussed collectively according to the main theme and subthemes, rather than individually.  Each of the subsequent results chapters will be preceded by an introductory table which identifies the main theme, as well as outlining the subthemes which will be discussed.

To further evidence the three main themes, explicit reference will be made throughout the results chapters to images taken by the children during the data collection process, the completed maps produced as well as stills from the mapping process itself to show the actions and decisions made by the children in representing their familiar

environments through visual maps.  Presenting these images within the results section is intended not purely as illustration or ornamentation, something which Kress (2010) warns is an inevitable outcome should the visual mode be seen as a duplication of information already presented using the written mode.  Nor should it be seen that my use of the written mode to describe the children's images takes precedent, reflecting the privileging of adult modes of communication (Hackett & Yamada-Rice, 2015).  Not all knowledge can be reduced to language and Eisner (2008) identifies the potential of visual images to communicate what words cannot say.  Presenting the children's voice within the results section in the same format in which they originally responded, through photographs, annotations, depictions and representations of their familiar local environments, allows unique meanings to be derived which may not otherwise be readily expressed using words or paraphrased by the adult researcher.

**Chapter 5**

**Results**


**5.1 Introduction**


This chapter details the different ways the young children involved in this study conceptualise the images which they encounter as intrinsic parts of their familiar environments. It identifies how children used the visual mode to convey this knowledge and understanding about images in their personal visual maps. Finally, it examines the role which visual maps may play as a methodological tool in capturing the perspectives of young children.


As identified within the methodology, this study took place across three different settings which were identified as being familiar environments to the young children who participated. This included the school's Early Years setting, the home environment and a community leisure centre. In spite of the physical differences between the three environments, the ways in which the five children described images within this study showed marked similarities. On the other hand, the mapped representations of images within their environments differed, particularly in the case of the Early Years environment. Within this chapter the commonalities in young children's conceptualisations of images within their familiar environments are identified, whilst the differences between the visual maps is explored in relation to the environments which they represent.


The children's knowledge and understanding of the ways the visual mode may be used to communicate meaning was drawn out through the mapping activity. This was aided by my consideration of the three text metafunctions; the ideational, interpersonal and textual (Jewitt, 2009b), when conducting my thematic analysis of the visual maps. It was identified that the children made use of the semiotic resources of the visual mode including composition and framing in order to convey information about their environment in their visual maps. The competence and skill with which the young children used the visual mode to communicate meaning is argued to offer further evidence of the multimodal nature of their engagements. It also points to the utility of visual maps in identifying the communication practices of young children.


The children in this study were found to place great importance on the role of movement and space in relation to the images they accessed within their environment. This is evidenced in their map texts, the physical movements in and around their environment when producing their maps and the verbal comments they made about

images during the mapping activity.  The children in this study related images to a physical location, with some of the children positioning the images on their maps spatially in relation to one another.  Furthermore, embellishments added to the map texts, such as pathways and routes through the images, combined with the movements made by the children when creating their maps, point to the children themselves acknowledging the importance of moving in and around an environment in order to make sense of images.  This reflects the unique contribution of visual maps as a methodological tool; they enabled an insight into young children's meaning making practices which may not otherwise have been possible were an alternate methodological approach used.

The results of this study draw upon the visual maps which the children created, and these are supported by transcripts taken during the mapping activity.  Given that the visual maps inform each of the research questions for this study this chapter begins with an overview of the individual maps, before moving onto consider the themes and subthemes which were identified within the results overview.

## 5.2 Visual maps

The visual maps created by the children in this study were produced in two phases: a photography phase, in which the children took photographs of images within their environment, and a mapping phase in which they created mapped representations of their environment using printed copies of their photographs.  This approach draws upon existing participatory visual methods including The Mosaic Approach (Clark & Moss, 2001; 2005; 2011; Clark, 2017), which used mapping as one of a series of tools for listening to practitioners and young children regarding their immediate Early Years environment, as well as Yamada-Rice's (2011a, 2011b, 2013a) research into the increasing prevalence of the visual mode within the urban environment and young children's emerging understanding of multimodal texts within such "semiotic" landscapes.

Within the literature review chapter, a number of different map types were identified and described.  These included both spatial maps, such as geophysical maps, schematic maps and road maps, as well as non-spatial maps, including cognitive maps, mind maps and pictorial maps.  These examples reflected the historical use of maps as a tool for representing physical landscapes as well as psychological and social connections to place, connections among people and for representing links between ideas (Powell, 2010).  Given the possibilities for representing the same physical space through multiple maps, constituting different subjective places (Burbules, 2004), a starting point

for examining the participatory map created by the children is to identify what type of map they may be and what they depict.

Each of the children's maps will be considered individually initially.  This will be used to orient the reader and identify prominent features of the maps which require further consideration.  The content and depictions within the maps themselves will be explored in further detail in subsequent sections, including those for Themes 1, 2 and 3.  Looking at the complete map text from the outset is intended to remind the reader of the individual setting for each child and indicate the limits or boundaries of their map, including the range of spaces involved.  This is facilitated by the inclusion of some annotations by myself, however these are only intended to acquaint the reader with a space which it is not possible for them to physically visit.  It should be noted that the recording of these annotations posed a dilemma as they may be taken as indicative of the "power imbalance" between and adults and children in research (Procter & Hatton, 2015), with my experiences of the space overriding those of the children.  It is hoped that presenting the maps as complete texts will allow the child's original message and representation to be foregrounded ahead of any subsequent analyses.  Using Burbules' (2004) definitions, each of the mapped settings was a familiar local *place* to the child, whereas to me as a visitor it can only be said to be a *space.*  It is the knowledge and subjective experience of a *place* which carries with it information regarding "what it means to be there" (Burbules, 2004, p. 174).

### 5.2.1 The Early Years setting

*Joey, 4 years and 2 months, Early Years setting*



Figure 5.1- *Joey's Early Years setting map*

At first glance Joey's map of the visual mode within his Early Years setting appears to be a collection of images presented relatively uniformly from left to right, working down the paper he laid out. The regular spacing between the images suggests that this may not be a spatial map. During the participatory mapping process with Joey, however, his intention to place the images according to the rooms and areas within the Early Years setting was very much central to the creation of his overall mapping text.

When looking closely at his map it becomes more apparent that it is made up of three different sheets of the yellow paper. Each of these sheets represents a different physical zone or area of the Early Years setting. The areas mapped by Joey include his

classroom, "The Orchard Area" which is a shared central area between the classrooms used for creative and messy activities and "The Barn" which is a covered outdoor space which the children have free access to throughout the day.  The distinction between these areas onto the three sheets of overlapping paper can be demonstrated more clearly through the addition of lines as shown in the annotated image.



Figure 5.2- *Annotated version of Joey's Early Years setting map*

Joey's map represents a way of sorting images according to their location in which they may be found.  The images are grouped according to the different rooms in the setting they occur in rather than placed in their relative physical positions within each room. This demonstrates Joey's familiarity with each of the areas within the Early Years setting, as well as his knowledge of the specific images which may be found exclusively in each area.  Furthermore, the positioning of the three sheets is argued to demonstrate Joey beginning to identify the routes and pathways which may be taken through the setting itself.   Within the Early Years setting featured in this study you cannot get directly from The Orchard Area into The Barn but instead must walk through

one of the classrooms.  This is reflected in Joey's map as both sheets representing The Barn and The Orchard Area are joined to the classroom but not one another.


The zoning and grouping of images into the areas of the Early Years setting demonstrates some of the properties of a schematic map, however it lacks key topological information.    Derived from the mathematical branch of topology, the topological information conveyed in a schematic map relates to the preservation of spatial information following deformations such as extending the distances and angles between two or more points (Izard, O'Donnell & Spelke, 2014).  In practice this means that even when there is no scale on a schematic map, due to the irregular and variable spacing between points, the key underlying information regarding the existence of spacing between these points is maintained.  Within Joey's map there is no indication of the distances or angles between the images and objects he has presented within his map, irrespective of whether this is distorted by variations in scale, and so his map cannot be said to be a schematic map and may be better conceptualised as a non-spatial map which offers a way to document "associations", rather than topographical representations (Clark, 2011; Hart 1979).  It is these associations between image, location and space within Joey's familiar environment which will be considered further within the three main themes identified.

*Max, 4 years 7 months, Early Years setting*



Figure 5.3- *Max's Early Years setting map*

Max created his map using relatively few of the photographs he had taken of the Early Years setting. In spite of this, he showed good recognition of the full range of images he had captured and was able to name and describe what was depicted in each photograph even though he chose not to use them in his final map. This suggests that Max may have been very selective in the images that he wanted to use, reserving the map for those images that he found most engaging rather than the exclusion of photographs being due to a lack of recognition or recall of them.

Max's map is dissimilar to the spatial and non-spatial map text types previously identified within the literature review as it lacks information regarding the links between the images themselves and the context for these, were it not for the content of Max's conversations during the mapping activity one could question whether it may be said to be a map at all.  In common with Joey's map, Max appears to have presented his images from left to right working down the page.  Max did not, however, group his images on the page according to their location and the use of more than one sheet represents him running out of room on the first page, rather than a new page being used for a new location.  Max showed a very detailed awareness of the locations of each of the images depicted in his map, but articulated this verbally during the focused conversation rather than through the presentation of the images on his completed map.   This knowledge of the Early Years setting as a familiar place will be discussed in further detail in the subsequent sections.

The final aspect of Max's map which stands out is the similarity between the layout of his photographs on the page.  As shown in Figure 5.4, Max chose to display his photographs in an evenly spaced grid format in a very similar manner to the classroom displays which feature prominently on his map.  Half of the photographs which Max chose to use on his map are of classroom display boards, featuring a grid like presentation of children's work.  The written captions which accompany the artwork in Figure 5.4 reflect Sakr, Connelly and Wild's (2015) identification of writing being used in displays of children's artwork primarily to evidence children's progress in communicative practices, including writing.  Max's map demonstrates a conceptualisation of images within the Early Years environment as being predominantly for informative or display purposes.



Figure 5.4- *Excerpt from Max's map in comparison with his photograph of a classroom display board.*

In comparing Max's map and the classroom displays a further point for consideration is the extent to which Max's chosen means of representing images within his familiar environment is shaped by the ways adults around him have presented the visual mode, through images and texts within that same environment. Within the methodology section, the assertion was outlined that schools may seek to move children from their preferred modes of communication to the preferred written mode of school (Marsh & Millard, 2000), it could be that the left-right presentation of images akin to words on the page marks the transitioning from the visual mode to the written mode. This is an area which will be further explored within the Theme 2 section "Awareness of the visual mode being used to communicate meaning to an audience" including the extent to which children made choices regarding the presentation of their map texts and the explanations they gave for this.

### 5.2.2 The home environment

*Molly, 4 years 6 months, Home setting*
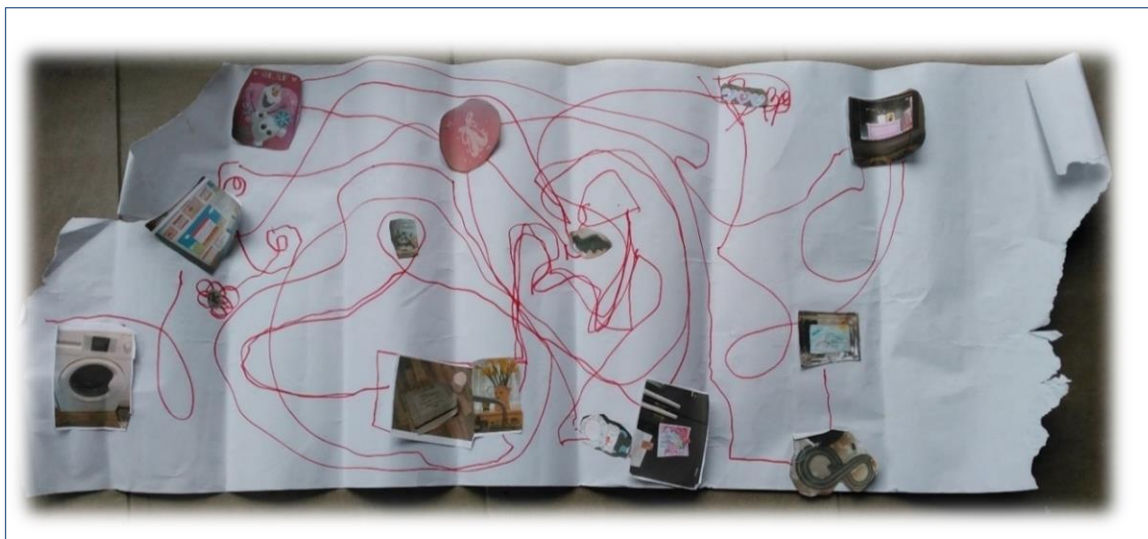


Figure 5.5- *Molly's home setting map*

Molly's map is a combination between a pictorial map and a schematic map. Pictorial maps typically adopt a bird's-eye view to depict a space through sketches and illustrations, which allow for embellishments and the incorporation of details which are not physically present. A visitor map for a nature reserve may depict birds in trees and fish in water irrespective of their physical presence. Schematic maps on the other hand, as demonstrated by the map of the London Underground, carry topological information about the connections between places or objects, including relative distance, direction and sense (Uttal, 2000), but may distort the scale of such distances and angles between such points (Izard, O'Donnell & Spelke, 2014). This consideration

of map type is important as it relates to the way Molly used the map to communicate her knowledge of images within her environment. Within Molly's map there is evidence of embellishments which serve to indicate the use of the space within the home environment. Furthermore, the lines she has drawn across her map indicate connections or relationships between the images she photographed. These points will be expanded in greater detail within Theme 1, "Relating images to their physical locations".

Molly made a number of spontaneous sketches during the participatory mapping process. The sketches are not all visible on Molly's finished map but can be shown through photographs taken during the mapping process itself. She repeatedly sketched individual images, before covering these over with the photograph she had taken of the image. The photographs below show Molly's sketch of Olaf the snowman, in comparison to the same area on her finished map.
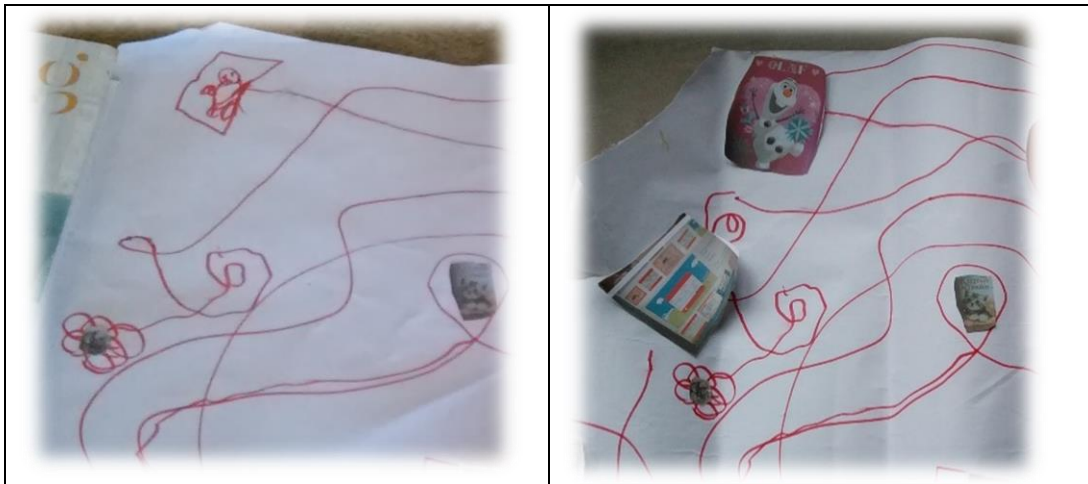


Figure 5.6- *A comparison between Molly's sketches during the mapping activity and her completed map.*

The pathways drawn on Molly's finished map are complex and overlaid, requiring the viewer to attempt to untangle them in their minds eye should they wish to follow them individually. Again, the lines which make up each pathway were drawn spontaneously by Molly during the mapping activity and originate from her placement of her family cat "Millie" towards the centre of the map. This is shown in Figure 5.7. It is these pathways and lines which carry information about the connections and linkages between the visual mode found in texts and objects and the spaces within Molly's home. These pathways also demonstrate Molly's use of the visual mode in order to communicate information about the ways space in her environment is used. The notion of the visual mode being used to communicate meaning to an audience is explored further within Theme 2.

Figure 5.7- *Millie the cat at the centre of the pathways around the home environment*

As will be discussed further within subsequent sections, Molly created a verbal narrative to describe Millie's movement around the home environment.  She described Millie as a character who visited each of the images that Molly had photographed, moving from one location to another.  The recording of movement in Molly's map is not dissimilar to the maps created by Hackett (2014) to record young children's "zigging and zooming" as they make meaning through movement within the museum environment. Embodiment, (Christensen & O'Brien, 2003; Casey, 2001), movement (Ingold, 2007) and the senses (Pink, 2009) are all known to play a role in the way that individuals experience space and place.  It is this link between movement and meaning making which Molly appears to be representing through her map, something which Powell (2016) identifies in her conceptualisation of place as embodied.  Furthermore, to Molly, movement within a place and the visual representation of it, in this instance through mapping, appear to be intrinsically linked.

*Emily, 5 years, Home setting*
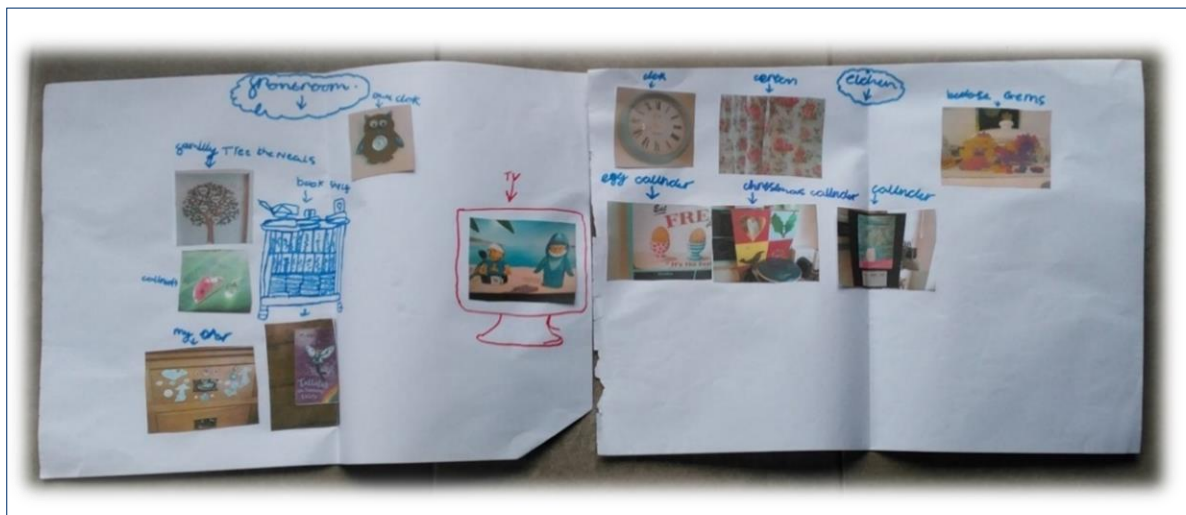


Figure 5.8- *Emily's home setting map*

Emily's map uses clearly defined headings and separate sheets to distinguish between the texts featuring the visual mode found in the "front room" and "kitchen" of her home.  Treating each page as a separate room, Emily placed her images in relation to one another spatially in a similar manner to a schematic map.  At first glance this assertion that Emily's map is a schematic map may seem unlikely.  The printed photographs of each image do not maintain a consistent scale for the images in relation to one another and so distorts the effect of the spacing of the images within the rooms to a degree.  Given that the images were presented to each child in identically sized printed photographs it was beyond the scope of the activity to reproduce each image in proportion, although Emily did not comment on this aspect.

