

**Dead Forever: Young Children Building Theories in a Play-  
Based Classroom**

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**Submitted in partial fulfilment of the Doctor of Education Degree**

**The University of Sheffield**

**School of Education**

**March 2015**

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## Abstract

This thesis presents a multiple case-study which seeks to explore how young children build and use working theories. Beginning with an examination of the concept of theory-building in the educational contexts of Reggio Emilia and New Zealand, the study considers the relevance and potential of the concept of working theories to wider school contexts. Underpinned by sociocultural theories and a post-modern image of the child, the research is a small-scale, focused and in-depth study, which makes use of video recordings and participant observation of children's play and classroom conversations to gather evidence of children's theories. Making use of abduction, the analysis takes a latent thematic approach examining the underlying ideas whilst capturing the rich detail of the theories. The thesis suggests that as young children participate in the life of their peer culture they build working theories related to human nature, to the social world and to the physical and natural world. It is proposed that these working theories are a way for children to explore and develop their ethical, social and gender identities. Working theories may act as a bridge between cultural understandings of morals, ethics and gender roles and children's own understandings of who they are and their place in the world. In considering the role of working theories in pedagogical practice it is suggested that, in being sensitive and responsive to children's working theories, practitioners may be able to engage more deeply with children about fundamental life issues that are of concern or interest to them.

## Acknowledgements

I must take this opportunity to firstly acknowledge the children who participated in this study. They have been a joy and a privilege to work with and I thank them for sharing their theories. I would also like to thank the Director and Principal of the school in which the study took place for their support.

I would like to thank all those involved with the EdD programme at Sheffield University, particularly to Dr. Rachael Levy who guided me through Part 1 and to Professor Elizabeth Wood for her words of encouragement and insightful feedback as she supervised my journey through Part 2.

Finally, I would like to thank my husband, Frank and my daughter, Helen for their unending support over five years of study.

# Introduction to the Research

## The Focus

My first encounter with the concept of 'young children as theory-builders' came in 2008 during a professional development visit to Reggio Emilia in Italy, a city famed for the quality of its pre-schools and infant/toddler centres. In my notes from one of the presentations during the visit I wrote:

To understand we need to express a theory. We theorise in our daily life. We make connections between different elements. We try to construct meaning. This is what children try to do every day, every moment. They try to find the meaning of reality.

The concept intrigued me - this idea of young children building, using and revising their own theories in order to make sense of the world around them.

In considering the concept of theory-building as it is interpreted in Reggio Emilia, Rinaldi (2006, p64) offers some initial insights:

For adults and children alike, understanding means being able to develop an interpretive 'theory', a narration that gives meaning to the events and objects of the world. Our theories are provisional, offering a satisfactory explanation that can be continuously reworked; but they represent something more than simply an idea or a group of ideas. They must please us and convince us, be useful, and satisfy our intellectual, affective and aesthetic needs (the aesthetics of knowledge). In representing the world, our theories represent us.

Many early childhood settings have taken inspiration from the pre-schools of Reggio Emilia and use pedagogical practices developed from the approach, such as the use of documentation as a way of making learning visible and the use of natural materials in the classroom environment and yet there is little reference to the concept of theory-building in literature outside of work from Reggio Emilia itself.



However, in New Zealand the concept of children's 'working theories' is an important feature of the early childhood curriculum, Te Whāriki (1996). Intriguingly, although working theories are included as one of two outcomes for the curriculum, the concept appears to have received little attention from researchers (Hedges and Jones, 2012). Consequently, two studies of early childhood settings in New Zealand suggest that the concept is not well understood by practitioners. Hedges' (2011, p282) study of two early childhood settings in New Zealand found that the vast majority of teachers "lacked confidence in articulating understanding of working theories," whilst Peters and Davis (2011) propose that a more reflective and intentional response from educators to children's working theories would support children's curiosity and extend their thinking.

## Research Questions

The visit to Reggio Emilia and my subsequent reading left me with many unanswered questions about both the concept and its relevance to my own teaching. Initially these questions related to my own response as a teacher to children's theories: How can I recognise them? How should I respond to them? How can I help children develop their theories? Does it actually help to know about these theories? But as I began to read more about the concept as it is understood in Reggio Emilia and New Zealand my questions became more fundamental and concerned with the nature of theories themselves:

- What do young children theorise about?

- How do young children express their theories?
- How do they build these theories?

These questions are the focus for this study. The study represents my personal aim to explore children's theories within my own professional context with the additional aim of considering how knowing more about young children's theories impacts the practice of teaching and the process of learning in an early childhood setting. The main research question for the study is:

- How do young children build and use working theories in a play-based context?

## Structure

This thesis is divided into three main parts: Part One aims to set the context for the study; Part Two aims to describe and justify the research design including the methods for collecting and analysing data; and Part Three aims to present and discuss the data.

Part One is made up of this introduction and two additional chapters. The first chapter reviews the literature and sets out the theoretical framework for the thesis. The philosophies and theories contained within the distinctive practices of both Reggio Emilia and Te Whāriki and the nature of children's theories in both contexts are examined and considered critically. The chapter also explores Vygotsky's ideas

about the nature of learning and the role of play in early childhood, alongside an examination of a “play-based environment” as a context for this study. The chapter also considers the importance of ‘children’s interests’ and ‘funds of knowledge’ to children’s working theories.

Chapter Two is an introduction to myself as a researcher, to the school and classroom setting for the study. It presents a description of the curriculum used in the setting, the International Baccalaureate Primary Years Programme, as well as outlining the policy and vision for Early Childhood Education in the school.

Part Two of the thesis begins with a chapter concerning the research methodology - a rationale for the overall research design. Within this chapter is a description of the particular ethical considerations for the study, which is considered high-risk due to the participation of young children. Part Two also contains a chapter related to the methods for data gathering, with a particular focus on the use of video with young children; and finally a chapter detailing the methods used for analysing the data.

Part Three presents the data and a discussion of their significance for teaching and learning in early childhood settings, followed by the conclusions I have drawn from the study. Transcripts of the video data and data from field notes are attached as appendices.

# Chapter 1: A Review of the Literature

## Introduction

This thesis explores the concept of young children as theory builders, informed by contemporary theories about children's learning and how these are aligned with contrasting pedagogical approaches. The focus reflects current concerns with children's interests, working theories and funds of knowledge as theoretical explanations for how young children learn, with associated implications for pedagogy, curriculum and assessment practices in early childhood education.

An exploration of the research related to the topic of 'young children as theory builders' reveals three main sources of literature: that related to the pedagogical practices of the pre-schools and infant/toddler centres in Reggio Emilia (Rinaldi, 2012); that related to Te Whāriki, the curriculum for Early Childhood Education in New Zealand (New Zealand Ministry of Education, 1996); and literature from the field of cognitive psychology. The first two contexts will be a major focus for this chapter, coming from the field of social sciences and concerning education and pedagogy in early childhood within particular approaches to policy and practice. The third area from the field of cognitive psychology, although concerned with the ways young children learn, comes from a different research paradigm and theoretical framework. These three areas provide a comparative context for research on young children as theory builders, and will be considered within this chapter.