As identified within the literature review chapter on the visual mode, Jewitt and Oyama (2001) suggest that the term modality may be used to refer to the "reality value" of an image, whilst Kress and Van Leeuwen (2001a) identify eight individual markers which help determine the modality of an image including "contextualisation" and "representation".  Viewing the images within the map text as a whole, it is the positioning of the images of everyday objects, which the viewer knows the relative size of, in relation to one another which affects the images contextualisation and representation.  The bookcase drawn onto the map by Emily is far too small when placed into the context of the other items within the room, including a photograph of a book cover.  Likewise, a television screen is dwarfed by the kitchen clock in the next room.  Schematic maps carry topological information, but perhaps crucially lack scale and allow that distance and direction, including angular relations between two points, may be subject to change and variation within the map text itself (Izard, O'Donnell & Spelke, 2014).  My analysis of the modality of the images within Emily's map is not

intended as a criticism of the map text, but more as an argument as to why the map may not look like a schematic map, but in actual fact holds the same properties and principles as one in conveying spatial information regarding the relationship and connections between objects and places.   It is this important spatial information which conveys Emily's perception that the position of images in relation to one another is important, an aspect which will be further explored in Theme 1.  In addition to this, Emily's arrangement of images to convey information regarding her environment is evidential of her knowledge of the capabilities of the visual mode in conveying a message; this is further explored within Theme 2.


A final feature which stands out in Emily's map is her extensive use of the written mode.  Emily accompanies every photograph on her map with a label, whilst the room names are signalled through the placement of these as headings in bubbles at the top of each page.  During the focused conversation with Emily it became apparent that she both enjoyed and felt that she did well at school.  She made several references to herself being "good at writing", having "neat handwriting" and described in detail the reading scheme book bands that she had already completed.  As signalled previously, there do appear to be dominant schooled modes of communication (see Kress, 1997; Millard & Marsh, 2001; Sakr, Connelly & Wild, 2015), and so the extent to which these are reflected in her comprehension and interaction with the visual mode are to be discussed through further analysis of her focused conversation, photographs and map text in the subsequent sections for Theme 2.

### 5.2.3 The community setting

*Jeffrey, 4 years 10 months, Community setting*



Figure 5.9- *Jeffrey's community setting map*

Jeffrey's map gives the viewer a birds-eye view of his community setting, a roller skating rink at a leisure centre. The map covers the space from kiosk on the far right of the page, along the corridor which is flanked by graffiti style art work on the walls, to the entrance to the skating rink on the right-hand side of the page. Working from the left to right, Jeffrey indicates through his map text the images and examples of the visual mode that the viewer will see should they come to visit his local roller skating rink. His map is an example of a schematic map, indicating both the spatial and angular relations between the images. Jeffrey's map indicates which images are found adjacent or opposite, relatively close or relatively far from one another. This effect is enabled through the choices he made when positioning his photographs, choices which indicate his knowledge of the resources of the visual mode.
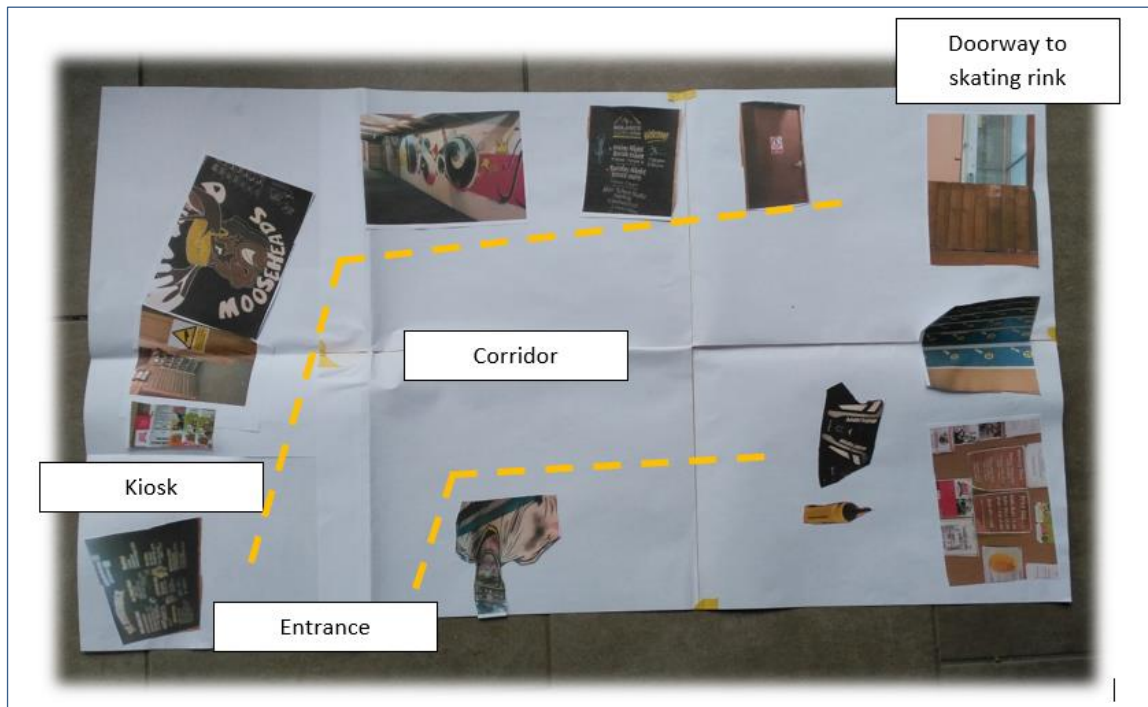
Figure 5.10- *Annotated community setting map*

Jeffrey's map stands out from those created by the other children due to his conservation of empty space which in turn creates an implied pathway through the images.   For reference, the key locations from the community setting are marked onto the annotated version of Jeffrey's map, with the corridor located centrally.  As previously noted, the placement of the photographs on the map conveys spatial information and can be argued to be demonstrative of Jeffrey's knowledge of the ways the visual mode may be used for communication.   Whilst Jeffrey could have used a combination of the written and visual modes within his text, he has taken the decision to solely use the visual mode to show the pathway through his familiar place.  There are other corridors and ways through this community setting "space", however it is this route through the environment, flanked by examples of the visual mode, that Jeffrey shows such familiarity with that it has become his "place" (Burbules, 2004).

As noted within the literature review, different modes may be said to afford different meanings through what it is possible for them to do and the meanings they are best suited to provide (Bearne & Wolstencroft, 2007).  Kress and Van Leeuwen (2001a) use the term 'grammar' to describe the ways in which elements of the visual mode may combine which alter the meaning and complexity depicted within multimodal ensembles.  The visual mode is well suited to meaning making in maps through the use of composition, framing and modality.   This may be found in, although not limited to, the cutting down of images, the connections between elements, and the reality value of images individually and in relation to one another.  It is the deliberate choices which the children, including Jeffrey, made when creating their map text which may be argued to

demonstrate their comprehension and previous experience of the visual mode.  As a result, the use of "visual grammars" (Kress & Van Leeuwen, 2001a) by the children, to alter the meaning of their map text as a multimodal ensemble, shall be explored within Theme 2.

### 5.2.4 Summary of the visual maps

In viewing the visual maps, not only the wide range of forms which maps may take became apparent, but also the ways in which young children were able to understand the concepts underlying maps and their individual ideas on how maps may be recorded. Burbules (2004, p. 175) identifies that a map "simplifies, selects and schematizes the original", with possibilities for multiple maps of the same physical space.  Whilst it was not anticipated that the children would produce similar maps, the differences and dissimilarities between them are highly evident.  The variety of maps produced in this study were notably different to those presented by Kervin and Mantei (2017) which were all birds-eye view maps of the school environment.

Given the great difference in map forms created, both spatial and non-spatial, it is important to consider the extent to which the children understood the mapping activity.  The children were competent in capturing the visual mode using photography and this is a form of responding which the children were both experienced and confident in using, in line with previous studies which position young children as discerning users of technology (Marsh et al., 2005).  Furthermore, the children were noted to have excellent recollection of not only their own photographs, but of the locations and the order in which they were taken.  This aspect of the mapping activity was highly successful and is not felt to explain the differences in the maps the children created.  The individual photographs which the children took were similar in nature to one another; it is the way in which the children then used their images which resulted in wholly different maps.

The subsequent sections are structured around three themes and view different aspects of the children's visual maps.  The themes will identify how the different map texts indicate the children's perspectives on images, explore how the differing appearances of the maps demonstrate young children's use of the visual mode to convey meaning and finally look at how children make links between the visual mode and their experiences in other environments.
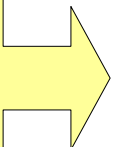
## 5.3 Theme 1: Relating images to their physical location.

Table 5.1

*Subthemes relating to Theme 1, taken from overall themes identified in preceding results overview*

| Theme 1: Relating images to their physical location | | | |
|---|---|---|---|
| **Child** | **Sub theme** | | |
| Joey, Early Years setting | • Relating images to their physical location<br>• Use of place names to identify images<br>• Noting similarities between images found in same type of location. | Common subthemes to be explored | Relating mapped images to their physical location<br><br>Editing and adapting the map to reflect physical locations<br><br>Significance of movement |
| Max, Early Years setting | • Checking images against physical location before placing on map<br>• Link to order images visited<br>• Relating images to their physical location | | |
| Molly, Home setting | • Mapping a journey using the images<br>• Use of positional and directional language in order to describe location of images<br>• Use of own images to supplement photos on map<br>• Use of lines to connect images to signify movement through environment<br>• Relating images to their physical location | | |
| Emily, Home setting | • Relating images to their physical location<br>• Use of place names to identify images<br>• Editing and adapting map to reflect physical locations<br>• Movement around environment in order to establish relative distances between images | | |
| Jeffrey, Community setting | • Link to order someone might see the images as they move through the environment<br>• Relating images to their physical location<br>• Collection of images in same area identified as covering the same topic<br>• Spatial location/ placement of images supporting understanding | | |

### 5.3.1 Theme 1 Introduction

The focus of Theme 1 was to explore the ways young children relate images to their physical location within their familiar environments. Whilst the preceding section has looked at the map texts as a whole, this section seeks to focus in detail on the aspects of the visual map text which demonstrate the children making a link between images and their physical location. This is further illustrated by the comments the children made during the mapping phase of data collection. Maps are a powerful means of conveying detailed information about a place or physical environment (Powell, 2010) and the children in this study used their maps to convey information about the physical locations of images which were of significance to them.

This section begins by exploring the ways children were concerned with creating a mapped representation of their environment which reflected the spatial locations of images in their environment. Following this, the skills and techniques the children adopted in editing and adapting their maps in order to represent physical locations and the spatial relations between images are identified. Finally, the children's use of movement in creating the map text is described.

### 5.3.2 Relating mapped images to their physical location

A primary concern for many of the children who took part within the study appeared to be in creating a mapped representation of their environment which identified where the images depicted in their photographs were originally found. In doing so a number of the children created schematic maps, which place images in relation to one another as an approximate representation which focuses on the most salient details. In addition to this, the children repeatedly used place and locational names in order to refer to the images during the mapping activity, as if these were synonymous with the image itself. This pattern for identifying images as a place or location occurred spontaneously during the mapping activities across the three locations of the home, community and Early Years setting.

Within the Early Years environment, Joey and Max made frequent references to the different locations both inside and out within the setting during the focused conversations. Some place names were used repeatedly to identify multiple images, whilst other images of similar appearance were distinguished when named using solely a place or locational name. Joey's comments and the image which they related to are shown in Figure 5.11. Although Joey made relatively few comments regarding the images themselves he was confident in using a range of place names when referring to

them during his mapping activity.  For clarity, "Apples" and "Cherries" were the names of the two classrooms within the Early Years environment, whilst "The Orchard" was a central shared space typically used for creative and messy activities and "The Barn" was a covered outdoor area.
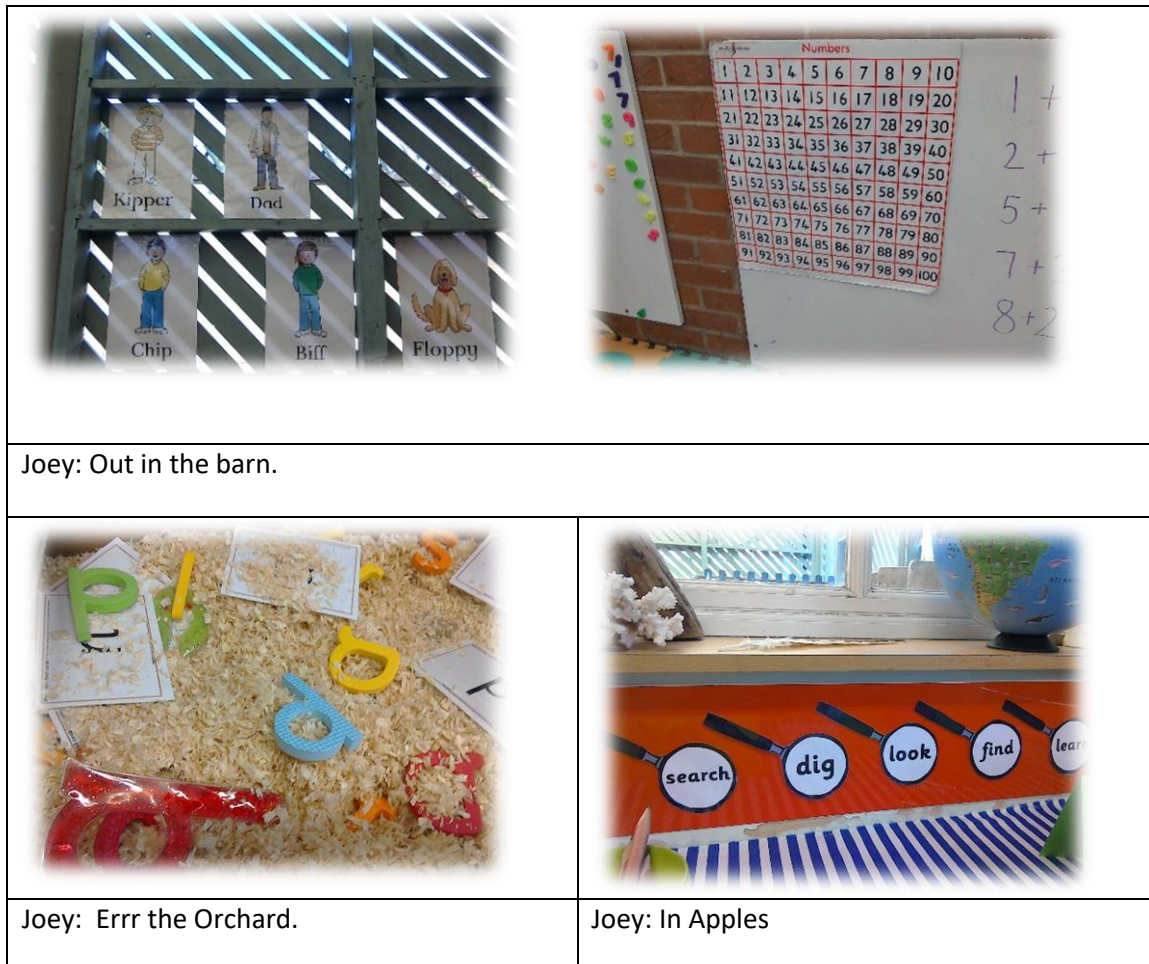


| | |
|---|---|
| Joey: Out in the barn. | |
| Joey:  Errr the Orchard. | Joey: In Apples |

Figure 5.11- *Joey's use of place names to identify images*

The other child who participated within the Early Years setting activity was Max.  Max not only used place names to refer to images, but also used these names spontaneously to discriminate between several images which had very similar appearances.  In one instance, Max very quickly spotted that the same types of image occurred in each of the classroom areas within the Early Years setting.  In each instance, rather than referring to the name of the image or what he could see within in his photograph Max confidently named the location in which he had seen it as shown in Figure 5.12.  This behaviour reflected the way Max categorised images within his environment. The physical locations in which he had encountered the images was identified by Max as their most salient feature.

Max: *Well it went Orchard, Apples, Cherries, Cherries... Not Cherries!*

Figure 5.12- *Max's use of place names to identify images*

The type of sorting and classifying images as locations demonstrated in Figure 5.11 and 5.12 reflects Mackey's (2010, p. 330) proposal that we continuously seek, from babyhood, to turn the space around us into the kind of place which is familiar and meaningful.  The same pattern of naming images as locations and places occurred in both the home environment as well as the community setting.  It is not felt that this type of naming was reflective of the children not recognising their images or not knowing what was depicted in their photographs, rather it appeared to be used by the children as a fast and efficient means of quickly identifying the images as a known "place" as this was the most salient property to them.  Further conversation with each of the children revealed that they held detailed knowledge of the individual images as will be discussed throughout the subsequent themes.

### 5.3.3 Editing and adapting the map to reflect physical locations

In devising the mapping task consideration was given to young children's understanding of maps and mapping activities.  As part of the cross-disciplinary literature explored in Chapter 2, it was identified that children as young as two years of age possess spatial awareness and knowledge of abstract concepts such as metric distance and angle which they can apply to navigating by simple geometric maps of their environment (see Morrongiello et al., 1995; Satlow & Newcombe, 1998).  In addition to this, the

production of a representative map requires that relationships are made between a three-dimensional environment and the two-dimensional mapped representation of it (Shusterman, Lee & Spelke, 2008) along with the identification and placement of landmarks in the environment onto the map itself (Izard, O'Donnell & Spelke, 2014). Whilst the focus of this study and the associated mapping task was to understand how young children conceptualise images within their environment, repeated instances were nevertheless observed of the children applying the mathematical concepts suggested to underpin the understanding and use of maps. They edited and adapted their visual maps in order to convey the importance they placed in the physical location of images, and their movement in relation to these.

Numerous instances were observed within the mapping activity of the children editing and adapting their maps to reflect where the images were found in their familiar environment. For example, both Joey and Emily placed images on their maps initially but then went back to these placed images to move and adjust them in relation to the later placement of other images which were deemed to be in the appropriate position. The initial placement of images may be thought of as an approximation, which became more refined as further images, and therefore information about the environment to be mapped, were added. In doing so, it is argued that the children were showing an awareness of the two-way relationship between maps and the environment which they represent. In addition to this it offered further evidence that the children conceptualised images as being tied to their specific physical location.

There are two different approaches to creating a map: you could find objects or landmarks within the environment and relate this to a position on a map, or conversely you could identify a point of interest on a map before locating this within the environment. The former being a "placement" task, starting from the environment, whilst the latter is a "search" task, which starts from the map itself (Izard, O'Donnell & Spelke, 2014). The mapping task started as a placement task whereby children placed their images of the environment onto a map, as it had been suggested to be easier for young children to access (Huttenlocher et al., 2008) and the open nature of this activity would allow for children's individual interpretations of the environment as demonstrated in section 5.2 by the range of different map types produced by the children.

The lack of corrective feedback which the mapping activity provided led the children to seeking their own means of confirming that their map reflected each image's physical location. Within Kervin and Mantei's (2017) children were provided access to Google Maps in order to determine key locations in and around their familiar school and community environments, however this was not an option for the children in this study given the focus on interior and private spaces such as the home environment. Max, for

example, walked to find where the images were located within his Early Years setting to check their position.  Both Emily and Molly moved between the objects in the environment in order to judge their placement relative to one another on the map of their home in terms of both angle and distance.  As a result, whilst the mapping task may be seen as a "placement" task the movements made by the children may also represent a bridge between their abstract mathematical knowledge and their lived experiences and knowledge of what it means to be within that place.  Thus, it links the mapping practices to the physical nature of young children's meaning making identified by Mackey (2010) and Hackett (2014).  Powell's (2016) case studies observe the proprioceptive movements made by both adults and older children in response to a mapping activity, including rotating map texts to orientate themselves.  A significant contribution of this study is the visual mapping methodology adopted which allowed the link between children's conceptualisation of images and the physical nature of their meaning making practices to be identified.  The importance of movement in relation to images in the environment is further explored in the next section.

From the outset, a research method was sought which reflected young children's preferred modes of responding and was representative of their prior experiences and knowledge.  The acts of editing and adapting the maps identified within this section demonstrate that the use of participatory mapping activities can contribute to the widening and developing of visual research methods which may be used with young children to elicit their perspectives.