There is a considerable body of literature from within the context of Reggio Emilia itself concerned with the philosophies and theories underpinning practice in the pre-

schools and infant/toddler centres (Rinaldi, 2012; Gandini, 2008; Malaguzzi, 1998; Vecchi, 1998). There are also numerous accounts coming from outside the context of Reggio Emilia describing the pedagogical practices associated with the Reggio Emilia approach, such as the use of pedagogical documentation, the use of project-work or *progettazione*, the role of the environment and the importance of relationships and dialogue (Stremmel, 2012; Abbott and Nutbrown, 2008; Dahlberg, Moss and Pence, 2007; New, 2007). In New Zealand, the development and adoption of Te Whāriki, including accounts of the philosophical and theoretical constructs that provide its framework, is well documented (Ritchie and Buzzelli, 2012; May and Carr, 1997; Carr and May, 1993). The literature concerned with the subsequent implementation of Te Whāriki appears to have a particular focus on learning dispositions and the use of 'learning stories' as an assessment practice (Jordan, 2010; Claxton and Carr, 2004; Carr and Claxton, 2002; Carr, 2001). It is important to note a critical distinction between how the concept of young children as theory builders is used in Reggio Emilia and Te Whāriki. In Reggio Emilia the concept centres around the child's attempts to make sense of their world, In contrast, Te Whāriki (New Zealand Ministry of Education, 1996) presents the concept of children developing 'working theories' as an outcome of the curriculum but also related to children's home and community cultures and knowledges. This difference in approach to young children as theory-builders will be considered further within this chapter. Outside of these two pedagogical contexts however, there appears to be little work having a specific focus on the concept of young children as theory-builders, and the role of play in these processes. Therefore, this thesis aims to make a distinctive contribution to

knowledge by exploring these ideas through contemporary theoretical frameworks and empirical research.

In order to develop a deeper understanding of the concept within either Reggio Emilia or New Zealand it is important to be familiar with the philosophies, theories and pedagogical practices associated with these two contexts. When referring to the pre-schools of Reggio Emilia, Moss (2008, p132) asserts: "It does not take much acquaintance with Reggio to understand that their experience has been produced from within a very particular political, economic and social context and draws on a very particular historical experience." This also appears to be the case in New Zealand, as Ritchie and Buzzelli (2012, p146) note: "the uniqueness of Te Whāriki comes from both the unique national context and, in particular, from the respect for indigeneity evident in its conceptualisation and eventual format." An overview of the historical and political developments that have influenced the development of the system of pre-schools in Reggio Emilia and the adoption of Te Whāriki in New Zealand forms an important part of this review.

The educational philosophy behind both Reggio Emilia and Te Whāriki is theoretically underpinned by social constructivism, particularly by the work of Vygotsky (1978) and his sociocultural view of teaching and learning. This review will also reflect on Vygotsky's theories of teaching and learning, as well as post-Vygotskian interpretations of sociocultural theory. It aims to consider how these theories have influenced pedagogical practice in Reggio Emilia and New Zealand, and how they may inform the concept of 'the young child as a theory-builder', particularly their

relevance for the main research question for this study: how do young children build and use working theories?

It is important for this study to present clear definitions of the key terms found in the literature and the contexts in which they are used are provided, and this is a further aim of this chapter. Rinaldi (2012, p239) acknowledges that the use of the word 'theory' in Reggio Emilia is itself controversial, even problematic, when used in the context of children constructing theory; whilst the concept of working theories in Te Whāriki has been overshadowed by the focus of researchers and practitioners on learning dispositions (Nyland and Acker, 2012; Karlsdóttir and Garðarsdóttir, 2010; Claxton and Carr, 2004; Carr and Claxton, 2002) such that working theories have been referred to as the "neglected sibling" of Te Whāriki. (Hedges and Jones, 2012, p34). This review aims to clarify the terms 'theory-building' and 'working theory' that inform the methodology for this study.

Much of the literature related to Reggio Emilia and Te Whāriki, and also concerned with children building theories, highlights the importance of children's interests and current knowledge. This review will also therefore examine the literature related to children's interests and the concept of 'funds of knowledge' and consider how these ideas relate to the three research questions for the study: what do young children theorise about; how do young children express their theories; how do they build these theories. The study was carried out in a 'play-based' context, with data coming from a variety of classroom interactions: freely-chosen play; child-initiated, adult-supported activities; everyday classroom conversations. There has been some recent

work (Hedges, Cullen and Jordan, 2011) that focuses on the knowledges that children bring to their play, and how these knowledges can be used to support and extend children's conceptual understandings. This brings into focus the role of the adult in early childhood settings and the on-going tensions in the literature surrounding the purposes of play within an educational setting and the role of the adult in play. These tensions centre on whether play can or should be planned or used for instrumental purposes; and whether adults can be or should be involved in play (Colliver, 2012; Rogers, 2010). In order to situate the research within this body of literature, a consideration of these different perspectives will be an important part of this review.

In summary, the aims of this chapter are to:

- Present a description of the history and philosophy of the pre-schools of Reggio Emilia in order to analyse how the concept of young children as theory builders is underpinned philosophically, and how this concept informs pedagogical practice.
- Outline the historical and political influences that lead to the development of Te Whāriki and consider specifically its references to young children developing 'working theories' and the literature surrounding this concept
- Present the literature from the field of cognitive psychology related to young children building theories, including an analysis of the paradigms behind this work
- Define the key vocabulary related to the concept of 'young children as theory builders'



- Consider the current literature on the relationship between the work of Vygotsky, the concept of 'theory-building', and the main research questions
- Situate the study within the body of literature related to the education of young children in early childhood settings, with particular reference to play-based contexts
- Examine the concepts of 'children's interests' and 'funds of knowledge' and consider the relevance of these ideas to the research questions for the study.

## **Theory-Building in Reggio Emilia**

In defining the concept of theory building, Rinaldi (2012, p239) proposes that:

If we accept the idea that our search, as human beings, to find the meaning of the world around us is essential to life, then we can accept that we can build the answers to our questions. We tend to build theory as a satisfactory explanation that can help us to understand the whys that are inside of us.

Rinaldi's perspective is a reflection of the context from which she comes and in which she works, the city of Reggio Emilia.

## **History and influences**

Reggio Emilia is a city of 150,000 inhabitants in one of the wealthiest parts of Italy and has a "strong and democratic local government" (Rinaldi and Moss, 2004). The first municipal pre-school in Reggio Emilia opened in 1963 and there is now a network of over 30 pre-schools and infant-toddler centres across the city. What is commonly referred to as 'the Reggio Approach' to early childhood education has

been heavily influenced by the city's socialist history and its people (New, 2007; Rinaldi & Moss, 2004; Soler & Miller, 2003; Gandini, 1993). Rinaldi (2006), herself a former pedagogical director of the early childhood centres, provides further insights. She tells how, following the Second World War, working parents from the city sought to build and establish schools for their children. She describes how the women in the Union of Italian Women were becoming more aware of their own rights and the rights of children and in the 1960's they joined forces with the municipality of Reggio, with its Communist Party majority, and opened the first municipal school. At this moment in time the citizens of Reggio Emilia actively supported the establishment of early childhood services in the city, thus breaking the historical association between schools and the Catholic Church. This spirit both inspired and was itself influenced by Loris Malaguzzi who believed that existing Italian early childhood programmes failed to acknowledge and develop children's competencies (New, 2007). According to Rinaldi (2006, p180), Church schools were based on the idea of a school supporting families and children, an idea founded on the image of the child 'in need'; the municipal schools were founded on Malaguzzi's image of the child with rights. This image of the child lies at the very heart of the Reggio Emilia approach.

### **The image of the child**

Malaguzzi, who became the first pedagogical director of the municipal early childhood centres in Reggio Emilia, asserts that:

Each one of you has inside yourself an image of the child that directs you as you begin to relate to a child. This theory within you pushes you to behave in certain ways; it orients you as you talk to the child, listen to the child, observe the child. (1994, p52)

Dahlberg, Moss and Pence (2007, p52) agree with this assertion and maintain that “constructions of childhood are *productive* of practice; in other words pedagogical work is the product of who we think the child is,” (p52). They take this argument further and suggest that the way in which the young child is conceptualised not only influences how individuals relate to children but also influences public debate, policy and practice in early childhood education. They present constructions of the young child that they believe have been influential in the policy and practice of early childhood education, identifying:

- “The Child as Knowledge, Identity and Culture Reproducer” (p44), ready to receive the appropriate knowledge and cultural identity, and prepared for formal schooling where teaching and learning take place through a transmission model.
- “The Child as an Innocent” (p45), born virtuous and truthful but corrupted by society. This child needs shelter and protection but is neither respected nor taken seriously.
- “The Scientific Child of Biological Stages” (p44) for whom development is innate and determined biologically. This child reflects the influence of Piaget's theory of stages of development and is defined by levels of maturity. It is the normalised child.

Dahlberg, Moss and Pence (2007, p48) contend that these constructions come from a modernist discourse:

sharing modernity's belief in the autonomous, stable, centred subject, whose inherent and preordained human nature is revealed through processes of development and maturity and who can be described in terms of scientific concepts and classification.

They consider that this modernist construction of childhood informs what they see as the increasing dominance of a search for a “unifying and stultifying ‘best practice’ in the field of early childhood education; a practice that can be evaluated and assessed for its quality.”(pviii). This discourse is apparent in educational effectiveness studies such as EPPE (Effective Provision of Pre-School Education, Sylva et al, 2004) which concludes that: “information from observations on the quality of a setting, using standardised rating scales, showed a significant link between higher quality and better intellectual and social/behavioural outcomes at entry to school.” (piii). These modernist images of the child stand in contrast to the construction of the child identified by Dahlberg, Moss and Pence (2007, p48) as “The Child as Co-constructor of Knowledge, Identity and Culture” and representative of a paradigm of childhood from a post-modernist perspective. In this paradigm childhood is seen as being socially determined and deeply contextualised where children participate in, contribute to, and determine their own lives, the lives of those around them and their society; children have rights and a voice. Learning takes place in a social context and is an activity in which "children construct knowledge, make meaning of the world, together with adults and equally important, other children." (p50). Gandini (1993, p5) presents the image of the child in Reggio Emilia as one in which "all children have preparedness, potential, curiosity, and interest in constructing their learning, in engaging in social interaction, and in negotiating with everything the environment brings to them" and Rinladi (2006, p113) asserts that in Reggio Emilia the child is defined as competent. This image of the child actively engaged in a social

process of meaning-making is a key part of the concept of theory building in Reggio Emilia.

It is important to note that this post-modern 'image of the child' is problematic in itself. Olsson (2009, p13) points out "there has been recognition of the fact that 'the competent child' might be a predetermined map, as strongly regulating as the image of the child earlier defined through the workings of developmental psychology." She acknowledges that it is a continuous struggle to avoid defining the child and she argues for a focus on the child as "perpetually becoming and not being defined once and for all."(p14).

### **The 'Reggio Approach'**

In order to understand how the concept of young children as theory builders fits into a pedagogical context it is useful to consider how the ontological and epistemological assumptions held by the educators in Reggio Emilia are productive of practice. New (2007, p7) identifies five features she considers to be central to the success of Reggio Emilia and have "challenged contemporary interpretations of early childhood education": the concept of teachers as learners; a pedagogy of collaborative inquiry; the use of symbolic forms of knowledge representation; the physical environment; and the involvement of parents and citizens as partners. Malaguzzi's 'image of the child', along with its associated ontological and epistemological assumptions, lies at the heart of each one and shapes the interpretation of each one.

#### **i. Teachers as learners and researchers**

According to New (2007) the concept of the school being a learning environment for both adults and children came about due to the absence of any formal training for early childhood educators in Italy. Within this model "teachers observe, record, share, analyse and debate their emerging understandings of children's ways of thinking and learning and then share these understandings with others." (p7). This process becomes an integral and on-going part of a teacher's professional development and one of the teacher's roles is "to learn and relearn together with the children" (Malaguzzi, 1998, p86). Rinaldi (2012, p238) refers to the processes of observation, documentation and interpretation as being inseparable, "woven together" and resulting in "knowledge that is bounteous, co-constructed and enriched by the contributions of many".

## **ii. A pedagogy of collaborative inquiry**

Malaguzzi (1998, p87) considers a curriculum pre-planned by teachers to be a behaviourist trait; to be teaching without learning, with all children following the teacher's plans and learning viewed as an appropriate response. He asserts that in the pre-schools of Reggio Emilia, "teachers follow the children, not plans". However Forman and Fyfe (2012, p248) temper this assertion slightly and argue that the curriculum in Reggio Emilia is neither child-centered nor teacher-directed and should be considered to be "child-originated and teacher-framed" or "teacher-provoked and child-engaged." They suggest that the curriculum is the result of the practice of negotiated learning and contend that "in negotiated learning the teachers seek to uncover the children's beliefs, assumptions, or theories" and "goes beyond simply identifying children's interests." New (2007, p7) describes how, in Reggio Emilia,

teachers take children's questions and ideas and problems and "create conditions in which children can explore and test those ideas, and frame new hypotheses", resulting in long-term, open-ended projects or *progettazione*. During these projects, teachers observe, record and analyse children's conversations, examples of their work, and images of their activities in the process of pedagogical documentation. There is an integration of curriculum content and pedagogical inquiry. In an interview (Gandini, 2012) Mallaguzzi describes the essential elements of a project. Firstly he considers that it must provoke an initial motivation in the children and this leads to ideas and information being shared. The teacher's role is to "set up situations and make choices that facilitate the work of the children."(p65).