### 5.3.4 The significance of movement

A final subtheme which became apparent within the mapping activity was the way the children attempted to convey the sense of a journey or movement around their familiar environment through their maps.  Whilst no comment was given by myself, the children seemed concerned with using their maps to show not only where the images could be found within their familiar environment, but also how you could move from one instance to another and what you may see nearby.  Lynch (1960) describes mapping as a tool to represent how people perceive the relationships between space, place, and social and physical features of the physical and built environment.  Furthermore, a growing body of research identifies that children's meaning making and movement are intrinsically linked (Daniels, 2016; Hackett, 2014; Mackey, 2010).
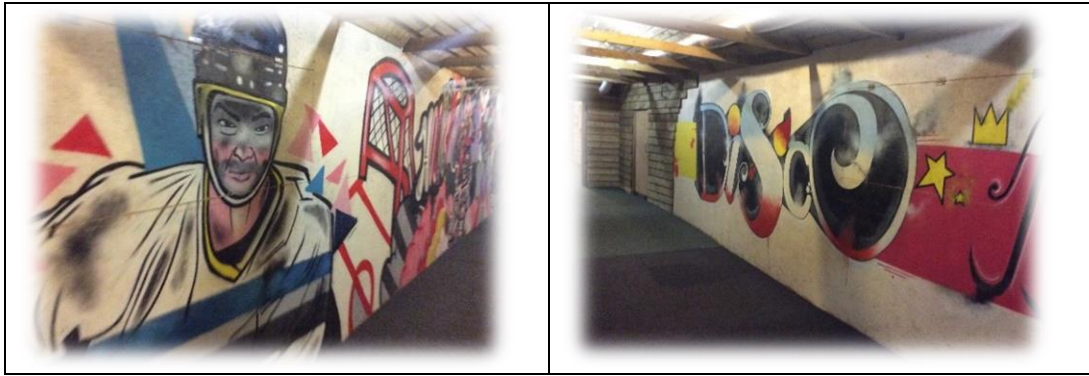
Figure 5.13- *Jeffrey's unedited photographs*

The order in which one encounters images as they move through an environment was of great interest to many of the children. Jeffrey's map of his community setting not only recorded the location of each image relative to one another, but also showed in sequential order the images a visitor would encounter as they followed the pathway repeatedly taken by Jeffrey during his weekly visits to the skating rink. In the unedited photographs in Figure 5.13 the pathway through the images is immediately apparent, whilst the selections made by Jeffrey in Figure 5.14 show the images he engaged with. Jeffrey was keen to demarcate the edge or bounds of his map which formed just one part of the wider community setting telling me, "my maps shows the image of the roller arena from the entrance as far as you can see in the picture, all the way up to the rink." The space left between the images on his map signified a pathway whilst the key images chosen to form his map may be thought of as landmarks along the route to the skating rink.



Figure 5.14- *Excerpt from Jeffrey's community setting map*

The notion of the images guiding or showing the way to the rink was echoed in Jeffrey's comments during the mapping activity. He identified images in having a role in how people could access and use the space. In relation to the images located throughout the corridor he told me, "well because you need to go down there. There's the rink

through there, and the wall there. So it's showing you what's past that wall." Jeffrey suggests that the images within his environment play a role showing the audience where it is possible to go and suggesting a pathway through the environment. Jeffrey's comments and the consideration he gave to the orientation of images on his map bear similarities to Powell's (2016) case study observations of both adults and children rotating maps in what she refers to as a "proprioceptive response to memories of walking through a space". Jeffrey articulates his responses both visually and verbally during the mapping activity.

The order in which the images were encountered first hand and recorded through photographs was also noted by the children. The data collection took place over two separate sessions with a photography phase followed around a week later by a mapping phase in which the children received printed copies of their photographs. During the mapping phase the children reacquainted themselves with the images they had captured before starting to use these to create their maps. They looked through the images individually and sorted them into an approximate order on the tabletop or floor space. Although it would be easy to overlook this activity as it was not recorded on the completed visual map text, I argue that it was an important aspect of the children's engagement with images. The children revisited and reflected upon their journey through the images in their environment and I felt that their actions in doing this informed their use of the images in the map text.

The importance of physical engagement in meaning making is identified by both Mackey (2010) and Hackett (2014), with young children's exploration and interactions with their environment supporting their learning and engagement, in this case with the visual mode in multimodal texts. Even maps which held no spatial or topological information, such as Max's map of his Early Years setting, showed evidence of a journey being recorded through the visual mode as he placed the images onto his page in the order he had visited them. Taken together, the children's maps demonstrate Powell's (2016) identification of the embodied nature of the familiar "place". This ordering of images in addition to the acts of naming and categorising images according to their physical locations described in a previous section provides evidence for physical engagement and movement within an environment being supportive of young children's understanding of images.

Some of the children's maps conveyed movement as a journey in and around the images in their environment. This is particularly evident in Molly's map of her home environment as shown in Figure 5.15. She marked lines on her page to record not only the movements she took in capturing the images, but also the movements she took in returning to them during the mapping activity to check and clarify their position and meaning. Although she described her marks through the story of her cat moving

around her home, the lines she produced documented the pathways she herself took. The overall map produced shows similarities to the maps created by Hackett (2014) and this is explored in further detail in the discussion chapter.



Figure 5.15- *Molly's map during the mapping activity*

### 5.3.5 Summary of Theme 1

The focus of this first theme was to identify the links which children make between images and their physical location.  As identified within the previous section each of the map texts displayed great difference in the use of mapping conventions.  In spite of this, the maps showed that children perceived a link between images and their spatial location within an environment.  The children demonstrated skill in editing and adapting their maps in order ensure that the positioning of images reflected physical locations.  Finally, the children acknowledged the significance of movement as part of their meaning making practices.

In line Burbules (2004, p. 175) assertion that a map "simplifies, selects and schematizes the original", certain choices are made whilst others are not as they allow the individual to represent their version of a "space" as a known, subjective "place".  The things which are meaningful and important to the children are represented and this is evidenced not only in the selection of images which featured in the maps, but also in the ways in which they are related to one another.  The organisation of the children's maps and positioning of images and annotations was found to form pathways and routes through the mapped representation of the environment, whilst also indicating the edges or

limits of the map and reflects Lynch's (1960) conceptualisation of a "legible" environment.

A key finding of this section was the way the children themselves identified movement as being intrinsic to understanding images.  Rather than solely observing the movements made by children, the visual mapping methodology adopted in this study allowed the children to share their own perspectives regarding movement in relation to images.  This builds upon the work of Clark (2011) and Powell (2016) who both note the multisensory nature of mapping and demarcate the mapping process as a multimodal event rather than an "end product".  The recording of movement, through pathways, connections, boundaries and edges, is observable across the children's maps and marks a unique contribution of this study.

The differences between the map texts reflect children's differing conceptualisations of images.  Whilst certain children, such as Jeffrey and Molly, were concerned with showing routes or pathways through their familiar setting, others wanted to provide a record of the locations of the visual mode within their environment.  The children were able to talk in detail about their maps, throughout the mapping activity, offering justification for their design choices and providing confirmation of the message they were conveying through their map texts.  The concept of map texts being used to communicate a message to an audience is explored in greater detail within Theme 2.
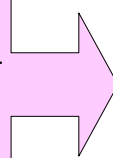
**5.4 Theme 2: Awareness of the visual mode being used to communicate meaning to an audience**

Table 5.2

*Subthemes relating to Theme 2, taken from overall themes identified in preceding results overview.*

| Theme 2: Awareness of the visual mode being used to communicate meaning to an audience | | | |
|---|---|---|---|
| **Child** | **Sub theme** | Common subthemes to be explored | |
| Joey, Early Years setting | • Cutting down images to identify and show specific area of interest<br>• Awareness of composition, modality and framing to communicate meaning through the visual mode. | | Adapting texts to suit specific audiences |
| Max, Early Years | • Identifying messages as being for kids or adults<br>• Use of written mode to communicate meaning on map (captions/ labels)<br>• Messages left for others who might access that space | | Editing of images for emphasis |
| Molly, Home setting | • Link to patterns/ repeating colours/ decorations<br>• Certain colours signifying 'precious' or valuable (silver/ shiny)<br>• Images described as pretty, purpose to look nice | | The importance of colour |
| Emily, Home setting | • Different texts identified as being aimed at different ages<br>• In relation to books- stated adults prefer words, children prefer lots of pictures<br>• Colours used to engage people, make it more interesting and make them look at it | | |
| Jeffrey, Community setting | • Awareness of brands, logos and slogans<br>• Brands logo telling you where you can buy more of the same products<br>• Images are tailored to what someone else might like to see<br>• Use of colours for a purpose (warning signs/ increased visibility/ adding interest)<br>• Identifying who message creator is<br>• Identifying target audience and how the message may be different for different ages (adults/ 'little kids'/ my friends) | | |

### 5.4.1 Theme 2 Introduction

Throughout this study maps have been positioned as multimodal texts, which may invoke a range of modes including the visual.  It is this emphasis on multimodality which shifts focus away from the linguistic and demands consideration of the full range of communicational forms that people use and the relationships between them (Jewitt, 2009a).  Of interest to this study were children's knowledge and interactions with the visual mode.  Modes are a set of socially and culturally shaped resources for meaning making (Kress & Van Leeuwen, 2001a), with the visual mode positioned as capable of communicating meaning in its own right.  Furthermore, a range of evidence identifies young children as social and active meaning makers with a range of "multimodal engagements", including those with the visual mode (Marsh, 2004).

Whilst the preceding theme took a broader view of the different map types created by the children, this second theme allows a deeper understanding of the choices the children made in communicating meaning.  The term "map making" refers to the active process of meaning-making which occurs as young children assemble their maps rather than focusing solely on the map as the end product (Clark, 2010a).  It was argued in the conclusion to Theme 1 that the lack of uniformity present across the maps may be evidential of the individual agency of each child in creating their map text.  Whilst the differences resulted in individual representations of a subjective "place" and what it means to be in it (Burbules, 2004), they also point to conscious choices being made to utilise the visual mode to communicate this "place".

This section identifies young children's engagements with the visual mode in both the photographs they capture of images in their environment, as well as in the context of the visual map text itself.  First, children's perceptions of texts created by others as being adapted in order to convey a message to a specific audience.  Next, the use of the visual mode within the children's map to communicate meaning is identified, reflecting the positioning of children within this study as both message receivers and message creators.  Finally, the ways children in this study identified colour as being significant to an image's overall meaning is explored.

### 5.4.2 Adapting texts to suit specific audiences

In discussing texts created by others, many of the children noted the age of the people they felt were the intended audience and the adaptations which had been made to reflect this.  For example, in Emily's home setting map, a bookcase was hand drawn in the centre of her lounge.  This reflected Emily's interest in books and reading: She then

gave me a verbal description of her current reading levels and the school's book band system.  When completing the photography phase of the task Emily was keen to show me the front covers of a range of books and listed these as being for either kids or adults.  She freely offered information regarding the different types of book in her house and offered justification regarding who the intended audience for these may be according to the degree to which they contained the written or visual mode.   For example, she stated that the books contained "pictures probably and some lots of words, especially adult books, they've got loads of words.  Not so many pictures."



Figure 5.16- *Excerpt from Emily's home environment map featuring a bookcase and book.*

The idea of the intended audience being someone other than the children was also picked up by Max.  He perceived signs in his Early Years setting as being important for people who are not familiar with the setting and its rules.  The majority of the photographs taken by Max during the photography phase were of signs and classroom displays featuring examples of children's work.  Of the eight images Max then selected to use for his visual map, five were of the display boards created by the teacher to present examples of the children's work.  This demonstrates Max's conceptualisation of images as being presented in a particular way within the Early years setting, and Max appeared to collect a series of examples of children's work mounted on coloured backing paper throughout the classroom environment.

The other images featured in Max's map were of a classroom welcome sign, a hanging display of children's work and a photograph of the class fishbowl. Focusing on a tiny sign inside the class fishbowl, Max described in detail that he felt that this was aimed at parents coming into the setting who may need a sign to explain to them the rules for the class pet fish, including no fishing. Although Max could not read the sign himself, asking me to read it to him, he elaborated upon my reading of the sign to give reasons why the sign was there and what was meant by the message "no fishing".



Max: *Because it's a small fish tank and it's got the small fish in it and if the people come they might fish and we love the fish.*

SG: Oh so you love the fish? *Who do you think this message might be for?*

Max: *Well, daddies and mummies because all they'll think is maybe it's for fishing but because of the fish they will not see the sign and the teacher will be angry.*

Figure 5.17- Max's fishbowl photograph and description

Jeffrey identified that signs in his community setting were for people who were unfamiliar with the environment. He identified café signs, notice boards, flyers and

leaflets throughout his environment and attributed these as being left by the owners of the setting to give people more information, especially those who had not been before. Jeffrey did not appear to consider himself as the audience to such texts, perhaps because he was so familiar with the skating rink.  In relation to the general information on the notice board Jeffrey suggested that his friends might look at the noticeboard. For items such as the price lists shown in Figure 5.18 he suggested that this information, including the pricing of specific events and sessions, was there for people who had not been to the skating rink before.  In noting prices and types of session Jeffrey identified information which would be useful to know, thus showing an awareness of how the environmental signage met the needs of an audience who were new visitors to the setting.



Jeffrey: *It's a pin board, it tells you stuff about the hockey and stuff that's going on.*
…
Jeffrey: *There is a price list, so it tells you the price for the public skate, the roller disco, the skate and eat and skate hire.*
SG: *Why do you think it lists different prices?*
Jeffrey: *Because you can get more stuff for different prices, so you can skate and eat for 7 pounds or you can just skate for 4 pounds.*
SG: *Do you think people going there would know that before they went?*
Jeffrey: *No.*

Figure 5.18- *Jeffrey's photographs and description of signs in his environment*

The children in this study used their prior experiences, together with environmental cues in order to draw meaning from texts.  In the early years setting, Max drew upon his prior knowledge of classroom rules and his teacher's expectations regarding the class fish to inform his interpretation of the "no fishing" sign.  Although the intended comical meaning of the sign did not match the one which Max attributed to it, his interpretation was plausible based on the classroom context he found the sign in.  In the community setting Jeffrey was very familiar with the signs and posters on the noticeboard and this came from his regular visits to the skating rink.  Interestingly, both Max and Jeffrey did not appear to consider themselves as the intended audience to the signs in their environment.  Jeffrey goes as far as to indicate that signs are for people who do know already know the community setting well, as evidenced in his description of the noticeboard. Max on the other hand identified the sign in the fishbowl as being a warning to others, including adults who would not ordinarily spend time within his early years setting.

Emily's perspectives regarding audiences differed from those of Max and Jeffrey.  She looked to the dominant mode within a text as being indicative of its intended audience, relating increasing age and adulthood to an interest and competence with the written mode.  Emily's conceptualisation of the visual mode, and having book with lots of pictures, as being for "kids" whilst the written mode, and books with "lots of words", as being for adults is reminiscent of historical paradigms of child development as linear sequential progressions (Finnegan, 2002).  Marsh and Millard (2000) argue that this concept of linear progression remains evident within the classroom environment where the visual mode is seen as important before children learn to read but not after children have mastered this skill, pointing to children being moved from their own preferred modes of communication to the preferred written mode of school.  Emily was keen to volunteer information about her own reading levels and the school's book band system, and this further reflects her awareness of the dominant written modes of school identified within the wider literature (Millard & Marsh, 2001; Burnett & Merchant, 2015).

### 5.4.3 Editing images for emphasis

At the outset to the task the children were invited to create a visual map to represent images in their familiar environments.  Visual images have repeatedly been identified within this study as being able to convey meaning and present the world and events in specific ways (Jewitt, 2009a).  Furthermore, it may be argued that the ways in which the children edited their images were intended to highlight or draw emphasis to the aspects of the visual mode which interested them.  Within the literature review it was outlined that such meaning may be realised in the visual mode through composition, framing and modality.  Briefly, these terms refer to the placement of elements within a

composition, the connections or conversely disconnections made between elements (Jewitt & Oyama, 2011) and finally the "reality value" of what is depicted (Kress & Van Leeuwen, 2001a). Kervin and Mantei (2017) note that it is through the recording and manipulating of images and photographs that young children may express concepts and ideas, with children in their study editing drawings and images taken from Google Maps to represent their local school and community environments for the purpose of storytelling. In participating in the mapping activity, the children in this study were able to demonstrate their knowledge of adapting texts containing the visual mode for a particular purpose in the ways they edited their own photographs together with the overall map text.

The first example to be explored came from Joey in the Early Years setting environment. During the photography activity Joey was very interested in the stack of lunchboxes outside of his classroom, arranging them so that two similar cartoon print lunchboxes were facing outwards for his photograph showing the use of composition to present the elements in his photograph in a particular way. When the image was later printed out for the mapping activity, he further edited his image by cutting it down, framing the two lunchboxes side by side. Thus, Joey showed awareness that the framing of images may be carried out not only at the point at which the image was captured, but also afterwards by physically cropping down the photograph. The framing technique used by Joey emphasises the connection between the images as being of the same type. Both acts of composition and framing occurred without Joey telling me what he was doing, or offering an explanation, however it may be argued that he understood that these were acts one could do in order to modify an image and emphasise the features of interest to him. Furthermore, I argue that the participation in the visual mapping task offered Joey an opportunity to demonstrate competency in modes of communication in a manner which did not require use of the written or spoken mode.



Figure 5.19- *Comparison between Joey's original and edited photograph as it appears on the map of his Early Years setting*

This method of framing an image, by cropping down a physical copy, was also used by Jeffrey in the community setting.  In this instance Jeffrey had taken two separate images within one of the corridor areas, choosing to focus on items of his sports kit. Unlike Joey in the previous example Jeffrey did not choose to arrange his items before photographing them but instead captured examples of the visual mode which interested him as he came across them: a jersey, a sports bottle, protective padding, and a notice board.  When it came to reviewing and mapping these images, however Jeffrey was more concerned with framing them to focus on the most important features within each photograph and identify connections between them.  For example, he chose to crop two images showing his items of hockey kit and locate these side by side on the map.  As identified previously, framing is able to "connect" or "disconnect" elements (Jewitt & Oyama, 2001), and this may be done through the use of spacing, framelines, or similarities in colour and form.  It is the framing employed by Jeffrey, through the two images relative closeness, which indicates a connection between them as demonstrated in Figure 5.20.
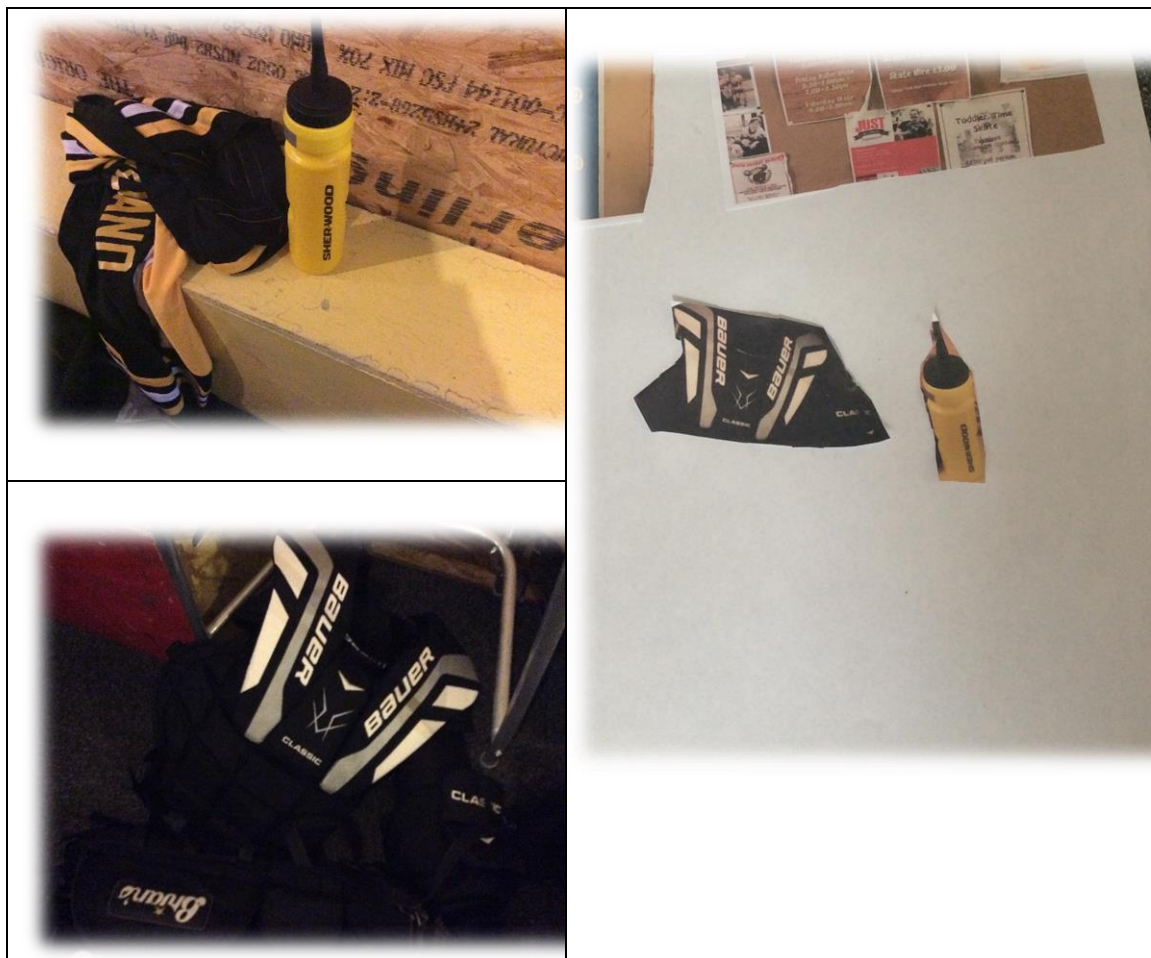


Figure 5.20- *Comparison between Jeffrey's original and edited photographs as they appear on the map of his community setting*

A final, contrasting example of the editing of images used in within a visual map may be found in Max's map of the Early years setting. As previously identified, the children had the opportunity to use composition or framing during the photography phase, at the point they took their photograph, as well as during the mapping phase, when they received printed copies of their photographs. There is evidence within Max's map of the use of composition and framing at the point the photographs were taken as highlighted within Figure 5.21. Looking closely at the photograph of a pirate map, which was featured on one of the classroom displays, Max has chosen to zoom in so that the map fills the entire frame. This act of framing disconnects the pirate map from the other work presented on the displayboard. In case of the fishbowl, Max has again zoomed right in, this time to pick up on a small sign within the water which was of interest to him. The way the photograph has been taken presents the sign within the fishbowl context which is tied to its meaning. The elements of the sign, water and fishbowl accessories are arranged within the image in a certain way as an act of composition, whilst their proximity to one another in the absence of other features marks an act of framing which indicates a connection between them. Unlike the other children in this study, Max chose not to crop any of the printed photographs.



Figure 5.21- *Examples of composition and framing in Max's photographs*

In spite of these examples of Max using composition and framing at the point of taking his photographs, when completing the mapping phase Max adopts conventions more commonly associated with the written mode. In arranging the images on his map, he placed them from left to right, working down the page in same manner one would for a written text. In addition to this, Max emphasises the content of his images by presenting the photographs on his map in a very similar manner. As previously highlighted, the majority of the photographs that Max used in his visual map were of children's mounted work on classroom display boards as shown in the excerpt in Figures 5.21 and 5.22. Within the display boards, Max's teacher has presented the children's work on rectangular pieces of paper, with some further mounted onto coloured paper to create borders around their work. Written captions created by the

teacher are included in a manner which Sakr, Connelly and Wild (2015) identify as a means to communicate the child's intention from the practitioner's point of view, however this further emphasises the valuing of the written mode over other modes of communication within the classroom environment.  The children's work is then presented on the display boards in a grid like format, working from left to right down the board.  It is this means of presentation which Max appears to echo in presenting his own images on the visual map.



Figure 5.22- *Excerpt from Max's Early years setting map featuring classroom display boards*

There were many examples of the visual mode in each of the environments featured, however the children only took photographs of a select few examples.  The images that the children chose to photograph were arguably the ones which they regularly engaged with or which interested them the most.  One method of editing which was most apparent in the maps was cutting down the photograph to frame a particular text or element within a text, however this method did not occur in isolation.  In making a series of design choices, the children were able to present the texts containing the visual mode which they engaged with.  The examples of the children's editing practices identified exemplify how they approached the editing of images which interest them and in turn showcases the wider knowledge they hold regarding the visual mode.

### 5.4.4 The importance of colour

Within the literature review chapter on the visual mode, consideration was given to the utility of the visual mode in representation and communicative practices, particularly if the elements within the visual mode fall into the category of illustration or ornamentation (Kress, 2010). Using the example of a picture book, I argued that the author of such multimodal texts may *show* rather than *tell* the reader their message and may use devices including arrows, shading, text boxes, font or colour in doing so. It is in such instances that the visual mode is demonstrably more than "ornamentation" or "illustration" (see Kress, 2010), but becomes a vehicle for taking the reader through the overall text and conveying the message in a particular manner. It is not the case that the visual and written modes work in isolation to one another. As Kaminski (2019) notes, it is the interplay between image and text which combine to give the overall aesthetic effect of picture books. Across texts more generally, Kress (2003) observes that image and language are combined in increasingly complex ways. Within Multimodal Social Semiotic Theory, communication practices are positioned as being inseparably linked to wider social and cultural practices (Halliday, 1978; Kress, 2010), thus children's interaction and comprehension of the visual mode should be understood within the context of their lives. With this in mind, the final subtheme to Theme 2 considers the children's views in relation to colour.

Within the community setting, Jeffrey encountered a number of warning signs, combining image and text, and was keen to identify these. Jeffrey noted a "caution" sign at the bottom of the ramp into the skating arena as well as a "no admittance" sign on a door within the same corridor. As part of the focused conversation it became apparent which elements of the multimodal ensemble of each sign that Jeffrey was drawing upon in his meaning making. For the "caution" sign Jeffrey was able to read the wording on the sign, perhaps having had this read to him previously. In common with other texts in the setting, Jeffrey attributed the caution sign as being placed to inform visitors "because they could hurt themselves." A contrasting example, in which Jeffrey draws directly upon personal experience is given in the conversation extract in Figure 5.23. In identifying the "no admittance" sign Jeffrey drew upon on his own experiences within the setting to identify that only a particular member of staff who Jeffrey was familiar with was allowed through that particular door.

SG: *Why don't you go through the door?*

Jeffrey: *Because, only Ren's allowed there.*

SG: *Only who? Is he another child?*

Jeffrey: *Ren. He is an adult who helps teach.*

SG: *OK. Does the sign say 'Ren'?*

Jeffrey: *No, it says no. So no unauthorised people.*

SG: *Ahh so it's no unauthorised people?*

Jeffrey: *Yeah cos it's his office*
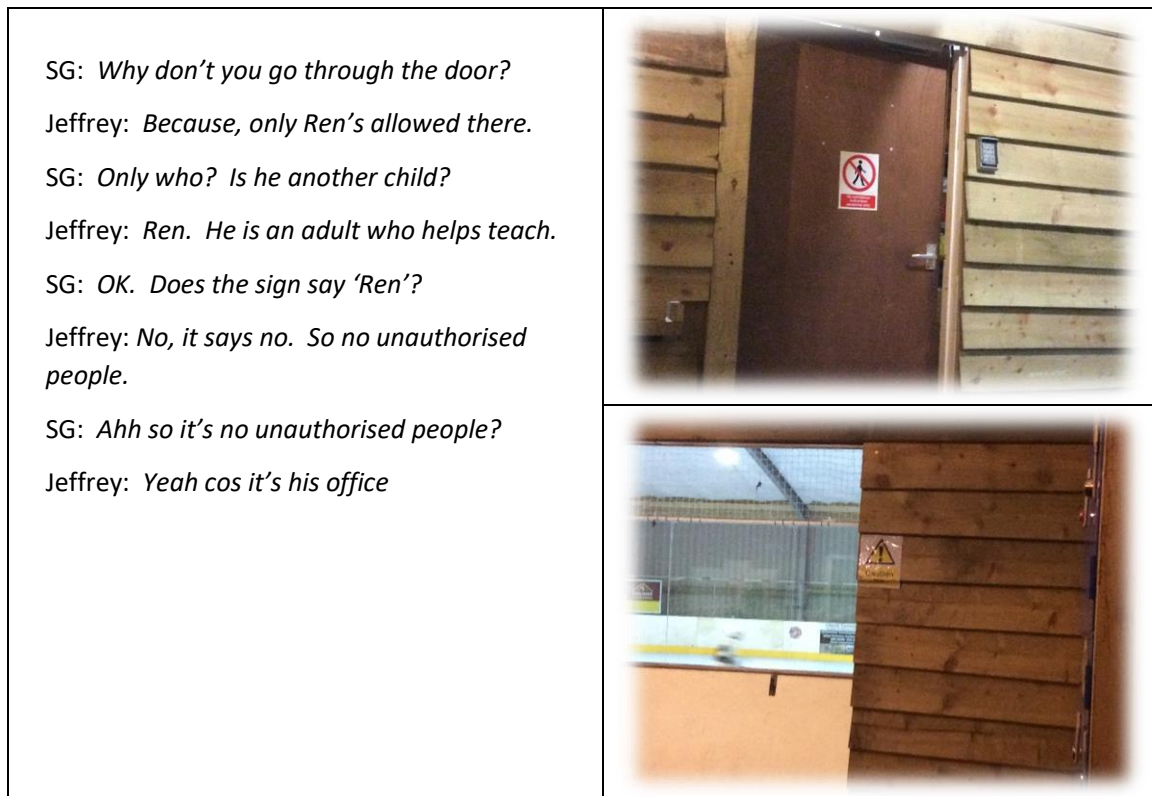
Figure 5.23- *Photographs taken by Jeffrey of warning signs within his community setting: 'No admittance' and 'Caution'*

In further conversation with Jeffrey, his knowledge of the broader codes and conventions of the visual mode became apparent, demonstrating that he drew meaning from both the text and image on the sign. He noted the shape of the sign as well as its colour as being significant to the message being conveyed. In relation to the two signs identified in Figure 5.23, he noted the red line across the "no admittance" sign as meaning "no" and the yellow colour of the "caution" sign as being a warning. Jeffrey surmised the difference in colour and shape of the two signs,

> *'Because one's to tell you something that might happen to you, and one's saying that you're not allowed to do that.'*

Interestingly, Jeffrey was also keen to point out that signs within the community setting had been configured to be easy to see. This identification is indicative of his awareness of texts being designed with an audience in mind, with such consideration extending not just to their composition but also to the use of colour. In relation to the caution sign at the bottom of the corridor, Jeffrey felt it was important that this was easy to see. Jeffrey also identified the stickers found on lockers as being designed so that they were easy to see for the other people using the setting, identifying that little kids might find it more difficult to see the numbers that were higher up. Figure 5.24 shows Jeffrey's photograph and comments in relation to the stickers found on lockers.

| |
|---|
| Jeffrey: *It helps stand out the black which is numbers.*<br>SG: *Right, so it's easier to see?*<br>Jeffrey: *Yeah.*<br>SG: *Who might it make it easier for?*<br>Jeffrey: *Little kids who can't really see up there.  To make it stand out kinda.* |

Figure 5.24- *Jeffrey's locker photograph and commentary*

Within the home environment further attention was paid to how texts engaged their intended audience through the inclusion of colour and pattern.  In the case of picture books, Emily identified that the books targeted at children had colourful covers and pictures within them to make them enjoyable to read and nice for children to look at.  As part of our conversation I asked Emily what children like about books to which she replied, "Lots of pictures to look at and brightly coloured."  Whilst I previously identified Emily's conceptualisation of the visual mode being more suited to children and the written mode being more suited to adults, this example demonstrates her consideration of how to make a text more appealing to an audience.  She was concerned with the way the colours could be used to enhance the cover and pictures found within books to make them more interesting to their intended audience.

Whilst instances of colour being part of a multimodal text may fall into what Kress (2010) refers to as "illustration" or "ornamentation" they were nonetheless deemed to be important aspects by the children in this study.  It is the specific colours selected and the ways these are combined with the visual and written mode which the children identify as important to the overall meaning of a text.  The use of specific colours, such as red, yellow and black, make signs visible and convey important messages about the

environment. The use of bright colours on the other hand is identified as important to making a text appealing and enjoyable. For both children, the texts would not be as able to convey their message were it not for the inclusion of particular colours and arguably the texts would not be as well suited to their audiences were such colours not included.

### 5.4.5 Summary of Theme 2

The focus of Theme 2 was to gain an insight into children's awareness of the visual mode being used to convey a message to an audience. Given the visual nature of the children's maps this encompassed both an exploration of the maps the children made as well as the texts they engaged with within their familiar environment. The conversations which took place during the photography and mapping activities served to clarify or provide context to the children's maps and images. The positioning of the children as both message creators, through their maps, and an audience to the messages created by others provided a valuable insight into the children's knowledge and understanding of the visual mode in multimodal texts.

The children in this study are positioned as creators of their map texts as well as an audience to images as the texts created by others. As previously stated, the semiotic resources of the visual mode enable social meaning to be realised (Kress & Van Leeuwen, 2001a), with visual grammars allowing the meaning of depicted elements to be altered. Visual images may be configured to design interpersonal meaning, present the world and events in specific ways and finally to realise coherence (Jewitt, 2009a). The children in this study were sensitive to the notion of messages being conveyed, whilst also acknowledging the use of their map to communicate to others about their own engagements.

In engaging with multimodal texts created by others the children showed a developing awareness of texts being created with an audience in mind. The children perceived images within the environment as being adapted in order to suit the needs of a particular audience, with the children also identifying who they felt the target audience were. A common theme amongst the children was the idea of a visitor unfamiliar with the environment being aided by signs and information, which is perhaps a very literal sense of providing a message to an audience. However, there was also evidence that children held awareness of the colour, shape and positioning of images as being important factors in conveying a particular message in the given context.

The use of the mapping activity positioned the children as message creators in which they conveyed to others their engagements with visual mode.  It was necessary to consider how the functions of the visual mode may be observed in the maps and assess what evidence may be found for these.  Kress and Van Leeuwen (2001a) identify that social meaning may be realised in the visual mode through composition, modality and framing.  Evidence was found in both the children's photography and through the choices they made in creating their map texts of the use of composition and framing. Objects and images were arranged so that they could be photographed, demonstrating composition, whilst the cropping of images and their positioning within the map provided evidence of framing.
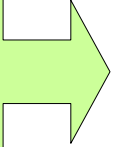
**5.5 Theme 3- Linking images with play, interests and activities which may take place in other environments**

Table 5.3

*Subthemes relating to Theme 3, taken from overall themes identified in preceding results overview*

| Theme 3:  Linking images with play, interests and activities which may take place in other environments | | | |
|---|---|---|---|
| **Child** | **Sub theme** | | |
| Joey, 4<br>Early Years setting | | Common subthemes to be explored | Commonalities in images across familiar environments<br><br>Images and screen-based media |
| Max, 4<br>Early Years setting | • Referring to images at home which are similar to those in school | | |
| Molly, 4<br>Home setting | • Link between different media- physical toys, TV, computer to pursue an interest/ play<br>• Link to family practices- having engaged with images alongside family member/ pets<br>• Connection made between home/school- craft items brought into the home, similar resources | | |
| Emily, 5<br>Home setting | • Link between home and school- reading schemes,<br>• Images included book covers/ book case | | |
| Jeffrey, 5<br>Community setting | • Relating favourite images to favourite activities<br>• Described having seen similar images elsewhere before (warning signs/ restaurant) | | |

### 5.5.1 Theme 3 Introduction

The final theme to be considered explores the links which exist between the visual mode and children's wider engagements.  This includes their play, interests and activities which take place outside of the setting in which data collection took place.  This consideration of children's experiences reflects the grounding of this study in multimodal social semiotic theory (Halliday, 1978), which identifies the social and cultural context of communicative practices.  Furthermore, in reflection of Marsh's (2004) description of young children as social and active meaning makers and Yamada-Rice's (2010; 2014) identification of children's interests being supportive of their comprehension of texts, it is important to consider how children's play and engagements, in differing settings, influence their conceptualisation of images.

In talking with the children during the mapping task it became clear that they perceived links between images which they engaged with in their current environment to those that they had seen elsewhere.  They were also able to relate images that interested them to their presentation in different media, for example viewing cartoon characters in signs as well as on television programmes.  Photographs on the children's maps further identify the role of screen-based media in presenting images.

This section begins by identifying the links young children make between images they engage with across different settings, including those identified in their maps which they have seen elsewhere.  Next, the ways children identify images within screen-based media are identified.

### 5.5.2 Commonalities in images across familiar environments

One of the ways the children in this study made links between images and their varied engagements in other settings was to identify specific images which they had encountered elsewhere.  Within Theme 1, it was identified that children used place names to distinguish and categorise the images they encountered within their environment.  This section, on the other hand, looks at the types of images which children note as existing in more than one location, and the links that they perceive between these.

Figure 5.25- *Max's photograph of Clifford in a classroom sign*

Within the Early Years environment, Max identified a classroom sign as being of particular interest.  The sign, shown in Figure 5.25, featured the caption "Welcome" next to a picture of Clifford the dog.  In conversation with Max it became apparent that his interest was not in the literal message being conveyed through the "Welcome" caption, or the positioning of the sign over the door to his classroom.  Max's interest in this particular image stemmed from his knowledge of Clifford as a familiar cartoon character.  As identified within the conversation excerpt in Figure 5.26, Max's had experience of watching Clifford on the television and also of playing with a physical toy version of a dog.

SG:  Right, I'd like to ask you some questions about your photos.  Can you tell me, why do you think this sign of Clifford is over the door?  Why do you think it's there?

Max:  To show the people that some of the people are watching it.  They're watching Clifford.

SG:  Ok do you think it's telling you something?  What might the message be?

Max:  It's telling you that somebody is watching Clifford.

SG: OK.

Max:  And I watch Clifford at home.

SG:  Is that on television?

Max:  Yes it's on TinyPop

SG:  So you've seen this Clifford before?

SG:  Is there a particular game or toy you play with Clifford?

Max:  I have a toy you can control like a dog.

Figure 5.26- *Excerpt from Max's conversation about Clifford the dog*

A similar observation was made in the home setting, this time in relation to screen-based images.  Whilst Molly was completing her visual map a Lego television programme started playing on the television in her lounge.  Molly's interest in this particular programme had been identified the previous week during the photography phase when she used the digital camera to capture an image of the programme displayed on the television screen, although she did not use this in her final map.  Like Max in the Early Years setting, Molly related the image she could see on the television screen to its physical representation in a toy, although this time the toy was described as belonging to an older sibling as identified in Figure 5.27.  In both instances the toy was not present in the setting, or seen by myself, however the children were readily able to recall knowledge of the toys and link these to the image we were discussing.

---

*Molly gestures to the TV.*

Molly:  That's Lego friends up there.

SG:  Do you like Lego friends?

Molly:  Yeah

SG:  Do you have the Lego toy as well as watching it on the television?  Have you got the Lego toys?

*Molly shakes her head.*

SG:  No?  OK

Molly:  My sister has the Lego toys

---

Figure 5.27- *Excerpt from Molly's conversation about Lego toys*

The children in this study did not just convey their knowledge of images in relation to their toys, but also drew upon their knowledge and experiences of visiting other locations which used similar images.  Furthermore, they demonstrated ability to draw meaning from both the written and visual modes present within a multimodal text. In the community setting, Jeffrey was interested in the café signage.  The photograph Jeffrey took is shown in Figure 5.28.  Unfortunately, the photograph was blurry, however this prompted conversation between Jeffrey and I in recalling what the sign's message was.  This conversation demonstrated his awareness of both the denoted and connoted meaning conveyed (Barthes, 1993).  Jeffrey's comments identified not only what the writing on this particular sign said, the denoted meaning, but that he knew what types of information were typically conveyed by a café sign including the name of the café and a list of the food available.  When further questioned, Jeffrey could name other cafes he had visited which he felt used similar signage, demonstrating the ways he drew upon first hand experiences to inform his literal understanding of the sign.