### **iii. The use of symbolic forms of knowledge representation**

Each pre-school has an *atelier* or art studio which, according to Vecchi (1998, p141) serves two functions: firstly it is a place for children to learn techniques of all kinds and secondly "it assists the adults in understanding processes of how children learn" *Atelieriste* (artists) work alongside teachers to promote children's developing abilities to communicate their understandings through what are typically regarded as art activities: clay, constructions, drawings and paintings. According to Gandini (2008, p5) "the children's use of many media is not a separate part of the curriculum but an inseparable, integral part of the whole cognitive/symbolic expression involved in the process of learning". It was Malaguzzi who referred to these symbolic representations as among the "hundred languages of children" (New, 2007, p8) and he calls the atelier a "place for research", a place for children to explore their

"different languages" and for these languages to be studied by teachers (Malaguzzi, 1998, p74).

The concept of the 'hundred languages' has been romanticised, without due attention to understanding the implications for how children learn. Drawing on Vygotskian theories, it can be argued that symbolic representations are central to the ways in which children express their working theories, and communicate their meanings and intentions. Thus the media used to express the 'hundred languages' are themselves meditational tools and means.

#### **iv. The physical environment**

According to Stremmel (2012, p135), in reference to Reggio Emilia, it is Vygotsky who has "inspired educators to create environments that promote interactions, dialogue, reflection, collaborative inquiry, and negotiated learning" (p135), and the environment in Reggio Emilia is often referred to as a "third teacher" (Stremmel, 2012; New, 2007). There is an emphasis on aesthetics, so that children learn to notice colour, texture and design and objects are presented and displayed in ways that highlight particular features. The environment is also designed to promote the development of relationships between children, between children and teachers and between the school and the parents. New (2007, p8) asserts that "anyone entering these environments for young children will recognise that something of importance and value is going on." Nutbrown and Abbott (2008, p2) describe the distinctive physical features of the pre-schools: the central *piazza*, the abundance of mirrors, the atelier, the natural light, the white walls with the children's work bringing in the colour and the documentation panels tracing the processes of learning, whilst



Stremmel (2012, p136) notes that the classroom environment “supports the educational and cultural values of the school and community.”

**v. The involvement of parents and citizens as partners**

New (2007, p8) describes how "the philosophy of school as a system of relations" grew from the Italian culture of shared governance and of collaboration amongst small businesses and communities. The community-based participation in the schools means parents are involved in discussion and collective decision-making and this goes back to the origins of the pre-school, so that "the school is not isolated from society but an integral part of it" (Rinaldi 1998, p122). Instead of being seen in isolation, the child is seen in relation to their family, to other children, to the environment and to society. Parents are seen as partners in the organisation of the school and the activities within, “contributing actively to the pedagogical experience of their children” (Stremmel, 2012, p139).

Rinaldi (2006, p112) proposes that theories are generated by the child’s question ‘why’, and that “from a very young age, children seek to produce interpretive theories, to give answers.” She argues that children’s theories are often not listened to, being interpreted as misunderstandings or termed “naïve theories” and she relates this lack of respect to issues of social justice and recognition of rights, so that children are seen as being inferior, as imperfect and their contributions are insignificant. She asserts that in Reggio Emilia “we take the term ‘theory’, which usually has such serious connotations, and instead make it an everyday right.” (p113). But a theory is not simply an idea, “it must be pleasing and convincing, useful and

capable of satisfying our intellectual, affective, and also aesthetic needs” (ibid.) and a theory must be listened to by others, making it possible “to transform a world that is intrinsically personal into something shared” (ibid.). Thus, in the context of Reggio Emilia, the concept of young children as theory-builders is productive of practice – the product of an image of the child informed by social constructivist theories and a commitment to a pedagogy of listening and education for social justice.

New (2007, p5) acknowledges the rapid rise to “celebrity status” of Reggio Emilia and recognises that for some this is representative of an “increasingly globalised hegemony” with regard to the care and education of young children, indeed each year thousands of educators attend conferences in the city’s purpose built centre in order to learn about the pre-schools and the ‘Reggio Approach’ to teaching and learning. There are 'Reggio networks' in many countries across the globe, including Australia, the US, Sweden, Germany and Korea and the inclusion of one of the schools in a *Newsweek* article ("The 10 Best Schools in the World", 1991) has added to its status. Moss (2006, p36) considers Reggio Emilia to be, "a prime example of what has been termed 'glocalisation', a local experience with a global appeal and global connections". However Rinaldi (2006,p200) warns against the search for a ‘formula’ for creating a ‘Reggio School’. She considers how those attempting to understand 'the Reggio Emilia approach' may endeavour to classify it, to make it fit with something they already understand and to turn it into a programme to be followed step-by-step. She sees these efforts as an attempt to push those in Reggio Emilia towards normalisation and conformity, however Moss (2008, p131) points out that Reggio Emilia "cannot be copied because values can only be lived".

I now turn to the New Zealand context in order to examine how the concept of young children as theory builders has been developed within a national framework for early childhood education.

## **‘Working Theories’ and Te Whāriki**

In contrast to the context of Reggio Emilia, Te Whāriki presents the concept of children developing “working theories” as an outcome of the curriculum experiences that are presented in diverse pre-school programmes:

Children develop working theories through observing, listening, doing, participating, discussing, and representing within the topics and activities provided in the programme. As children gain greater experience, knowledge, and skills, the theories they develop become more widely applicable and have more connecting links between them. Working theories become increasingly useful for making sense of the world, for giving the child control over what happens, for problem solving, and for further learning. Many of these theories retain a magical and creative quality, and for many communities, theories about the world are infused with a spiritual dimension. (New Zealand Ministry of Education, 1996, p44).

The opening page of *Te Whāriki*, the early childhood curriculum for New Zealand, makes clear its philosophical underpinning by constructivism and socio-cultural theory, particularly the work of Piaget, Vygotsky and Bruner (Carr and May, 1993).

This curriculum emphasises the critical role of socially and culturally mediated learning and of reciprocal and responsive relationships for children with people, places and things. Children learn through collaboration with adults and peers, through guided participation and observation of others, as well as through individual exploration and reflection. (New Zealand Ministry of Education, 1996, p9).

However, Carr and May (*ibid.*, p8), in a reflection of their involvement in the development of Te Whāriki, are clear that developing a curriculum on a national level

not only involves having up-to-date knowledge about child development, learning, education and early childhood practice, but also takes into account the nature and history of early childhood in the country. Drawing on this assertion it is important for this review to present something of the history and philosophy that lie behind Te Whāriki in order to facilitate a greater understanding of the concept of ‘working theories’.