Figure 5.28- *Jeffrey's photograph of a café sign*

The subsequent comments made by Jeffrey, regarding his knowledge of why the sign was located outside the café, on the other hand, demonstrated a deeper understanding of the connoted meaning he drew from the sign.  As demonstrated in the conversation excerpt in Figure 5.29, Jeffrey felt that the sign was linked to the way people behaved socially in relation cafés and that the positioning of the sign outside allowed people to make choices regarding whether or not to enter the café.  This suggests that Jeffrey not only identified the café sign as conveying information, in common with other signs identified within this study, but also were tailored to suit an audience to make decisions.  Whilst this knowledge undoubtedly also came from Jeffrey's first-hand experiences in visiting cafés it nonetheless presents a contrasting example of the type of image children engage with, the role that images play in children's lives and the ways they conceptualise images as having different roles that are context driven.

Jeffrey: It says the name of the café, the Moose Shack, and the list of the foods you have. Things with chips, burgers…

SG: Have you seen signs like this in other places?

Jeffrey: Yeah

SG: Where might you see signs like this?

Jeffrey: There's the ice cream parlour, there's McDonalds, there's KFC

SG: And this is outside the café isn't it? Why do you think they put this outside the café?

Jeffrey: Let's say they just want to have a look but don't want to go in and just walk out, so they can be polite they can just look at the menu outside first. If they want anything there they can then walk in and just order

SG: So they can look before deciding. So it's similar in a way to the leaflets that tell you information before you decide to do something.

Figure 5.29- *Excerpt from Jeffrey's conversation about café signs*

### 5.5.3 Images and screen-based media

The examples within the previous section identified some of the ways that children described encountering images in different media. Both Max and Molly identified the physical forms that the images they are familiar with may take in children's toys, as well as describing images appearing on screen-based media through television programmes. This section further identifies the ways children conceptualise images in relation to screen-based media, drawing upon evidence from the children's photographs and their descriptions of their engagements with the visual mode in their familiar environments.
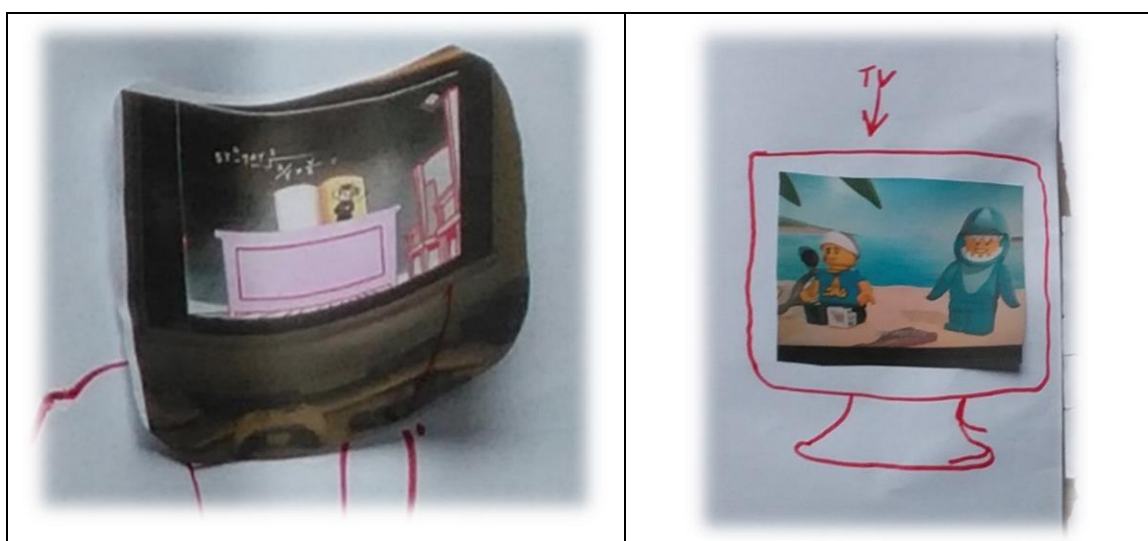


Figure 5.30- *Molly (L) and Emily's (R) television photos*

Screen-based media featured in several of the children's visual maps. Within the home environment, both Molly and Emily's map feature a photograph of a television. During the mapping activity Molly cut down several of her photographs to focus on an aspect of an image which interested her, however she was keen to keep the entire television screen photograph intact. The wiggly edge which appears around the photograph shown in Figure 5.30 results from Molly's cutting out of the rectangular photograph from a larger sheet of paper, rather than her attempting to crop her photograph. Within the conversation with Molly, she described wanting to keep the entire photograph because she wanted to include the whole television screen, see Figure 5.31.

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Molly: TV

SG:  Yes television.

Molly:  Keep all of that because it's all the television

*Molly refers to the photograph as a whole, rather than cutting out a smaller image as she had done for some previous images.*

SG:  Yep we can use the whole image, good.

*Molly starts to cut around the whole photograph to remove it from the printed sheet.*

SG:  Does everyone like to watch the same thing on television?  What do you think Molly?

*Molly shakes her head.*

SG:  Is that no?  What things in particular do you like to watch on the television?

Molly:  Teletubbies

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Figure 5.31- *Excerpt from Molly's conversation about television*


Emily's photograph of her television, shown in Figure 5.30, shows her focus on images presented on the screen. She chose to cut down her photograph to show just the television screen, which at the time the photograph was taken was showing a Lego children's cartoon programme. She then drew by hand her own television surround to frame her photograph. In doing this Emily emphasised the screen, capable of presenting visual mode, as being the most important feature of her original photograph of the television. Emily presented the television as being important to her when completing the mapping activity. She chose this as the first photograph to be put onto the map, positioning it centrally before arranging the other photographs in relation to it as she described within Figure 5.32.

SG:  Is there a reason you went for TV first?  Why have you picked the TV first?

Emily:  Because the TVs over there (*points)* and I was gonna start there and go round the house.

SG:  Ahh, so you're thinking about the space.

Emily:  Yeah cos if there's something there, then I'll put it there, then there and then there.  Then in there, then come back here.

*Emily points with her arm in a clockwise fashion starting from the TV around the room.*

Figure 5.32- *Excerpt from Emily's conversation about television*

The children in this study also showed some awareness of the ways computers could be used to view, find and produce images.  Images which had been produced using computers in the Early Years setting featured in both Max and Joey's maps, with the two boys both taking a photograph of the same display board in their classroom.  Whilst the boys did not comment directly upon the ways the pictures on the display board were created, their inclusion in both maps suggests that they categorised these images in the same manner as the images found on other classroom display boards.  This is significant as it points to the children conceptualising the images as being capable of production using digital means as well as through mark making materials.



Figure 5.33- *Joey (L) and Max's (R) identification of images created by computers*

Further evidence of children's engagement with computers to create and locate images was found within the home environment.  Molly's map features a photograph of a computer screen.  On the day Molly took part in the photography phase her family were using the computer to search for pictures of train tickets as part of her older sister's homework task.  This is the image shown in Figure 5.34, and shows a range of train ticket examples on the computer screen.  In capturing a photo of this activity, Molly identifies the role screen-based media, such as computers, may play in the lives

of young children.  The use of the computer in the family home allowed the retrieval of existing images created by others, and also enables selections to be made from a choice of different images.



Figure 5.34- *Molly's photograph of her computer screen*

### 5.5.4 Summary of Theme 3

Young children's engagements with images have previously been identified as taking place across as range of differing media including computer games, television, magazines, posters, signs and books (Yamada-Rice, 2014).  During this study the children were asked to capture examples of images within their familiar environments, and evidence was found of their engagements with a similar range of media.

The children in this study were also found to hold knowledge of the different forms which images may take.  This included an awareness of television programmes and toys which were not physically present within the setting.  This finding evidences the ability of visual maps not only to record children's engagements in the environment in which data collection takes place, but to elicit more generally held views about images through the methodology adopted in this study which incorporates both focused conversation and participatory mapping.

## 5.6 Results conclusion

The findings presented have shown that children hold a wealth of knowledge and wide range of engagements with the images which they encounter within their familiar environments.  Exploration of children's perceptions regarding images revealed that children viewed images as being an important feature of their environment.  They identified the ways images were presented in order to communicate information to others, whilst noting particular aspects of an image which supported the overall meaning conveyed, including colour.

Movement and the children's conceptualisation of images being located in relation to one another was a recurrent theme within the results of this study.  This brought together the children's knowledge of their familiar "place" with their preference for movement as a mode of communication.  Furthermore, the positioning of images in relation to locational and contextual cues was found to support their interpretation of images.

In the discussion that follows, the results of this study are explored in relation to the existing literature identified within Chapter 2.  This will identify how young children conceptualise images within their physical environment and the ways they are able to use the visual mode to convey meaning.  Finally, given the use of visual mapping throughout this study consideration will be given regarding the contribution this makes to the existing knowledge regarding young children's engagements and the methods available to capture this.

**Chapter 6**

**Discussion**

**6.1 Introduction**

This study has shown that young children hold a wealth of knowledge regarding the images that they encounter within their familiar environments. Through exploring the emergent themes which arose, it became apparent that the children in this study conceptualised the physical location of images as being tied to their meaning. Furthermore, the children captured the important role that movement had in their meaning making practices. In completing the mapping task, the children demonstrated their deeper knowledge of the visual mode as enabling them to communicate meaning, whilst also showing awareness of the ways images that they encounter have been edited and adapted with an audience in mind.

The purpose of this chapter is to consolidate this evidence in answering the research questions. As well as providing an insight into children's interactions with images in their environment, this study also revealed the ways that visual mapping may be used to offer an insight into young children's perspectives, which extends our understanding of young children's meaning making practices. Whilst there are formal ways of of describing, analysing, critiquing and making meaning through the visual mode (see Kress & Van Leeuwen, 2006), this study offers an alternate approach which meets the current need to extend existing methods beyond those for specialist use (see Yamada-Rice, 2011a) and which may be used within mainstream education to capture modern communicative practices.

The research questions for this study, which relate to young children's conceptualisation of images within their familiar environments and the use and suitability of visual mapping as a research tool, were numbered as follows:

1. How do young children conceptualise images within their physical environment?
2. How do children use the visual mode within a mapping activity to convey meaning?
3. How may visual mapping, as a methodological approach, be used to elicit young children's perspectives?

This discussion focuses on how this study has answered the three research questions. Firstly, the ways young children conceptualise images within physical environments which are familiar to them are identified. Next, the ways they used the visual mode to communicate meaning and create a mapped representation of their familiar environment are described. Finally, given the use of visual mapping throughout this

study, this chapter concludes by considering the extent to which this methodological approach may be used to elicit young children's perspectives and the ways this may add to the existing body of literature on participatory visual research methods.

## 6.2 How do young children conceptualise images within their physical environment?

Throughout the data collection phase of the study, each of the children involved were seen to capture, represent and communicate the ways they conceptualise images in their own local environments, through the use of a participatory visual mapping methodology. The environments which were represented by the children reflected Burbules (2004) conceptualisation of place as having a subjective importance to an individual or group and included an Early Years setting, family homes and a large community leisure centre.

### 6.2.1 The physical location of images

One of the key ways that children conceptualised images was to relate these to the physical location and context in which they were encountered. This was evident both in the ways they placed their printed photographs onto their visual maps and in the comments they made during the activity, when referring to the images.

In arranging their images onto the visual maps, the children were concerned with representing the spatial location of the images. As noted within the results chapter, this observation was not immediately obvious due to the individual styles used to communicate meaning through the map texts. Furthermore, previous studies which engaged children in map based activities yielded more uniform map texts, for example the birds-eye view representations of the school environment used in Kervin and Mantei's (2017) study and the round environmental maps created within the Mosaic approach (Clark, 2017). However it is noted that these two studies gave children a more prescribed format to follow; the case studies reported by Clark utilise circular cardboard map templates with a hole in the centre to orientate the child, whilst Kervin and Mantei gave children access to both example maps and satellite images of the school through the use of Google Maps. Within this study, a deliberate choice was made not to direct children to adopt a particular mapping style as the focus was not on their ability to create an accurate representation of their immediate environment, but to explore how children engaged with images within their environment and utilised the visual mode to convey meaning. Although the mapped representations the children produced were of different style, they were found to adopt two strategies in their positioning of images on their maps to represent their location. One strategy was to

group images which were found in the same location together, as demonstrated in Joey's map of the Early Years setting.  Images were arranged according to the room in the Early Years setting in which they were found.  The second strategy was to position the images spatially in relation to one another, as shown in Molly and Emily's maps of the home setting and Jeffrey's map of the community setting.  In common with the features of schematic maps, key topological information is conveyed within the children's maps whilst scale, distance and direction may be subject to variation within the map text itself.  These acts of positioning the images on the map, relative to the location in which they were encountered, suggests that the children felt that the physical locations of images are significant and tied to their meaning.

Further evidence that the children identified an image's meaning as being intrinsically linked to its physical location was found in their focused conversations.  The close attention paid to the content of these interactions between the researcher and child reflects Clark's (2010a) conceptualisation of map making as an "active process of meaning making rather than an end product.  In both the home and Early Years settings the children referred to images by the locational names, using these as synonymous with the image itself.  This fast method of sorting and categorising the images was observed when the children re-acquainted themselves with the printed copies of photographs at the start of the mapping phase and also as a means of distinguishing between two images of apparent similar appearance.  In the case of Max in the Early Years setting, in identifying the photographs he had taken of various display boards within his classroom he was concerned with naming them according to rooms in which they had been found, rather than their content.  Mackey (2010, p. 330) proposes that we continuously seek from babyhood to turn the space around us into the kind of place which is familiar and meaningful.  This study identifies the act of categorising and sorting images according to their location as being tied to children's meaning making practices.  It is therefore argued that within the context of this study it is these acts of conceptualising images as being synonymous with their physical location that turn the environment around them into one which is a familiar place.

Scollon and Scollon (2003) state that the location of a text contributes to its meaning.  Previous studies have identified that children's comprehension of the visual mode is affected by an image's context and location within an environment.  Within Yamada-Rice's (2014) study this was particularly evident where children were unable to comprehend a text's meaning due to a lack of contextual information.  The findings of this study add to existing knowledge of children's multimodal engagements as they capture the children's own identification that the location and context of images is significant.  A key difference between the findings of this study and those of Yamada-Rice are the links young children make between images and the environment.  Yamada-Rice identifies that images inform children's use of the environment, whereas this study

extends this observation to children attributing the message conveyed to others who use the environment.  Furthermore, Yamada-Rice's study does not directly report upon the links children make between images they encounter across the environment, as noted in the literature review in Chapter 2.  Within the context of this study, children articulated through their maps the importance they placed in the spatial location of images both across the environment and in relation to one another.

It is particularly important to capture children's perspectives, rather than relying solely on adult observation, as Clark and Moss (2001) identify, recognising children's competencies is achieved by listening to them rather than assuming the answers.  Furthermore, Clark (2004) suggests that children's competencies may be hidden or made visible depending on the "lenses" adults use to view children; a unique contribution of this study is the way children were able to self-identify the factors that they felt were important to meaning making.  The combination of photography, map making and focused conversation used in this study enabled the articulation of emerging understandings which are not always visible.  The children positioned the images on their visual maps as existing in a specific location and also in relation to one another, communicating both locational and contextual information which would support interpretation of an image's meaning.  Whilst the Mosaic approach (Clark & Moss, 2001; 2005; 2011) demonstrated the importance of listening to young children in relation to their physical environment, the findings of this study provide evidence of the importance of also listening to their views on communicative practices which take place in those environments.  This point is of particular relevance to both educators and policy makers whereby the "lenses" used to view young children's communicative practices are narrow in focus, and focused primarily on written and spoken modes of communication (Millard & Marsh, 2001; Taylor, 2014; Sakr, Connelly & Wild, 2015).

In creating the participatory visual maps, the children were working primarily with the photographs they had taken on an earlier occasion.  Within photography the effects of the image on the viewer and the meanings attached to these are distinct from the object photographed (Barthes, 1993).  Following this, Barthes describes the first order meaning, relating to recognition of what is registered by the image or photograph, and the second order meaning, which relates to the cultural and connoted meaning drawn from the viewer's previous experiences and engagements.  The findings of this study suggest that, for the children, place and locational names are a part of their connoted meaning in so far as their experiences with images are tied to the locations in which they are found.  When Burbules (2004) identifies "space" and "place" as two separate concepts he notes that when people are within familiar places "they know where they are and what it means to be there" (Burbules, 2004, p. 174).  Powell (2016) identifies the embodied nature of "place", which reflects prior physical engagements and experiences.  The findings of this study are significant as they extend the

conceptualisation of "place" beyond the familiar environment and associated embodied experiences, to also include the artefacts and images within it.  It is the very presence of these multimodal texts which makes a "place" what it is, with prior experiences within the environment conversely influencing the meaning derived from such texts.  Burnett et al. (2014) draw attention to material dimensions of meaning making, widening the conceptualisation of literacy to consider the practices people engage in and the context and sites of these.  As a consequence, the findings of this study offer a link between new literacy theories and the conceptualisation of familiar environments.

### 6.2.2 Deriving meaning from movement within the environment

A growing body of research identifies that children's meaning making and movement are intrinsically linked (Hackett, 2014; Mackey, 2010).  Movement played a key role in the ways children engaged with images in their familiar environments in this study.  The children made a range of movements in completing the mapping task, in referring to the physical images shown in their photographs and moving between images to assess their location in relation to one another.  The presentation of images in the map texts demonstrates not only the children's judgements of the relative location of images but also represents the pathways and movement that they perceive within their environment.

The placement of images on the children's maps can be considered in relation to the notion of a "legible" city (Lynch, 1960), consisting of pathways, landmarks, districts and edges.  This conceptualisation relates the physical environment to meaning making.  In the same way that meaning may be drawn from the spatial arrangement and relationships between elements within texts (Scollon & Scollon, 2003), it can be argued that sense may be drawn from the arrangement and relationships between physical components.  The empty space which Jeffrey leaves through the centre of his map indicates a pathway, whilst the images on Jeffrey's map may be thought of as landmarks on a journey through the setting.  As highlighted within the results chapter, Jeffrey was also keen to demarcate the edge or bounds of his map which formed a "district" of the wider community setting.  This indicated the limits of what the map showed.  This further demonstrates the link children make between images and movement as the images provide information about the nature of movement within the environment, including possible routes, landmarks along the way and the existence of boundaries.

A key finding of this study was the children's identification of movement as being intrinsic to their understanding images.  This offers support for the recognition of

embodied dimensions of meaning making within education (Burnett & Merchant, 2015).  Molly's map of her home, which is overlaid with a network of hand drawn pathways connecting her images, shows similarities to the maps created by Hackett (2014) as she recorded the zigging and zagging movements made by young children around a museum as they moved between and returned to objects of interest.  Hackett argues that not only are the children's movements in themselves an act of communication, but that understanding children's meaning making practices cannot be conducted in isolation from other communicative modes, including movement.

The order in which the children encountered images as they moved through an environment is captured in their maps.  Jeffrey's map of his community setting conserves empty space in its centre, demarcating a pathway through the images in his environment, whilst Molly's map of her home marks pathways in and around images, aided through the inclusion of annotations.  Pink (2011) identifies the physical nature of wayfaring as akin to walking the lines on a map and documenting the path followed.  The movements indicated on the children's maps reflect the movements that the children made, not only in creating their maps but also in their typical engagements within the environment outside of the study.  Movements recorded on the children's maps included moving through an environment, viewing images in sequence, as well as travelling back and forth between and around images throughout the environment.  Within Powell's (2016) case studies, both adults and older children are observed to make proprioceptive movements when recounting previous engagement and movements within an environment.  In addition to this, when creating and referring to maps they may rotate the page in order to orientate themselves within the environment.  The findings of this study build upon this body of research to acknowledge that young children also make proprioceptive movements in relation to their environment and more significantly, that they are aware of the role such movements have in supporting meaning making.  The composition of the map texts, to include pathways and images deliberately oriented to indicate perspective, demonstrate that these embodied acts are not subconscious but are conveyed as an intrinsic part of young children's meaning making practices with images within their environment.

This study extends upon the work of Hackett (2014) and Hackett and Somerville (2017) as it identifies that young children themselves are aware of, and communicate through their maps, the importance of movement as tied to their multimodal engagements.  Within the context of this study, the children appeared to feel that it was important to convey how one could move in relation to the images, and also how you could move freely between the different images within the environment.  Furthermore, the children in this study attempted to replicate on their maps the movements that they made in making sense of the images within their environment.  This included movements back

and forth between images which had previously been noted by an adult observer in the case of Hackett's study, but not previously recorded by young children themselves.

The importance of multimodality in children's communicative practices is reinforced within this study. The children in this study were asked to present the images that they encountered in their environments using a visual map as a two-dimensional artefact. However, the children were not content with this representation and wanted to show how it was possible to move within their environment in relation to the images they encountered. This movement is represented on the visual maps. This finding is significant as it contributes to the wider argument for multimodal education (see Burnett & Merchant, 2015; Taylor, 2014). Whilst educators are aware of the need to build upon young children's knowledge of the written mode, gained through their prior experiences with environmental print (see Hannon and Nutbrown, 1997), it is identified that they also need to attend to children's wider multimodal communication practices. This includes those involving the visual mode (Yamada-Rice, 2014) movement (Hackett, 2014) and more broadly, engaging children in the creation of multimodal texts which allow them to make choices  and consider the ways their message is conveyed across modes (Kervin and Mantei, 2017). Such practices are reflective of wider, evolving means of communication in society (Jewitt, 2002). The findings of this study therefore support the assertion that communication is increasingly multimodal and calls for educators and policy makers to recognise such pre-existing multimodal practices and the impact they have on young children's learning.

### 6.2.3 Deriving meaning from images

Several of the images that the children in this study identified were examples of signs in their environment which combined the written and visual mode. This included Max's interpretation of signs within his Early Years setting and Jeffrey's engagement with noticeboards and posters in his community setting. The conversations around these texts were similar to those undertaken by Yamada-Rice (2010; 2014) with young children in an urban Japanese environment, where children used their prior experiences together with environmental cues in order to draw meaning from texts. The experiences the children in this study drew upon included their prior engagements with texts in the setting being mapped as well as with other texts that they had encountered elsewhere. The texts the children in this study were found to be able to relate to included café signs, warning signs and noticeboards

In contrast to previous research (Yamada Rice, 2013; 2014), the children in this study identified signs in their environment as being intended to convey information to people who were not familiar with the setting. This finding marks the original contribution of

the visual mapping methodology which enabled young children's sophisticated understanding of meaning making, whereby they are aware of wider audiences beyond themselves, to be articulated. Their identification of audiences included children of different ages, visitors to the community setting and parents coming in to the Early Years setting. The conceptualisation of environmental signage in this study differs from those identified by Yamada-Rice (2010; 2014). In her studies, the children interpreted environmental signage in the light of their experiences and those of their families, for example in visiting a setting and identifying that a sign outside meant no pushchairs as their younger sibling had not been allowed to bring his in on a previous visit. The children in Yamada-Rice's study did not report not being the person who the signs were aimed at, even in the case of architectural plans on a real estate agent's sign, whereas in this study the children were confident in identifying that they were not the target audience but could suggest who was. One way of interpreting this difference is by relating it to Burbules (2004) conceptualisations of "space" and "place". The children in this study were so familiar with their Early Years and community setting as a familiar place, that they already knew the rules and information they attributed as being communicated by environmental signs and so felt that this information must be for other people entering the environment as a "space". This finding is significant as it suggests that children not only use contextual cues from the physical environment in interpreting texts, but also their subjective experience within that environment including the degree to which they felt ownership and belonging within their familiar "place".

In line with social semiotic theory (Halliday, 1978), children's conceptualisation of images were informed by their social engagements. Jeffrey drew not only upon his movements and experiences within the physical environment, but also upon his relationships with the people ordinarily found there. His understanding of signs within the community setting stemmed from his experiences with, and alongside, others. This gave him an insight not only into the expectations of how people were expected to use the community setting, as directed by signs, but also of the different people who would access the setting including "little kids". In the home setting Emily, on the other hand, identified the ways books for children were brightly coloured and featured lots of pictures to look at. This knowledge of how books cater to the interests of young children may be informed not only by Emily's personal experiences as a reader, but also from her interactions with peers at school and her younger sibling at home. Thus, the children in this study drew not only upon their own personal experiences of texts, like those in Yamada-Rice's (2014) study, but also their perceptions of how others accessed texts within their environment.

The meaning which children drew from images was also shaped by their developing knowledge of the codes and conventions of the visual mode. This consideration of

meaning which exists beyond an image or object photographed, relates to Barthes (1993) concept of second order meaning, where cultural and contextual factors shape the audience's interpretation. Their understanding of signs as being intended to provide information to visitors to a setting is underpinned by their knowledge of the ways that a multimodal text may be configured to convey meaning. Within the context of this study the children derived meaning from aspects of both the visual and written mode within a text, taking account of both the written message presented on signs as well as contextual factors which shaped their understanding. In the case of Max's "no fishing" sign" he read the message conveyed by the written mode, but took account of it's location and the classroom context to infer that it was directed at parents entering the classroom. In addition to this, the children in this study also appeared to be developing comprehension of the coded use of colour. Jeffrey for example, noted that the colours yellow and red were significant in contributing to the meaning of the warning and caution signs. This differs from Yamada-Rice's (2014) study in which the children were able to identify the meaning depicted in a sign, such as "no dogs", but were not able to identify how the use of colours generated meaning or make generalisations based on this; for example they were not able to identify that a red circle with a line through it meant "no" across texts. This difference could be due to the differing age of the children involved; in this study the children were 4 to 5 years of age, whereas those in Yamada-Rice's study were around 3 years of age. This raises the question of the age at which such codes and conventions are learnt.

**6.3 How do children use the visual mode within a mapping activity to convey meaning?**

Yamada-Rice (2013) suggests that children's comprehension of the codes and conventions of the visual mode develops through first hand exposure in relation to the physical environment. Such knowledge may later be applied in more abstract forms across different multimodal texts, in a similar manner to that suggested by Mackey (2010) in the case of writing. In this study the children were positioned both as an audience to the texts that they encountered within their environment, and also as texts creators in using their visual maps to communicate. The previous section identified the children's awareness of the images that they encountered having been adapted to meet the needs of their audience, this section considers the ways the children in this study edited and adapted their own maps in order to share their perspectives regarding images in their environment.

Within the literature review it was suggested that one way of exploring the visual mode is to consider what it is that makes it a mode. Kress and Van Leeuwen (2001a) and the semiotic theory of Michael Halliday (1978; 1984) identify that the visual mode, as a semiotic resource, must meet the following three demands in order to fulfil the

metafunctions of language: the ideational, interpersonal and textual functions.  As each of the map texts produced by the children invokes the visual mode, evidence was found of the children using these three functions to communicate meaning.  The ideational component, or subject matter, of the map text was evidenced through their photographs of images in the environment.  The interpersonal component, or use of social interaction, was evidenced through the children's use of their photographs and annotations within the map text to convey their experiences and ideas.  Finally, the textual component refers to the creation of coherence.  Within the children's map texts this was achieved through the use of composition, modality and framing which enable visual images to be configured to design interpersonal meaning, present the world and events in specific ways and finally to realise coherence (Jewitt, 2009a).

Focusing specifically on the textual component, the children predominantly made use of composition and framing in their visual maps.  This was achieved in both the photography phase as well as the mapping phase of the data collection.  In the case of composition, the image produced originates from a physical position in space, and it is the vantage point of the camera which "dictates" the resulting composition (Klett, 2011).  When looking for examples of composition, evidence was found of the children arranging objects or using the zoom function on the camera in order to focus on specific areas of interest before taking a photograph.  In the Early Years setting, Joey arranged lunchboxes to display only those with Ninja Turtles on in his photograph, whilst Max, Molly and Jeffrey all used the zoom function to control the image which was captured in their photographs.  The children in this study were conscious of presenting the images that interested them in a particular way.  Framing, on the other hand is able to "connect" or "disconnect" elements (Jewitt & Oyama, 2001) and may be achieved through the use of spacing, framelines, or similarities in colour and form.  The children in this study demonstrated framing in a number of ways, reflecting the ways framing may be decided not only at the point of offering the camera lens to the scene but also when working with a print of the image, through cropping or adding borders to the image (Lister & Wells, 2001).  In the community setting, Jeffrey made use of spacing to represent the connection between certain images, for example in placing photographs of his hockey kit close together.  Other children, including Molly and Emily, used scissors to physically crop down their printed photograph.

In each of these instances of editing, the children did so without explaining their actions.  It may be that what they were trying to achieve through composition and framing they could not easily put into words.  On the other hand, their ability to use editing techniques demonstrates that the children had some knowledge, experience or prior exposure to the affordances and grammars of the visual mode.  When trying to capture the perspectives of young children it is argued that they should be responding through means with which they are already familiar (Smith, Duncan & Marshall, 2005)

and which resonate with their existing routines and engagements (Christensen & James, 2008). Within this study the children were observed to show skill and confidence in both taking photographs and manipulating the printed images for their map and reflects Kervin and Mantei's (2017) assertion that this allows the articulation of knowledge and concepts which may not easily be put into words. This is an important finding as it demonstrates that the two phases involved in data collection involved tasks which were both familiar and reflective of young children's prior engagements. Furthermore, the inclusion of both a photography and mapping phase offered an insight into young children's knowledge of the visual mode which may otherwise have been overlooked, were they given a set of pre-prepared images to map as was the case in Stephen et al.'s, (2008) study of children's use of ICT.

A final point for consideration is the presence and potential influence of children's awareness of other modes of communication on the multimodal map texts. Within the context of this study, children across the three environments captured examples of images which contained both the visual and written mode to differing degrees. It has been suggested that within the school environment written and spoken modes may be privileged, with Marsh and Millard (2000) claiming that this reflects moving children away from their preferred modes of communication whilst Taylor (2014) and Burnett and Merchant (2015) both point to curriculum reforms and assessment as focusing on standard English and print text. The apparent focus on written and spoken modes within schools is argued to be evident in the way artwork is displayed in the classroom environment as means for evidencing progress in communicational practices, including writing (Sakr, Connelly & Wild, 2015). One of the means of analysis used by Yamada-Rice (2013) was to identify which mode of communication was dominant within the texts children photographed, however this is not something the children in this study commented directly upon. Both Emily and Max expressed an awareness of the written mode being used in schools. With Emily this included her verbal reference to being good at handwriting and knowledge of school reading schemes whilst Max was insistent that he needed to use white paper and write his name at the top of his map. None of the children in this study suggested that particular modes of communication were used more in any of the three settings, nor did distinguish between the written and visual modes when referring to the images they encountered.

The multimodal maps the children produced are indicative of their awareness of the grammars and affordances of the visual mode through their modal choices. This is evidenced in the ways that certain modes are selected as they are deemed best suited to convey aspects of their message to an audience. Emily's map makes use of the written mode in order to organise her map and orient her audience. For example, she used underlined headings to demarcate the different rooms shown on her map. She also labelled each of the photographs individually. In the case of Max's map, the overall

presentation of the map text appeared to reflect the modes of communication conveyed by his teacher in the presentation of the children's work on display boards. Furthermore, his positioning of images from left to right working down the page is a convention associated within the written mode.  It is this presentation of the images on his map which emphasises their content: grid like presentations of the children's emerging writing.  In addition, both Emily and Max also showed knowledge and use of the conventions of the visual mode.  Max was able to demonstrate this in the way he took his photographs and made use of both composition and framing.  Emily on the other hand incorporated drawing into her map and made annotations to her photographs.  These two examples contrast strongly with Jeffrey's map which instead utilises visual grammars, including composition and framing in order to convey movement within his environment.  As a result, the children in this study can be said to possess emerging knowledge regarding the affordances of both the written and visual modes and the ways these can be used to convey meaning within a multimodal text.

The findings from this study indicate that some of the children were very comfortable in merging image and print, combining both the visual and written mode within their maps.  Furthermore, the images that they captured within their environments reflected this merging of print and text, with children demonstrating awareness of how to "read" both.  This is an important finding for educators for a number of reasons.  Firstly, it is important that children are made to feel that all modes have value.  Historically, Western communicative practices have demonstrated a strong alliance to the written mode (Yamada-Rice, 2014), however this is shifting due in part to the evolution of screen-based media (Kress, 2005).  The recognition and valuing of all modes by educators would reflect wider communicative patterns in society (Burnett & Merchant, 2015).  The second key implication for educators is the need for children to be given choice in their communicative practices, something Kervin and Mantei (2017) suggest is made possible by allowing children to create multimodal texts.  In merging image and print the children in this study show developing skill in selecting the modes of communication they feel are best suited to convey meaning.  As Kress (2000) identifies, no text can exist in a single mode, however composition and the use of different media allow certain modes to be foregrounded by the creator of the text.  Therefore, it is important that educators recognise the many forms that communication may take within their practice and support the multimodal nature of young children's communicative practices.

## 6.4 How may visual mapping, as a methodological approach, be used to elicit young children's perspectives?

Maps are a powerful means of conveying detailed information about a place or physical environment (Powell, 2010) and the children in this study used their maps to

communicate their knowledge and interactions with images within their familiar environments.  The final research question evaluates the methodological approach adopted in this study.  This section begins by considering the ways visual mapping was able to elicit young children's perspectives which may not have been possible were a different methodological approach used.  This includes an identification of the extent to which young children were able to access and engage with the methods associated with visual mapping.  This section concludes by considering how visual mapping may add to the existing body of participatory research methods with young children with reference to both the strengths and limitations to its use.

### 6.4.1 Eliciting young children's perspectives

At the outset to this study a methodology was sought which would enable the children to share their perspectives regarding the images that they encountered within their environment.  Within the methodology chapter it was identified that a participatory research approach would be taken, treating young children as informants in their own environments and experiences (Christensen & James, 2008).  A number of examples were found where the visual mapping methodology allowed an insight into young children's perspectives which would not otherwise have been possible.

The visual maps created by the children in this study were produced in two phases: a photography phase, in which the children took photographs of images within their environment, and a mapping phase in which they created mapped representations of their environment using printed copies of their photographs.  As discussed within the methodology chapter, previous studies used alternate approaches to mapping, including the use of pre-prepared photographs to place onto the outline of a room (Stephen et al., 2008) and the use of technology including Google Maps to support the representation of a familiar environment (Kervin & Mantei, 2017).  Within this study, the use of two phases of data collection allowed complementary information to be gathered regarding children's engagement with images and awareness of the codes and conventions of the visual mode.  In the case of Max, the inclusion of a photography phase prior to the mapping phase enabled an insight to his knowledge of the codes and conventions of the visual mode, including composition and framing, which may otherwise have been overlooked were he provided with a set of pre-prepared images to map.

The photographs taken by the children of their familiar place depict multimodal texts featuring the visual mode.  As a consequence, they allow an insight into the engagements of young children with the visual mode.  The multimodal texts the children photographed are of particular interest to them and reflect their prior

experiences and engagements, as observed in other studies in both the home (Yamada-Rice, 2010) and urban environments (Yamada-Rice, 2013).  Looking closely at the texts that the children selected for their maps provided one way of identifying their knowledge of "visual grammars" (Kress & Van Leeuwen, 2001a) by exploring the extent to which they are aware of them in texts created by others.  As previously discussed, within this study the children were confident that texts had been created with an audience in mind, including identifying groups of people that they felt were the target audience according to their age, level of familiarity with the setting or perceived interest in either "pictures" or "words".  On the other hand, focused conversation with the children revealed that, beyond their recognition of significant colours discussed in the preceding section, in common with Yamada-Rice's studies they were not able to pinpoint verbally how the texts had been configured to convey meaning.  It was the ways the children edited and adapted their photographs and the overall map text which provided evidence of their underlying knowledge of the visual mode and extended upon existing research.  This finding is important as it identifies aspects of the data collection and analysis which are necessary within the visual mapping methodology in order to truly capture young children's perspectives.  Looking solely at the children's photographs and discussing these in conversation with the children captures one perspective, however looking at the ways children utilise images to communicate their own meaning as evidenced within the mapping task provides an additional layer of meaning that captures children's perspectives in a manner which does not rely solely on verbal communication.

The findings of this study support the conceptualisation of visual methods as able to redress the power imbalance between adults and children in research (Procter & Hatton, 2015).  It is argued that words are the domain of adults whilst images are central to children's culture (Prosser & Burke, 2008), however it is not simply the use of images but their positioning as "social actors" with the ability to influence their social circumstances (Christensen & Prout, 2005).  In identifying images within their environment, the children who participated in this study were also able to convey information about their communicative practices and challenge existing notions. Furthermore, they demonstrate a range of skills and competencies beyond those expected.  Given that young children's identities on entering primary school appear to be centered on their lack of skills, particularly in the dominant written and spoken modes of school (Millard & Marsh, 2001), the use of visual methods in this study challenge such conceptualisations made by adults.

The mapping activity supported children to demonstrate the skills and knowledge they held regarding the visual mode which they may not otherwise have been able to put into words.  It is unlikely the children would be able to describe in words what is meant by the terms "framing" or "composition" and yet examples were found across the

different settings of children using elements of these with some skill and confidence. Furthermore, their use of such conventions showed the extent to which they were able to apply their knowledge to the context of a map text. This supports the use of a visual mapping in allowing the children to demonstrate their competency in utilising the visual mode to convey meaning as a method which reflects their preferred means of responding (Smith, Duncan & Marshall, 2005) and which resonates with their existing engagements (Christensen & James, 2008). Within the methodology section it was identified that the combination of visual and participatory methods may be well suited to recording and analysing young children's interaction and comprehension of the visual mode. Indeed, previous studies have demonstrated the power of photography to both capture young children's interactions with the visual mode as well as serve as a means for eliciting their knowledge and understanding of the content of these (Yamada-Rice, 2013a) and this was very much the case in exploring their awareness and knowledge of how to convey information using the visual mode.

### 6.4.2 The contribution that visual mapping makes to existing methods

The visual mapping approach draws upon existing participatory visual methods including The Mosaic Approach (Clark & Moss, 2001; 2005; 2011), which used mapping as one of a series of tools for consulting young children regarding their immediate Early Years environment, as well as Yamada-Rice's (2011a, 2011b, 2014) research into the increasing prevalence of the visual mode within the urban environment and young children's emerging understanding of multimodal texts within such "semiotic" landscapes. In contrast to previous studies, the visual mapping approach adopted looked to capture the ways that children conceptualised images, as a particular aspect of their environment which carried meaning, whilst also looking to provide a means of data collection and analysis which did not require specialist techniques. As a result, this section looks to identify the contribution that this study makes to existing methods.

The mapping methodology provided a means for representing a familiar environment. The ways children captured their environment, and the existence of images in the space around them in this study, are noteworthy when considered in relation to the circular maps created in the Mosaic Approach (Clark & Moss, 2001; 2005; 2011). The Mosaic approach maps had a circle in the centre to situate children at the centre of their environment, whereas the children in this study made use of their photographs and annotations to situate their audience and acquaint them with their familiar environment. Jeffrey's map for example, provides a fixed boundary to the places which he inhabited within his community setting whilst Molly's map identifies a range of pathways through her home setting. Thus, the findings of this study suggest that rather than having the materials for data collection adapted to them, as seen in the Mosaic approach, the children were more concerned with adapting the finished map text to

use images to convey information about the physical features of their familiar environments.

Cross-disciplinary research identifies that young children are sensitive to the metric properties of two-dimensional figures and are able to identify where the sides or corners of disrupted two-dimensional shapes should be located (Satlow & Newcombe, 1998). Within this study evidence was found of children making use of this skill in completing the outline of their environment through the production of a two-dimensional map. Jeffrey, Molly and Emily's methods of mapping created an outline of their familiar environments through the placement of images. Whilst the mathematical knowledge of young children was not the focus of this study, it is evident in the children's editing and adapting of their maps to reflect physical locations. This finding is significant as it contributes to existing knowledge of the ways children may use the visual mode, and specifically maps, to represent their experiences in a different manner to those already identified within the Mosaic approach (Clark & Moss, 2001; 2005; 2011; Clark, 2017). The children in this study felt that it was important to represent images in their environment as situated in specific locations, in relation not only to certain rooms or areas but also in relation to each other within the map text.