## **History and influences**

Te Whāriki is a unique and distinct curriculum and reflects “the relationship between the indigenous people of New Zealand, the Māori, and those who came to share their country.” (Ritchie and Buzzelli, 2012, p146). The history of the development of Te Whāriki is well documented (Soler and Miller, 2003; May and Carr, 1997; Carr and May, 1993) but has at its heart the commitment enshrined in the 1840 Treaty of Waitangi to the Māori people that their self determination would be assured. It was this commitment that lead to a collaborative writing process, hearing the perspectives of early childhood educators working in different groups (including kindergartens, Māori immersion programmes or Kohanga Reo, Pacific Island language groups, play centres run by parent collectives, childcare providers and family day-care settings) alongside the perspectives of government agencies and research and training institutions. Historically early childhood services were community-owned programmes, set up locally in response to the needs and wishes of the community and the providers would lobby the Government for funding. In 1985 there was a Government shift away the idea that care and education were separate and childcare moved from being a social welfare issue to come under the remit of the Department

of Education. At about this time a change in the relationship between the government and early childhood providers began, reflecting a move away from the progressive ideals of early childhood programmes (Carr and May, 1993) towards an instrumental view of the curriculum, with its emphasis on “serving an extrinsic aim or external purposes such as producing citizens who will benefit society,” (Soler and Miller 2003, p59) in response to economic recession and competition for jobs. All children became entitled to a grant for childcare and education and all programmes seeking government funding had to meet quality standards and regulations along with the presentation of a charter outlining their curriculum. From this government initiative came the decision to develop national early childhood curriculum guidelines, which eventually gave rise to Te Whāriki. May and Carr (1997, p228) reflect on the tensions involved in the development and implementation of a national early childhood curriculum for New Zealand. They acknowledge the concerns of early childhood organisations for their independence and diversity in the light of the proposals, whilst recognising the “potentially dangerous” (p228) alternative of not defining an early childhood curriculum and the potential for the new national curriculum for schools to “trickle downward into early childhood curriculum” (Carr and May, 1993, p10). There was however, support for and a commitment to a bicultural and bilingual framework for the early childhood curriculum and Soler and Miller (2003, p63) see Te Whāriki as representing a “conscious modification of an initial government-driven, instrumental vision of child development to a curriculum policy which stresses greater diversity and learner-centred approaches.”

Following the consultation process with representatives from over twenty early childhood organisations, the curriculum development team highlighted the issues

found to be mutually significant: protection of diversity, an emphasis on strong family links, connections with Pacific Island culture, the role of play, an inclusive curriculum, and a commitment to a bicultural society. These issues were developed into a framework of the four broad principles of empowerment; holistic development; family and community; and relationships. Arising from these principles are five strands: well-being, belonging, contribution, communication and exploration and each strand has its own associated goals. These principles, strands and goals weave together to make up a curriculum for New Zealand that “reflects an acknowledgement that every child in New Zealand should be enriched by an environment that provides a window into two world views, and that everyone should share the responsibility of protecting and nurturing Maori language and culture” (Carr and May, 1993, p9). Carr and May (ibid.) acknowledge the title of the guidelines: Te Whāriki, or a woven mat, as being a key feature of the curriculum itself. This title is a metaphor for the curriculum, with its principles, strands and goals, but more importantly, “each centre and each programme will weave their own curriculum mat, and create their own pattern from features and contexts unique to them, their children, and their community.” (p18). Te Whāriki reflects the use of multiple metaphors in the Māori language (Soler and Miller, 2003, p63) and so also represents a model of knowledge and understanding for young children, as a “tapestry of increasing complexity and richness” (May and Carr, 1997, p228). Te Whāriki has been implemented in New Zealand since 1996, but it is not without its criticisms. Ritchie and Buzzelli (2012) highlight how the non-prescriptive nature of the curriculum initially posed problems for settings run by largely untrained staff and also the difficulties faced by a workforce of mainly monocultural educators in

implementing a bicultural curriculum. There have also been recent criticisms of the approach to assessment, particularly the lack of requirement to assess development in specific domains such as language (Blacklock, 2010, p 210), raising questions about the 'effectiveness' of Te Whāriki as an early childhood curriculum. This brings us to a discussion about the outcomes for the curriculum and, more specifically, the place of working theories.

### **Working theories and dispositions**

In presenting the outcomes for the curriculum, Te Whāriki acknowledges the place of knowledge, skills and attitudes that contribute to a child's "working theory" and enable the development of learning dispositions (New Zealand Ministry of Education, 1996). It goes on to state more specifically:

In early childhood, children are developing more elaborate and useful working theories about themselves and about the people, places and things in their lives. These working theories contain a combination of knowledge about the world, skills and strategies, attitudes, and expectations. Children develop working theories through observing, listening, doing, participating, and representing within the topics and activities provided in the programme. (p44).

One of the goals of the curriculum within the strand of *exploration* is that "[children] develop working theories for making sense of the natural, social, physical, and material worlds (p82), and the learning outcomes for this strand include the development of:

- the ability to enquire, research, explore, generate, and modify their own *working theories* about the natural, social, physical and material worlds;

- *theories* about social relationships and social concepts such as friendship, authority, and social rules and understandings;
- *working theories* about Planet Earth and beyond;
- *working theories* about the living world and knowledge of how to care for it

Peters and Davis (2011, p6) acknowledge “over the 14 years since Te Whāriki was published, learning dispositions have received a lot more attention in New Zealand than the focus on working theories.” In their study of five play-centres in New Zealand they explored the strategies used by adults to “recognise, understand and support children’s working theories.” (p8). Their work highlights some dilemmas faced by practitioners when seeing children through the lens of “theory builders”. The practitioners in their study questioned “exactly what might be considered a working theory as there were so many instances of language or behaviour that implied theorising” (p9) and this highlights the need for a clearer definition of ‘working theories’. Hedges (2011, p272) suggests that one reason for the concept being elusive is the “teachers’ lack of knowledge and understanding of the construct”. Her study, carried out with children, aged 6months to 5 years, and their teachers in two day-care settings in New Zealand, found that teachers showed “intuitive understandings” of the concept, however only one of the 15 teachers taking part was able to articulate understanding of the concept of working theories (p282). Furthermore, whilst practitioners could offer examples of children’s working theories, they had limited knowledge of contemporary learning theories and relied on “ingrained theories that made sense in relation to their personal philosophies and practices.” (p280). This seems to support one critique of Te Whāriki highlighted by



Ritchie and Buzzelli (2012, p155). They point to the non-prescriptive nature of the curriculum suggesting that, “whilst empowering for well-qualified early childhood teachers, it is clearly more problematic where staff are not well prepared to deliver on its expectations.”

This examination of the two contexts of Reggio Emilia and Te Whāriki highlights the differing ways of understanding young children as theory builders, and their approaches to theory-building. In Reggio Emilia working theories are the starting point for an approach concerned with observing and listening to the child’s active attempts to make sense of their world within a social context. In this way teachers identify children’s theories and explore them together with the children, observing, recording and analysing the resulting conversations and work in the process of pedagogical documentation. In New Zealand the development of ‘working theories’ by young children is seen to take place *as a result* of the child’s engagement with the curriculum, so that teachers plan topics and activities through which children develop working theories. However, both contexts are underpinned by contrasting interpretations of the social constructivist learning theories of Vygotsky and an exploration of these theories is presented later in this chapter

As noted earlier, outside of these two pedagogical contexts there appears to be little work having a specific focus on the concept of young children as theory-builders. However, one area in which the concept does feature is in the field of cognitive psychology, again with contrasting interpretations of the relationship between the cognitive efforts of the individual and the influence of social contexts.

## **Theory-Building in the Field of Cognitive Psychology**

Burman (2008, p251) highlights Piaget's "depiction of the developing child as budding scientist systematically encountering problems in the material world, developing hypotheses and learning by discovery and activity." This depiction within the field of developmental psychology is noted by Schwitzgebel (1999, p457) who points to a "growing trend [...] to regard children as possessed of theories and to regard at least some of their cognitive development as similar to processes of theory change in science." The focus on Piaget's work is relevant to this thesis because as Stephen (2010, p20) concludes from her research into play and pedagogy in the UK, there is continued "evidence of the legacy of Piaget" in pre-school classrooms, and the continued influence of his theories in the field of developmental psychology on pedagogical practice.

The concept of children as theory-builders features within the tradition of cognitive psychology, (Gopnik and Melzoff 1997; Karmilof-Smith, 1988) and Gopnik and Melzoff (1997) argue that conceptual development in children is a process of "theory formation and change" (p11) and that this being the case, children could be considered as scientists, revising and restructuring previously held theories in the light of new empirical evidence. Gopnik and Melzoff (1997) present theories they suggest infants and young children hold at particular times such as "the child's theory of appearances"(p77), "the child's theory of action" (p126) and "the child's theory of kinds" (p161). Their account reflects the influence of Piaget and his theory of stages of development and Gopnik (1988, p211) proposes, "if the theory-formation models

are correct we should think, as Piaget did, of the development of knowledge as a single process beginning in infancy and continuing in its most advanced form in institutional science.” For Gopnik development is seen to lead learning and theory building is essentially an individual cognitive process. This contrasts with Vygotsky’s sociocultural position that learning leads development and that learning is a socially mediated process (Vygotsky, 1986). Gopnik’s position is supported by Karmiloff-Smith (1988, p184) who contends that, “although plunged into a social context, the child is also an individual cognitive organism and much of her theory building is endogenously provoked rather than socially mediated.” The constructivist philosophies that underpin this work do not inform my own study, but the cognitive psychological perspective of young children as theory builders is presented here as a way of situating my own research within the wider debates about the influence of the social contexts. As Fleer (2009, p282) points out:

a cultural-historical view of concept formation, in young children, foregrounds the importance of context, in conjunction with the dynamic and evolving nature of concept formation. This represents a movement away from the traditional epistemological basis of psychology in relation to knowledge claims.

## **Defining children’s theories**

The debates about constructivist and socio-cultural accounts of learning centre on different definitions of working theories, and how their place in children’s thinking and learning. Gopnik (1996, p499) presents theories as “systems of abstract entities and laws that are related to one another in coherent ways”, functioning to allow us to predict, to interpret evidence and to explain, and changing in the light of new

evidence following a period of “intense experimentation and/or observation,” and this is a reflection of her positivist philosophy. Schwitzgebel (1999, p469) advocates a move away from this “features-list” definition. He contends that a theory is, quite simply, a set of propositions and that the set of proposition must be evaluated for their “explanatory power” so that “good theories must provide good explanations” (p471). However Duschl et al. (1999), in a critique of Schwitzgebel, assert that the role of social context in developing explanations is missing. They acknowledge that thinking of young children as theory builders “challenges conventional ideas about what young children can and cannot do” (p534) and counters deficit models of learners, but at the same time they contend that “to address questions about humans’ theoretical curiosity and explanation-seeking we must understand how different environments promote and socialize forms of explanations.” (p533). These theories have informed a move away from Piaget's ‘decontextualized’ child and a move towards the Vygotskian social-constructivist and cultural-historical view of learning, “where knowledge is seen as constituted in a context through a process of meaning-making in continuous encounters with others and the world, and the child and the teacher are understood as co-constructors of knowledge and culture.” (Dahlberg and Moss, p6). This perspective chimes with Rinaldi’s (2012, p239) assertion that in Reggio Emilia:

Theory is an expression of our point of view about things and about life. Because of this, theories need to be shared with the others not only to gain an ethical perspective but also to encounter an indispensable element for learning and understanding.

Rinaldi (2006, p126) makes clear the importance of Vygotsky, Bruner and socio-constructionist theory to the philosophy of teaching and learning in Reggio Emilia.

She argues that the learning process is individual but takes place in a social context "because the reasons, explanations, interpretations and meanings of others are indispensable for our knowledge building." (p125). This interpretation of the learning process is shared by those working in the New Zealand context.

It has been noted (Hedges and Jones, 2012; Peters and Davis, 2011) that the draft document of Te Whāriki from 1993 makes reference to the notion of 'minitheories', a concept first explored by Claxton (1990). Claxton considers theories to be "generalizations drawn from experience about the way the world works, which are used as a basis for predicting and interacting with it" (p23). He goes on to propose that 'minitheories' are purpose-built, situation-specific packages of knowledge that are gradually edited during the process of learning so that they contain "better-quality knowledge and skill," and are "better located with respect to the area of experience for which they are suitable." (p66). He uses the analogy of islands in an ocean to further explain this notion, where "the sea represents everything we do not know and the islands are the aspects of life we more or less understand." However Hedges and Jones (2012, p36) argue that, "given the present sociocultural understandings of Te Whāriki, Claxton's constructivist notion of 'minitheories' is not by itself sufficient to explain the complexities of working theories." They present a definition clearly underpinned by the work of Vygotsky and his social-constructivist learning theory in which learning leads development, so that:

Working theories are the result of cognitive inquiry, developed as children theorise about the world and their experiences. They are also the on-going means of further cognitive development, because children are able to use their existing (albeit limited) understandings to create a framework for making sense of new experiences and ideas.

But they go on to highlight sociocultural perspectives through an emphasis on social context and the role of families and communities in learning, so that working theories represent:

The tentative, evolving ideas and understandings formulated by children (and adults) as they participate in the life of their families, communities and cultures and engage with others to think, ponder, wonder and make sense of the world in order to participate more effectively within it.

This definition also contests Claxton's analogy of islands in an ocean, because learning as social participation indicates the ways in which working theories represent dynamic networks of knowledge and understanding. These networks incorporate children's social and cultural experiences in many different contexts, with a mix of playfulness, creativity and imagination.