The ways that the children conceptualisation images within their environment linked mapping practices to the physical nature of meaning making identified by Mackey (2010) and Hackett (2014). It is the visual mapping methodology adopted within this study which allowed the link between children's conceptualisation of images and the physical nature of their meaning making practices to be identified. In his seminal work, Lynch (1960) describes mapping as a tool to represent how persons perceive the relationships between space, place, social and physical features of the physical and built environment. Whilst previous studies have used alternate methods, including the use of body cameras and adult observation of movement (see Hackett & Yamada-Rice, 2015) this study contributes to the existing body of research methods by offering an alternate methodology which identifies the role and importance which children perceive movement as having in relation to their meaning making practices.

### 6.5 Conclusion

This chapter has shown that young children conceptualise images as being a fundamental part of their familiar environments. The children in this study showed awareness of images in their environment as being aimed at particular groups of people whilst showing a developing awareness of the ways colour may contribute to meaning. This observation of children inferring meaning directed at audiences other than themselves is a highly sophisticated skill and directly extends upon the work of Yamada-

Rice (2010; 2013; 2014).  Furthermore, the findings of this study contribute to existing knowledge of the ways young children draw upon their prior experiences alongside locational and contextual cues in making sense of images.

The study also identifies the contribution which the visual mapping methodology makes to the existing body of research methods.  In particular, this study has demonstrated that visual maps may be used to capture the important role of movement in young children's meaning making practices.  Whilst previous studies have acknowledged the need to consider the full range of modes young children utilise in their meaning making practices (see Hackett & Yamada-Rice, 2015), the visual mapping methodology used in this study elicited children's self-identification of movement being tied to their multimodal engagements.  This supports Powell's (2016) conceptualisation of place as embodied and contributes evidence that young children, in common with adults and older children, make a range of proprioceptive movements as part of their meaning making practices.  It is argued that the identification of young children's perceptions of movement in and around their environment in relation to images would not have been possible without adopting this methodological approach.

**Chapter 7**

**Conclusion**

## 7.1 Introduction

This thesis had several interlinked aims which were answered through the research questions. Firstly, the ways young children conceptualise images within their familiar environments was identified, including the links they made between the location and context of an image and the emphasis which they placed upon movement. Secondly, the ways children used the codes and conventions of the visual mode to communicate meaning was explored. Finally, given the visual mapping methodology adopted within this study, the extent to which this approach may be used as a participatory tool to elicit the perspectives of young children was explored.

This study offers an original contribution to the literature by exploring how young children conceptualise images in relation to their physical environment. Children view the location and context of images as important to their meaning, whilst movement is intrinsic to their meaning making practices. The wider findings of this study identified that children's conceptualisations of image are diverse and that they engage with a wealth of multimodal texts prior to starting school. Children hold knowledge regarding both the written and visual modes, with the methodological approach adopted within this study providing a means for articulating their sophisticated knowledge of both texts and audiences.

In this chapter, I begin by considering the implications of this study for practice. This includes a consideration of what the findings identified within the preceding discussion chapter mean for practitioners and policymakers within the context of the statutory framework for the Early Years Foundation Stage (Department for Education, 2017). I conclude by exploring areas for future research.

## 7.2 Implications for practice

My interest in young children's perspectives on images stems from my teaching career, in which I worked with young children in their first year of primary school. I was always aware of young children's engagement with images but felt there was a need to understand more about the ways in which they used the visual mode to communicate meaning. This section seeks to identify the implications of this study for policy and practice within the Early Years. The implications for practitioners are considered first.

The methodology adopted in this study is identified as a pedagogical approach which may articulate and develop children's meaning making practices. Following this, recommendations are made to incorporate children's multimodal engagements, including the visual and embodied, into practice. In considering the implications for policy, children's existing communicative practices are considered in terms of how they may inform future policies and be better recognised within the Early Years Foundation Stage curriculum.

### 7.2.1 Implications for practitioners

The findings of this study contribute further evidence to the body of research which identifies young children's multimodal communicative practices, including both the visual mode (Yamada-Rice, 2014) and movement (Hackett, 2014). Marsh (2000) states that it is imperative that cultural values and signifying practices are recognised when children enter school. Furthermore, paying attention to the embodied, spatial, material and multimodal dimensions of children's meaning making practices provide opportunity to re-examine practices in Early Years literacy pedagogy (Daniels, 2016). Although this study focused on children's perceptions of images within their environment, the wider findings of this study also serve to demonstrate the wealth of multimodal texts that young children competently engage with prior to starting school. Furthermore, the dual positioning within this study of young children as message creators and message receivers enabled emerging understandings of the modal affordances and visual grammars to be explored which extend upon existing knowledge regarding children's comprehension of the visual mode. Clark (2004) identifies that the competencies young children display may be hidden or made visible according to the 'lenses' adults use. This raises the question of how practitioners may recognise such pre-existing multimodal engagements and acknowledge them within their practice in the Early Years setting.

The methodological process adopted in this study is also a pedagogical process. This can enable the articulation of children's emerging understandings which are not always visible. Within this study there was a focus on looking closely, the creation of a multimodal map text and conversation regarding the production and meaning of image texts. This has profound implications for the teaching of literacies and is not only compatible with Burnett and Merchant's (2015) Charter for 21st Literacies, but also has wider relevance to the study of critical literacies which consider the relationships between texts, audiences, information and power (see Burnett & Merchant, 2011; Kellner & Share, 2007). In looking closely at image texts within the environment, the children paid close attention to separate modes and modal affordances. Within the context of this study this extended to both the visual and written mode. This process of separating out and recognising that multiple modes can enable meanings to be

developed and conveyed in ways which may otherwise be overlooked and reflects Burnett and Merchant's principle of acknowledging the role of multimodality in meaning making.  The photography and mapping tasks demonstrate another of Burnett and Merchant's principles in providing children with the opportunity to engage with others in different ways with and through texts.  Finally, this study provided a context in which young children could critically consider the practices in which they engage, their positioning within these and how they are positioned by others.  The creation of multimodal texts by children provides a platform through which educators can engage children in experiences which Kervin and Mantei propose will not only build vocabulary and expression but also foster consideration of the ways a message is conveyed across modes.  Bearne (2003) identifies that in providing children with the language and terms with which to communicate and engage critically with text, a frame of reference is created with which to discuss texts more generally.  Incorporating such processes, which enable careful reflection on modes and modal affordances, into pedagogy would support children to both articulate and develop their meaning making.


The wider findings of this study, including those gathered in the home and community setting, show that young children's conceptualisations of images are diverse and that their communicative practices, as evidenced within their visual maps, reflect a range of multimodal engagements as proposed by Marsh (2004).  The children were aware of the presence of the written mode but used this alongside the visual mode and movement in their meaning making practices.  The evidence gathered suggested that young children do not foreground the written mode, but demonstrate emerging awareness of modal affordance including ways the written and visual mode may be utilised to convey their intended meaning.  Within the classroom environment, the use of written captions on display boards is identified as a means for communicating the child's perspective, however Sakr, Connelly and Wild (2015) identify that this requires further consideration to ensure that it is the child's views rather than the adult's interpretation being presented.  Whilst classroom displays will inevitably reflect aspects of adult led learning, such as emergent writing, there is also potential for these to display other aspects of child led learning which would allow the children to make choices regarding their use of different modes for communication.  Within the context of this study, the children were sensitive to the multimodal nature of texts, and made apt choices regarding the affordances visual and written mode to convey information regarding their interests, engagements and experiences within an environment.  Adopting a pedagogic approach which involves looking closely at texts, representation through a choice of modes and focused conversation would provide a means, not only for developing children's meaning making, but also for more effectively capturing the child's voice and experiences with texts within the physical classroom environment.

Within the study it was identified that children paid close attention to particular elements or component parts of texts and communicated this through their use of framing and composition.  Within the classroom environment the texts which children engage with were often examples of finished products or best pieces of work displayed in a formal manner on display boards.  In creating their map texts, the children appeared less concerned about producing a finished article and more interested in conveying information about the aspects of texts which interested them.  In developing children's meaning making practices there is a need to include improvisation and experimentation in addition to the creation of intelligible texts (Burnett & Merchant, 2015).  Furthermore, providing opportunities to examine the affordance of modes, media and the overall coherence of a text would deepen understanding of the range of representational modes and equip them with the ability to move readily between them (Bearne, 2003).  Within this study the children demonstrated knowledge and awareness of the visual mode, practitioners should include opportunities for children to experiment with and further explore the capabilities of the diverse range of modes in order to support their wider meaning making practices.

This study revealed that not only do children use images in their meaning making practices, but the location and context of these images are important.  What is more, the study also showed that for the children, what it means to be in a place could be linked to the artefacts and images within it and it is the very presence of these which makes a "place" what it is.  Many of the images which the children engaged with in the Early Years setting reflected Kress' (1997 p. 9) assertion that schools focus on the "single medium of lettered representation literacy".  This conceptualisation of schools as focused on traditional literacies remains evident, in spite of recent curriculum reforms (Burnett & Merchant, 2015; Sakr, Connelly & Wild, 2015).  In spite of this, the children in this study drew meaning not only from the denoted meaning conveyed through the written mode in addition to the connoted meaning drawn from the location and context of the text and their previous engagements.  This suggests that teachers need to become much more aware of the importance of images within a child's environment, both in terms of encouraging their ability to make meaning from the environment, but also in promoting a sense of belonging.  Clark and Nordtømme (2019) draw upon a series of vignettes, which centre on the play and participation of two two-year-old girls within a Norwegian kindergarten, to question the role of materials in developing young children's sense of belonging.  They refer to materials which include documentation co-created with children, including map texts.  In previous studies children were found to have a strong bond to visual representations of their own names (Clark, 2010b; Clark, 2017), whilst the placing of map texts in accessible positions on the floor of the kindergarten made the emotional and physical connections the children had with these materials.  A recommendation for practice is therefore to represent within the Early Years setting the range of modes of

communication which young children show preference for, including multimodal texts which they have co-created.

In engaging with images in their environment, young children identified movement as being intrinsic to their meaning.  This reflects the assertion that young children's meaning making practices are more embodied and more spatial than adults (Christensen, 2003; Hackett, 2014), with children showing complexity in their use of non-verbal modes of communication.  The identification of young children's perceptions of movement in and around their environment in relation to images would not have been possible without adopting the methodological approach of this study and further demonstrates the need for a pedagogical approach which look closely at different modes and their affordances.  Within the classroom environment there is a danger that non-verbal modes of communication may be overlooked (see Taylor, 2014).  Early Years settings are recommended to enable children's movement as part of a "free-flow" environment (Bruce, 2001), and whilst it is important that this is enshrined within practice to support meaning-making a closer examination is required of how adults view the classroom space.  Recognising embodiment within practice involves acknowledging how meaning making matters to children "in the moment" (Burnett & Merchant, 2015).  Daniels (2016) identifies that practitioners' organisation of space and materials relate closely to their conceptualisations of literacy practices.  As an enacted pedagogy this may both enable and constrain meaning making practices.  Practitioners need to recognise the ways in which young children perceive texts as multimodal, differing from a conventional linear view, and ensure that children are given opportunities to explore texts spatially.  This would include consideration of factors including the exploration of the context and location of images, their relationship to one another and the passage of movement when engaging with texts.  Tracing young children's use of space and materials provides practitioners with a starting point for understanding children's wider meaning making practices.

### 7.2.2 Implications for policy

The presence of emergent writing as the theme of classroom displays reflects the Early Years Outcomes set out within the Foundation Stage curriculum (Department for Education, 2013).  The expectations of young children's communication practices in school, which focus on "writing readiness" (Sakr, Connelly & Wild, 2015), developing knowledge of the written mode (Millard & Marsh, 2001) and the privileging of print text (Burnett & Merchant, 2015) and standard spoken English (Taylor, 2014), differ greatly from the practices observed in this study.  The results of this study confirm that children's modal development is not linear, with young children able to use the written and visual mode interchangeably within the same text to convey meaning.  As a consequence, the implications of this study for policy will be explored.

In line with the participatory research position of this study, developing policies for children requires an acknowledgement of the legitimacy and value of children's participation in decision-making processes (Waller, 2006). Stephen and Gadda (2017) suggest that children's identities tend to be tied to their perceived lack of capability to contribute to issues of debate, including citizenship. Given the relative ease with which the children in this study were able to communicate their perspectives, and previous studies establishing the roles children may play in informing change (Hart, 1997; Clark & Moss, 2001; 2005) a recommendation for policy is that children are included in developing policies in ways which are reflective of their communicative practices. As part of the MakEY Project, Marsh, Arnseth and Kumpulainen (2018) demonstrate that young children's multimodal and multimedia meaning making can be framed in ways which focus on different aspects of citizenship. Furthermore, the "makerspaces" in which the project took place provided opportunity for children to explore their thoughts and feelings through embodied practices over time. Thus, attention to children's wealth of communicative practices provides policy makers with methods for articulating children's views across a range of important issues previously thought to be beyond the capacity of children.

There is also a need for the curriculum to reflect children's communicative practices. This would include a shift in the perceptions of what different modes of communication, including the visual, are able to do whilst reflecting wider societal communicative practices. Within the urban environment, Yamada-Rice (2011a; 2011b), identifies that the use of the visual mode to communicate meaning is increasingly pervasive in Western society. This is something which the children in this study were sensitive to, particularly in the community setting. Worryingly, it is suggested that once children progress from the Early Years curricula the visual representations that they produce as a matter of course, such as the annotations, marks and drawings observed within the children's maps, are not further developed or built upon "as a means for future communication use" in school (Kress, 1997, p. 153). Therefore, a consideration of how children's multimodal communicative practices are built upon as they progress through schooling is also necessary in order for any changes to the Foundation Stage curriculum to be meaningful. As touched upon within the recommendations for practice, both Bearne (2003) and Burnett and Merchant (2015) identify that some form of framework is necessary in order to equip children with the skills and language with which to engage critically with texts. If this type of framework were identified within the curriculum it would not only guide practitioners, but also support the inclusion and engagement with multimodal texts throughout the school system.

## 7.3 Areas for future research

Within this study I adopted a participatory methodological approach in order to capture young children's perspectives.  In line with Christensen and James (2008), the approach I took sought to treat children as informants in their own environments and experiences.  As discussed within Chapter 3, a primary concern in developing my methodology was that there was some degree of ownership by the children within the research process, with all methods chosen being reflective of their existing preferences and experiences.

The wealth of pre-existing multimodal engagements that young children are identified as having, as social and active meaning makers (Marsh, 2004), coupled with the assertion that there is a wider shift in communication practices from the written to the visual mode (Jewitt, 2002; Kress, 1997; 2003; Pink, 2001) led me to the use of participatory visual maps.  The visual maps used in this study draw upon those used within the Mosaic Approach (Clark & Moss, 2001; 2005; 2011), but focus specifically upon young children representing the images they engage with within their familiar environments.  This study adds to knowledge of methodological approaches for working with young children, particularly around allowing children to represent their own communicational practices, as discussed in Chapter 6.  In addition to this, it provides a means of capturing and analysing young children's engagements with the visual mode which does not require specialist techniques, something which Yamada-Rice (2011a) identifies as being a gap within the wider literature.

The study raises a number of questions, however, which have not yet been resolved.  This study identified children's perceptions regarding images within their environment from the theoretical perspective of social semiotic theory (Halliday, 1978).  This emphasizes the social and cultural basis of communicative practices.  The differences between children's conceptualisation of images within the Early Years setting and those in other settings may stem from a disparity regarding the way images are viewed and utilized within school in comparison to wider communicative practices in society.  Millard and Marsh (2001) describe this phenomena as the system of schooling "foreclosing on children's culturally acquired resources" for communicating meaning, something Sakr, Connelly and Wild (2015) suggest reflects practitioner's perspectives on artwork and the pressures placed on them to promote "writing readiness" among children.  Whilst this study has focused on children's perspectives, an area for future research is to identify practitioners' perspectives regarding images and multimodal communicative practices.  Such research would build upon student teacher's identification of tensions between the teachers they wished to be, and the expectations placed upon them in practice (Burnett et al., 2015).  In identifying the nature of practitioners' views, and their basis, a way forward in shifting such perspectives to

better reflect wider communicative practices in society which young children are attuned to can be identified.

In making recommendations it is important to also acknowledge the limitations of this study.  Firstly, it should be noted that this was a small-scale study with five participants. This was a deliberate decision from the outset of the study as I sought to gather rich, detailed data regarding how the individual children conceptualised images within their familiar environments.  Geertz (1973) describes case studies as bringing together data to produce a "thick" description which offers detailed information about particular behaviours and the context for these.  This was important to this study given its grounding in social semiotic theory (Halliday, 1978), which emphasises the social and cultural contexts of communicative practices.  One way to apply the mapping technique to a wider range of contexts would be to introduce a coding system for analysis. Yamada-Rice (2013) developed a coding system for visual content analysis, which focuses on individual images.  The creation of a similar coding system to identify the features of children's visual maps is therefore an area for future research.  The creation of a such a tool for analysis would then allow direct comparisons to be drawn between settings, or between different age groups.

An area for future research is the application of the visual mapping technique to children of different ages.  The use of visual mapping allowed children's engagements to be viewed in two opposing ways.  Firstly, viewing children as an audience to texts created by others, supported the identification of how young children conceptualized images in their familiar environments.  Secondly, viewing young children as text creators enabled their use of the visual mode to communicate meaning to be explored. This dual positioning, made possible by the visual mapping methodology adopted, marks an original contribution of this study to the existing body of research methods.  It was noted within Chapter 6 that the children in this study had a greater awareness of the codes and conventions of the visual mode than the younger children in Yamada-Rice's (2014) study.  This raised questions regarding the ages at which such knowledge of modes of communication are developed and the nature of such development.  A longitudinal study of children capturing their perspectives at key points including the year before starting school, within the first year of school and within Key Stage would offer further information regarding the use and development of communicative practices.  Furthermore, by including children within Key Stage 1, the extent to which children's visual communicative practices are built upon as they progress from the Early Years may be explored in response to Kress' (1997) assertion that visual representations are not built upon in school.

A final area for future research is a greater consideration of the role of movement in young children's meaning making practices.  At the outset to this study I sought to use

visual maps as a tool to capture the physical and active nature of young children's meaning making engagements in relation to images within their familiar environments. I identified that the use of maps would provide a means for the children to record where they encountered images within their environment, and that this would in turn elicit their perspectives regarding such images.  A somewhat unexpected finding to this study was the extent to which the children emphasised the importance of movement in relation to the images in their maps.  As identified within Chapter 3 and 6, previous studies have made use of stop motion cameras (Yamada-Rice, 2014) or an adult transcriber to record movement within an environment (Hackett, 2014).  My study offers an alternate approach, which in contrast to previous studies allows the children to record their own perceived movements within an environment as part of their wider meaning making practices.  Thus, the use of participatory visual maps presents itself as a means, not only for capturing children's perspectives regarding their environments, but also their self-identification of the physical and active nature of such meaning making engagements.  It is now imperative that these perceptions are not only recognised by practitioners and policy makers but are supported within the wider Early Years environment.

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**Appendix A: Parental information sheet**

**Title of Project:** Mapping young children's comprehension and interaction with the visual mode in the early years setting.

**Name of Researcher:** Miss Sophia Gowers

Your child has been invited to take part in a research project. Before you decide 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. Ask me 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. Thankyou for your interest in this project.

### What is the project's purpose?

The project aims to identify the extent to which children understand and interact with the visual mode within their Early Years setting. In doing this it seeks to identify the types of images which young children interact with, and their knowledge surrounding such images and the ways in which they may convey meaning. In addition to this, the project seeks to explore the ways in which the location of images in the Early Years environment may support young children's emerging understanding of the visual mode.

In order to record children's responses the project uses a new approach to data collection which uses a method called 'visual mapping'. The visual mapping activity involves the children arranging onto a paper map photographs that they have taken within the Early Years setting which they deem to be examples of the visual mode and may include photographs of environmental print, screen-based images, books and toys. As a result, the project seeks to identify whether this method may be used effectively as a tool to record young children's understanding and interaction with the visual mode in the Early Years setting.

### Why have I been chosen?

Your child has been invited to take part as they will be within the Early Years Foundation Stage during the academic year 2015- 2016. The project seeks to recruit 6 children to take part in this project during the academic year.

### Do I have to take part?

It is up to you to decide whether you wish your child to participate in the project or not. If you do decide to take part you will be given this information sheet to keep and will be asked to sign a consent form. You will be able to withdraw your child from the project at any time without it affecting your child's access to activities and learning opportunities within their class. You do not have to give a reason.

### What will happen to my child if they take part?

If your child participates in the project they will take part in an initial information session with me. During this time the research area will be explained to children

using pictures and image to explain what it meant by the visual mode. They will also be shown the digital cameras which they will use to capture examples of the visual mode in their setting, and given the opportunity to practise using these.

Children will then be given the opportunity to take part in 2 to 4 data collection sessions, followed by a further 2 visual mapping sessions alongside myself. Each session is intended to take no more than 20 minutes.

It is intended that the project will take place during the Autumn and Spring terms.

**What will my child have to do?**

During the data collection sessions children will be provided with a digital camera and will be supported to capture photographs of examples of the visual mode which they have noticed in their Early Years setting.

During the visual mapping sessions children will be provided with printed copies of their photographs and will be asked to place these onto a paper map of their Early Years setting. Whilst taking part in this activity I will discuss the images with the children and ask questions in order to find out more about their understanding and interaction with the images. Such questions may include where the children have seen similar images before, why they think particular colours have been used, what they think the message of the image is.

**Will my child be recorded, and how will the recorded media be used?**

Children's conversations during the visual mapping activity will be recorded using a Dictaphone in an audio format only. The photographs taken by children will be of objects, toys and displays within the Early Years setting only. Any images which depict children or adults in the setting will be destroyed.

Children's photographic images and audio files will be encrypted and stored on a CD and using the University of Sheffield's cloud storage service. At the end of the project these files will be deleted and the CDs destroyed. A record of the images and audio files will be kept in a secure repository.

The photographic images, visual maps and transcripts of audio recordings may be used for illustrative purposes in conference presentations and subsequent journal articles. No images of children themselves will be used at any point and children's identities will remain anonymous through the use of pseudonyms at all stages of the research process.

**What are the possible disadvantages and risks of taking part?**

Children will be observed for signs of tiredness, discomfort or distress during the research process and should this occur they will be returned to their class teacher and not expected to continue with the project on that day.

Children will be given opportunity to take part in both the data collection and visual mapping activities on more than one occasion and at different times of day in order to minimise the chance of them missing out on other activities which may be taking place in the Early Years environment.

**What are the possible benefits of taking part?**

Whilst there are no immediate benefits to taking part in the project it is hoped that this work will offer an insight into whether the method of visual mapping may be used as a tool for capturing the knowledge and understanding of young children.

The use of technology, such as digital cameras, and the developing awareness of signs and images for communication forms a part of their Early Years curriculum in the areas of learning of Literacy and Understanding the World. As a result taking part in the project may offer children an opportunity to practise using these skills.

**What happens if the research suddenly stops earlier than expected?**

If this is the case the reason(s) will be explained to you.

**What if something goes wrong?**

If you have a complaint regarding your child's participation in the research project you may approach me as the first point of contact using the details at the end of this information sheet. Your child will not take any further part in the research project until the complaint is resolved and consent for their continued participation is given.

Should any serious event occur during or as a result of participating in the project this would be dealt with in line with the school's Health and Safety or Safeguarding procedures.

If you are unhappy with the way in which your complaint has been handled you may contact the University of Sheffield's Registrar and Secretary.

**Will my child's taking part in this project be kept confidential?**

All information which is collected about you and your child during the course of the research project will be kept strictly confidential. You and your child will be not be identified in any reports or publications. A pseudonym will be used for each child who takes part in the research project and it is this alternate name which will be used in any subsequent conference presentations, reports or publications.

**What will happen to the results of the research project?**

The project is anticipated to be completed by December 2016. After this point you may request a copy of the research project from me.

Data collected during the course of the research project may be used for additional or subsequent research. Neither you nor your child will be identified within the project or any subsequent publication.

**Who is organising and funding the project?**

This project is being completed as partial fulfilment of the Doctor of Early Years Education degree through the University of Sheffield. This project is self-funded.

**Who has ethically reviewed the project?**

This project has been ethically approved via the School of Education's ethics review procedure.

**Contact for further information**

Miss Sophia Gowers

01536 512204                    edp12sjg@shef.ac.uk

Dr Dylan Yamada-Rice (Supervisor)

The University of Sheffield

0114 222 2000          d.yamada-rice@sheffield.ac.uk

**What happens next?**

If you wish your child to take part in the research project you will be given a copy of this information sheet and a signed consent form to keep.

An information session will be held on [date] at [time].  You are invited to attend and may ask any questions which you feel are relevant to your child's participation in the project.

Thankyou for your participation in this project.

## Appendix B: Picture mat
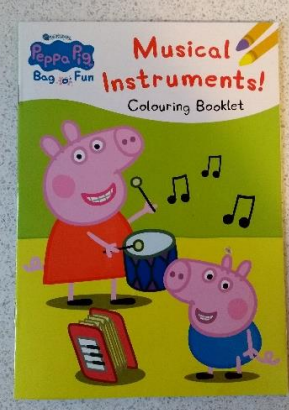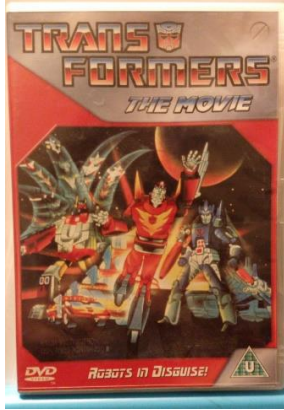
# Appendix C: Ethical approval

The University Of Sheffield.

Sophia Gowers
Registration number: 120221217
School of Education
Programme: EdD Early Childhood Education

Dear Sophia

**PROJECT TITLE:** Mapping young children's comprehension and interaction with the visual mode in the early years setting
**APPLICATION:** Reference Number 004190

On behalf of the University ethics reviewers who reviewed your project, I am pleased to inform you that on 17/07/2015 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 004190 (dated 18/06/2015).
- Participant information sheet 1009473 version 1 (18/06/2015).
- Participant consent form 1009475 version 1 (18/06/2015).

If during the course of the project you need to deviate significantly from the above-approved documentation please inform me since written approval will be required.

Yours sincerely

David Hyatt
Ethics Administrator
School of Education

# Appendix D: Parental consent form

**Title of Project:** Mapping young children's comprehension and interaction with the visual mode in the early years setting.

**Name of Researcher:** Miss Sophia Gowers

**Participant Identification Number for this Project:**

1. I confirm that I have read and understood the information sheet dated *[insert date]* for the above project and have had the opportunity to ask questions.

2. I understand that my child's participation is voluntary and that I am free to withdraw my child at any time without giving a reason. Miss Gowers can be contacted through the school office 01536 512204.

3. I understand that a pseudonym will be used for my child's name within the project in order to anonymise my child's identity.

4. I agree for my child to take part in the above research project.

_____

Name of child

_____          _____          _____

Name of parent/ carer             Date                    Signature

_____          _____          _____

Lead researcher                   Date                    Signature

*Copies:*

*Parental Copy*        *Main record*

**Appendix E: Example transcript**

Interview with Jeffrey at home 12<sup>th</sup> March 2016

SG:  Ok, so now you've placed your images on the map I'd like to ask you a couple of questions about the images and the map in general. So, can you describe to me what your map shows.

Jeffrey: My maps shows the image of the roller arena from the entrance as far as you can see in the picture, all the way up to the rink.

SG: OK

Jeffrey: So each picture followed by another

SG: So it's the order of the images you pass as you go from the entrance into the rink of the roller arena.  Ok, interesting.  So if I then look at your map… which image do you think is the most important one?  What's the most important one to you?

Jeffrey: (silence)

*Points to image of black and white body armour.*

SG: Ok, so you've pointed to… is that clothing?

Jeffrey: Yes

SG:  Tell me about that image then, why is it important to you?

Jeffrey:  That image is my body armour that I have to wear when I do hockey.

SG:  Ok, I've noticed that it's not plain, can you describe your body armour and what you can see when you look at it?

Jeffrey: When you look at it, you can see 'Bauer' written on it, and grey, white and black colouring.

SG:  Why do you think those colours have been chosen for your body armour?

Jeffrey:  Because, I don't think they wanted it to be like a bright orange.

SG:  Ok.  Who do you think made that choice?  Who do you think chose the colours?

Jeffrey: The people who made the body armour.

SG:  OK and do you think they picked those colours for a reason?

Jeffrey: Because someone else might like it.

SG: OK, so they thought about what you might like to wear.  Is it similar colours to the clothes you wear normally?

Jeffrey: Sort of.

SG:  Sort of?  What's different compared to your usual clothes?

Jeffrey:  I don't wear a brand called 'Bauer'

SG:  Ok so that might be a hockey specific brand.  What other brands are you aware of?

Jeffrey:  Not in hockey?  Urm… Reebok, Everlast

SG:  Ok, how do you know what brand an item of clothing is?  How do you know that there's different brands?

Jeffrey:  Cos it usually tells you on the clothing.

: 188

SG:  OK.  Why do you think it tells you on the clothing?

Jeffrey:  So you know where you get it from, so you can buy more stuff if you need it.

SG:  Ok, do you think other people look at the names on your clothing.

Jeffrey:  Possibly, if they like it.

SG:  OK, so they might want to know where to get the same clothes from?

*Jeffrey nods*

SG:  That's interesting.  OK, so I've noticed down this end there's lots of different images.  Tell me about this here, what is in this image?  *Points to notice board.*

Jeffrey:  It's a pin board, it tells you stuff about the hockey and stuff that's going on.

SG:  Who might have put the information there?  Who might have put the images there?

Jeffrey:  The owners.

SG:  Just the owners of the hockey arena?  Or the owners of the images and the paper?

Jeffrey:  Just the owners of the arena.

SG:  OK, and who is the information for?

Jeffrey:  Anyone who comes down there and looks at it.

SG:  OK.  Can you name some of the people who might look at it?

Jeffrey:  Urm, me… some of my friends who go down to the roller arena.

SG:  So the children?

Jeffrey:  Yeah, and the parents who take their kids down and others who want to do hockey.

SG:  OK, interesting.  Do you know what any of the posters say?  Can you describe one of the posters?

Jeffrey:  There is a price list, so it tells you the price for the public skate, the roller disco, the skate and eat and skate hire.

SG:  Why do you think it lists different prices?

Jeffrey:  Because you can get more stuff for different prices, so you can skate and eat for 7 pounds or you can just skate for 4 pounds.

SG:  Do you think people going there would know that before they went?

Jeffrey:  No.

SG:  Ahh, OK.  Interesting.

*Points to photo of numbered blue lockers, each has a yellow circle on with a number in black.*

SG:  There's a lot of blue in this image.  Why do you think this image is so blue?

Jeffrey:  Because they're there for all the different lockers.

SG:  Ok so are there any other blue things in that corridor?

Jeffrey:  Urm.. that. *Points to graffiti art.*

SG:  Ok so there's some painting further up.  Ok, I'm noticing lots of yellow dots on each of the lockers.  What do the yellow dots do?

Jeffrey: It helps stand out the black which is numbers.

SG: Right, so it's easier to see?

Jeffrey: Yeah

SG: Who might it make it easier for?

Jeffrey: Little kids who can't really see up there.  To make it stand out kinda.

SG: So it's harder to see things which are higher up?

Jeffrey:  Yeah

SG:  Ahh, so do you think then that these lockers are used by different people?

Jeffrey:  Yeah

SG:  Different aged people maybe?

Jeffrey:  Yeah. *Nodding*

SG:  Tell me, what ages go to your leisure centre?

Jeffrey:  There is under 8s, under 10s, under 12s, under 14s and under 19s I think.  (Referring to hockey club age groups)

SG:  Ok, so do you think then that the notice board and the lockers need to be suitable for all of the people that go there?

Jeffrey:  Yeah

SG:  Ok so everyone uses the same things do they at the hockey arena?

Jeffrey:  Yeah

SG:  Ahh.  This image is interesting because you haven't cut this one out at all, can you tell me about this image?

*Points to the image of the bottom of the corridor which shows part of the wall with a sign on and the opening though which you can see the hockey rink.*

Jeffrey:  Well because you need to go down there.  There's the rink through there, and the wall there.  So it's showing you what's past that wall.

SG:  Aha, so that's why you've included the whole image?  Ok so can you see any images within your photograph?

Jeffrey:  Yeah.  *Points to yellow triangular warning sign.*

SG: What's that?

Jeffrey: A caution sign.

SG: Why … in fact, how do you know that's a caution sign?

Jeffrey: Because it's a triangle and it's an exclamation mark and it says 'caution' there.

SG:  Why do you think they've chosen the triangle shape?

Jeffrey:  I'm not sure.

SG:  Not sure, OK.  Well they've only chosen to use two colours, haven't they.  They've chosen yellow and black.  Do you know anything about the colours yellow and black and why they might be used?

Jeffrey:  Same reason as the locker ones, perhaps?

SG: So you said then, it was easy to see…. OK.

Jeffrey:  Yeah

SG: Why is it important that the caution sign is easy to see at the bottom of that corridor?

Jeffrey: Because they could hurt themselves or something.

SG:  How might you hurt yourself?

Jeffrey: You might slip on the ramp.

SG: Ahh, because there's a ramp coming down toward the caution sign.  So the caution sign's there.  Yeah when I was there, there were people whizzing down that ramp.  OK.

*Points to the photographs of the door with a red warning sign.*

SG:  There's a door here.  Do you go through this door?

Jeffrey:  No.

SG:  Why don't you go through the door?

Jeffrey:  Because, only Ren's allowed there.

SG:  Only who?  Is he another child?

Jeffrey:  Ren.  He is an adult who helps teach.

SG:  OK.  Does the sign say 'Ren'?

Jeffrey: No, it says no.  So no unauthorised people.

SG:  Ahh so it's no unauthorised people?

Jeffrey:  Yeah cos it's his office

SG:  I see, OK.  It's a different image to your caution sign.  Can you describe how the two are different?

Jeffrey: One's red and white, one's yellow and black.

SG:  Why do you think they're different colours then?

Jeffrey:  Because one's to tell you something that might happen to you, and one's saying that you're not allowed to do that.

SG:  Which part of the image says no, or you're not allowed?

Jeffrey: The picture because it's a person and a line through it, so you can't do it.

SG:  So the line through it is the bit that's saying no?

Jeffrey:  Yeah

SG: Ok so if, then, if there was a picture of a locker with a line through it, would that mean that you can't go in the lockers?

Jeffrey:  It depends.

SG:  OK.  Mind you I don't see any signs like that in your photos, to be fair.

*Look at the two images of graffiti art in the corridor*

SG: Ah, so these are interesting.  So there's a picture of a man, a hockey player I think and another picture here.  Tell me about these two images.

Jeffrey:  Well this, this is like a design to make it look nicer rather than just walking down a bare wall.

SG: Ok who do you think put the picture there?  Who do you think painted it on the wall?

Jeffrey: I think the people who helped build it when it first came.

SG: Ok, who are the pictures for?

Jeffrey: Everyone just to look at when you go down the hallway.

SG: Ok.  How do you think they chose what to paint on the wall?

Jeffrey:  I think they chose bright colours to make it look lively and nice.

SG: Lively?  Ahh, do you think hockey is a lively place to be then?

Jeffrey:  Yeah

SG: Interesting point, ok.  Who do you think they wanted to make it nice for?

Jeffrey:  Everyone.

SG:  Everyone.  So, children and adults?

Jeffrey:  Yeah

SG: Ok, very good.  Have you seen these kind of paintings anywhere else?

Jeffrey:  Yes

SG:  Where might you have seen these before?

Jeffrey: There is on the front entrance, and there is over there.  *Points to the other photographs of graffiti art in the corridor.*

SG:  Ok.  Have you ever seen them in a different location?  So maybe in a different building or in a different part of town?

Jeffrey:  *pauses and thinks* No.

SG:  OK, fair enough.  Thinking about going back to where you might have seen things before… where might you have seen caution signs and 'no' signs before?

Jeffrey: Near building sites

SG:  Ahhh, ok.  So more, sort of dangerous places do you think?

Jeffrey:  Yeah.

SG:  Ok right.  So this end here, the picture of the moose, that's the…

Jeffrey:  Near the front

SG:  So the entrance?

Jeffrey:  Where you go through the automatic doors

SG:  OK and you've chosen to put them together, they're very close together.  Is there a reason?

Jeffrey:  Because there's only a tiny gap, you can see the black from that bit there

*Points to the edge of one photo in relation to the same image in a different photo*

SG: Ahh so they're overlapping slightly.  So they're very close by in the entrance so you've put your photographs very close by

Jeffrey:  Yeah because they're all like that

SG: Lovely.  Tell me what you can see in this image here?  *Points to another caution sign in the entrance photos.*

Jeffrey:  I can see another yellow and black sign

SG: OK

Jeffrey:  I can see a trophy cabinet, I can see part of a door and a skate return sign.

SG: Ok, why do you think the skate return sign is so big?

Jeffrey: So people know where it is, because on the other side there's skate hiring.

SG: Who might need to know where to take the skates back to

Jeffrey: Let's say you're doing roller hockey, and you borrowed them and didn't have your own they're just allowed to go in there because they all know the code.  Let's say you're doing the roller disco you have to go over there and hand them back to them

SG: Ahaa, so it's not for the people who work there, the signs, it's for the people visiting?

Jeffrey:  Yeah

SG: Who don't normally go there?

Jeffrey:  Yeah

SG: I understand.  So you've taken some photos here of, we said, leaflets?

Jeffrey:  Yeah

SG: What are the leaflets for?

Jeffrey:  Urm people passing by, let's say a child wanted to do roller hockey, they could pick up the leaflet, read about it and make a decision.

SG: OK.  Who do you think put the leaflets there?

Jeffrey: The owner, Michelle.

SG: OK.  Who do you think made the leaflets?

Jeffrey: A company, probably got it shipped to them.

SG: OK.  I notice that they've used bright colours here as well, why do you think they've used bright colours on the leaflets?

Jeffrey: To make you look at it.  If it was just all… black, you it wouldn't be very interesting to look at.

SG: OK, very good.  And the last picture we haven't talked about is this one, although it's a bit blurry.  *Points to café menu board.*  It's not come out very well, can you remember what this said though?

Jeffrey:  Yeah

SG: What's this about?

Jeffrey:  It says the name of the café, the Moose Shack, and the list of the foods you have.  Things with chips, burgers…

SG:  Have you seen signs like this in other places?

Jeffrey:  Yeah

SG:  Where might you see signs like this?

Jeffrey:  There's the ice cream parlour, there's McDonalds, there's KFC

SG:  And this is outside the café isn't it?  Why do you think they put this outside the café?

Jeffrey:  Let's say they just want to have a look but don't want to go in and just walk out, so they can be polite they can just look at the menu outside first.  If they want anything there they can then walk in and just order

SG:  So they can look before deciding.  So it's similar in a way to the leaflets that tell you information before you decide to do something.

EMERGING THEMES:

Mapping as ordering images you may see as you travel through environment

awareness of decision making in design → what they audience might like it to look like/ aesthetics

Link favourite images to favourite activities

Images linked to purpose which is contextual (ie notice board placed to tell you more

Reference to different ages of audience having different needs- little kids, adults etc.

Reference to colour for purpose- visibility/ warning sign

Awareness of key words and phrases in relation to branding

Message creator identified

Relating to images to previous experiences, having seen similar images before