Accordingly, this research is informed by Hedges and Jones' (2012) definition of working theories, and is underpinned by a view of learning as a process of knowledge construction and active meaning-making within a social context, in this case a play-based classroom. It is, therefore, important that this review explores the work of Vygotsky, his social-constructivist theories of learning and his ideas about play and its significance for learning. It is also important to consider how these ideas relate to the main question for this study: how young children build and use working theories in a play-based context.

## **Vygotsky and 'working theories'**

Hedges (2012) explores the ways children use working theories in a consideration of Vygotsky's ideas around the development of 'everyday' concepts, and 'scientific'

concepts. She argues that the development of both 'everyday knowledge' and 'scientific knowledge' may involve working theories.

Vygotsky (1986, p190) recognises two types of concept development in children - the development of spontaneous or everyday concepts and the development of scientific concepts. Everyday concepts are learnt through interaction with the world and are described by Fleer (2010, p11) as "intuitive understandings of how to do things". She points to important everyday concepts about how the world works such as rules, expectations and social roles. Vygotsky (1986) identifies three phases of everyday concept development in young children, moving from the collection of ideas and objects that are vaguely linked, termed "syncretic heaps" (p110), to thinking in "complexes" (p119), and finally to the development of "potential concepts." (p135).

Scientific concepts on the other hand "evolve under the conditions of systematic cooperation between the child and the teacher." (p148). Fleer (2009, p282) points out that "importantly, Vygotsky used the term scientific concept to refer to the schooled or academic concepts taught, as opposed to intuitive, tacit concepts embedded in everyday contexts." Vygotsky (1986) describes how these two processes of concept development are related, presenting a reciprocal relationship between the two, so that "the development of the child's spontaneous concepts proceeds upward and the development of his scientific concepts downward." (p193). However, the development of the scientific concept is dependent on the development of a related everyday concept reaching a particular level and "in working its slow way upward, an everyday concept clears a path for the scientific

concept and its downward development.” (p194). Referring to this process, Fler (2009, p283) suggests that:

the everyday concepts grounded in the day-to-day life experiences of children and adults, create the potential for the development of scientific concepts in the context of more formal school experiences. Similarly, scientific concepts prepare the structural formations necessary for the strengthening of everyday concepts.

Hedges (2012, p145) proposes that the ways in which everyday concepts develop and the ways that everyday concepts merge with scientific concepts may involve working theories, so that “when a child uses the same concept in different contexts, perhaps experimentally, inconsistently or inappropriately, working theories about the concept might be viewed as developing.” This phase of concept development occurs in a social context as children “express, test out and revise their working theories” before concepts are “internalised to the cognitive plane.” She argues that working theories “act as both a mechanism for developing everyday knowledge and a potential later mediating link between everyday and scientific knowledge”(p143). From this perspective, the concept of working theories provides some explanation for the difference between spontaneous, ‘everyday’ concepts/knowledge and ‘scientific concepts/knowledge, and the ways in which these might be connected. At the same time, the sources of children’s everyday knowledge, and the contexts in which this is used, are the focus for ongoing research.

Hedges (2012, p146) points to Vygotsky’s notion of the zone of proximal development (ZPD) as being relevant to the understanding of working theories in a pedagogical context and her idea of working theories both contributing to the



development of concepts and, at the same time being revised and developed, echoes Holzman's (1995) "tool and result" analysis of Vygotsky's notion of the ZPD. In a discussion of his work Holzman (ibid.) points out that Vygotsky specified the social-cultural-historical process by which children and adults can do more in collaboration with others so that "learning leading development simultaneously creates and occurs in the zone of proximal development." (p201). She applies this idea to human social activity asserting that "the uniqueness of human social life is that we transform, through our activity, the very circumstances that determine us."(p200). In this way, Holzman sees development itself as both the tool and result of developmental activity. For Hedges (2012) it seems that working theories may act as both 'tool and result' of knowledge development, so that as working theories act to bridge the gap between the everyday and the scientific, they are simultaneously being revised and developed.

Hedges (ibid.) also recognises the importance of the Vygotskian concept of mediation to the notion of working theories. She sees mediation as a way of describing the tools and processes used in meaning making and these may be implicit or explicit. She proposes that working theories may act firstly as implicit mediators "within children's active attempts in their own minds to extend and challenge their thinking."(p146). Explicit mediation, referring here to "the constraints and affordances of ideas and activities from people or cultural tools to human thinking" (p146), may thus promote firstly the development of everyday concepts and later, links between everyday concepts and scientific concepts. Working theories then become a way for children to develop their understandings through expressing,

representing, connecting, reviewing or rejecting them within the context of a pedagogical relationship in which “teachers recognise and respond to children’s attempts to think and theorise about their lives and worlds.” (p146).

The work of Hedges (2012) raises highlights two important ideas that have particular significance for this study:

- the importance of pedagogical relationships for the development of everyday and scientific concepts
- the significance of children’s existing knowledge and interests, and their origins in children’s participation in family, community and cultural life

Both ideas are reflected in the definition of working theories given by Hedges and Jones (2012) and presented earlier, indicating that the context for pedagogical relationships, and the notion of ‘children’s interests’ are closely related. One of the aims of the current study is to consider the role of a ‘play-based’ learning environment in the development of children’s theories and so it is important that the research around the relationship between play, teaching and learning is examined. Any consideration of play from a sociocultural perspective must also make reference to Vygotsky’s ideas about play as a leading activity of early childhood.

## **Play as a leading activity**

Although difficult to define, contemporary research literature does present common, accepted perceptions concerning the nature of play and it is invariably seen as being:

- child-chosen or child-initiated and personally motivated
- active and activity-based rather than goal-based
- creative and flexible but possibly chaotic and unpredictable
- encompassing some form of imaginary situation
- rule-governed

(Broadhead, Howard and Wood, 2010; Bodrova, 2008; Wood and Attfield, 2005).

According to Vygotsky (1966, p6), “from the point of view of development, play is not the predominant form of activity, but is, in a certain sense, the leading source of development in the pre-school years.” He sees play as leading development in two major ways: through the development of symbolism and through the appropriation of sociocultural rules. The development of symbolism occurs during play in an imaginary situation when children begin to use substitute objects in place of real objects, and actions and gestures in place of real actions. In this way “the child learns to act in a cognitive, rather than externally visible, realm, relying on internal tendencies and motives, and not on incentives supplied by external things.”(p11). Vygotsky (1966, p9) is also clear about the importance of rules for play, suggesting that in fact “there is no such thing as play without rules.” However the rules for play are not proposed in advance but arise during the play and out of the play. Holzman (2009, p51) considers Vygotsky’s views on play and asserts that the “interplay of

imagination – which frees – and rules – which constrain – is key to the developmental potential of play.” She points out that the action that takes place in the imaginary situation is free from the constraints imposed by reality so that time can go faster, distances can be covered instantly and resources are easily at hand, but at the same time action is governed by sociocultural rules. She refers to play as “rule-and-result activity”, where rule formation occurs within and alongside play. (p51). This echoes her (1995) conceptualisation of the zone of proximal development as both “tool” and “result” and supports Vygotsky’s (1966) view that:

“Play is the source of development and creates the zone of proximal development. Action in the imaginative sphere, in an imaginary situation, the creation of voluntary intentions and the formation of real-life plans and volitional motives- all appear in play and make it the highest level of pre-school development.” (p16).

In returning to a consideration of play in the context of academic learning, Bodrova (2008, p4) asserts that Vygotsky sees play not as simply reflecting a child’s developmental level but as a “mechanism propelling child development forward” and argues in favour of a Vygotskian approach in early childhood classrooms in which make- believe play is seen as enhancing academic learning by promoting the development of abstract and symbolic thinking, and the development of the child’s ability to self-regulate their own social and cognitive behaviours. However, in a review of research into effective pedagogy in the early years the British Educational Research Association (2003, p13), describes play as "an almost hallowed concept for teachers of young children", and asserts that it is "cloaked in ideology", the assumption being that learning automatically occurs during play. Brooker’s (2005) work appears to support this view. She argues that the traditional ideology of Early

Childhood Education has been "sustained by the idealism of practitioners and professionals" and that one of the key features of the tradition today is the 'play ethos'.

### **'Play-based' learning and the role of the educator**

Brooker (2005, p119) describes an early childhood classroom that encompasses the key features of the 'play ethos': "space, for children to be active; time, for children to learn at their own pace; freedom to choose activities and sustain them, and interesting and imaginative resources for play." In this scenario the role of the adult is to create the environment and the role of the child is to move about, independently choosing from the activities on offer, and to have fun. However Brooker's (ibid.) study indicates that these free choice and play-based approaches do not benefit all children. The study identified contrasting perspectives of play coming from families of UK origin (Anglo) and from Bangladeshi families. The Anglo families viewed childhood as a special time, with the child having few responsibilities and lots of time and freedom to play, where parents provide care, attention and equipment designed for play and for learning. For these families, learning was entrusted to the school and although play was generally approved of, it was not directly linked to learning. These views were quite different from those expressed by the Bangladeshi families. Play was not something that Bangladeshi parents or children were expecting to happen in the classroom. As Corsaro (1997, p97) points out: "as children venture out from the family, they are aimed in *specific directions*, are

prepared for interaction with distinct *interpersonal and emotional orientations*, and are armed with particular *cultural resources* that are all derived from earlier experiences in their families” (italics in original). This supports Jordan’s (2005, p96) view from a cultural-historical perspective that “a baby born anywhere in the world learns his or her family’s ways of thinking, of being and doing – and playing.” Brooker (2005) goes on to recount the play experiences of two Bangladeshi boys joining a Reception class in a school in the UK. She describes how, “by learning *how* to play they were adapting to the pedagogy of the classroom” (p124) but suggests that, because of the lack of appropriate learning dispositions and social interactions during the play, they were not learning *through* play. This illustrates Wood and Attfield’s (2005) assertion that play is always dependent on context and must take into account the age, needs, interests and preferences of the players, as well as the relationships of the players and the choice of play activity. They contend "everything that children play at, or play with, is influenced by wider social, historical and cultural factors, so that understanding what play is and learning how to play are culturally situated processes." (p7).

However, Wood (2007) notes that play, by its very nature, takes learning in unplanned directions and often leads to unintended outcomes and, in the light of a perceived global move towards structured national curriculum goals and academically-orientated outcomes for young children (Wood, 2013; Fleer, 2011), this uncertainty of play presents a dilemma for practitioners.

## **Play and the curriculum**

Whilst Fler (2011, p226) argues the case for new theoretical tools “designed specifically for working more academically with children in play-based programs”, Kushner (2012, p247) argues that “once play is put into the service of achieving the academic goals of the curriculum, it is no longer play.” Wood (2010, p11) calls for a focus on “what play *means* for children”, or having what she terms “an ‘inside-out’ perspective, which derives from an emergent/responsive approach and privileges children’s cultural practices, meanings and purposes.” She contrasts this with the ‘outside-in’ perspective coming from a cultural transmission/directive approach which gives power to the adults and focuses on what play *does* for children, and she argues that problems arise when this perspective dominates practice.

Hedges, Cullen and Jordan (2011) point out that there is a general agreement within the field of early childhood education that there should be a focus on children’s interests and needs in early years curricula. In the contexts that relate directly to this study, Reggio Emilia and New Zealand, this appears to be the case. Te Whāriki (1996) makes specific references throughout the document to the contribution children’s interests can make to the curriculum, e.g.: “The curriculum enables all children to contribute their own special strengths and interests.”(p40). It also makes explicit the responsibility of the educator to consider children’s interests: “Planning will usually begin from observation of children’s interests, strengths, needs and behaviours.”(p28). In considering Reggio Emilia, Malaguzzi (1994) asserts “we teachers must see ourselves as researchers, able to think, and to produce a true curriculum, a curriculum produced from all of the children.” However Wood (2007, p312) notes that the notion of a child-centered curriculum is not unproblematic, even

if it is “ideologically seductive”, arguing that children may show interest but this may not lead to deep connections between experience and areas of learning. Hedges, Cullen and Jordan (2011, p185) point out that there is a lack of research investigating “teachers’ knowledge and decision-making in creating curriculum from these interests”. In contrast the work of Moll et al. (1992) around ‘funds of knowledge’ is acknowledged as a potential way for teachers to incorporate children’s interests into classroom curricula (Riojas-Cortez, 2001; Hedges, Cullen and Jordan, 2011) in ways that address the idea that interests are driven by curiosity and enquiry.

### **Children’s Interests and funds of knowledge**

Moll et al (1992) identify ‘funds of knowledge’ as the knowledge and skills that children acquire and use through being involved in the daily life of a household. They argue that ‘funds of knowledge’ is a more precise term than ‘culture’ as it places an emphasis on “strategic knowledge and related activities essential in households’ functioning, development, and well-being.” (p139). Their ethnographic study of households in working-class, Mexican communities in the USA identified diverse household funds of knowledge such as budgets, childcare, anatomy, home maintenance, and animal management. This idea of children’s ‘funds of knowledge’ echoes the work of Rogoff (1990) and her notion of children as apprentices in thinking, “active in their efforts to learn from observing and participating with peers and more skilled members of society, developing skills to handle culturally defined problems with available tools, and building from these givens to construct new solutions within the context of sociocultural activity.” (p7). Equally important here is the work of Corsaro (1997, p18) and his notion of interpretative reproduction which



describes how children “create and participate in their own unique peer cultures by creatively taking or appropriating information from the adult world to address their own peer concerns.” A key point for Corsaro (ibid.) is the move away from the view of the individual child quietly internalising adult skills and knowledge and towards an “appreciation of the importance of collective, communal activity – how children negotiate, share and create culture with adults and with each other.” These three ideas – funds of knowledge, apprenticeship in thinking and interpretative reproduction – all appear to offer ways for teachers to approach children’s interests in the classroom. They are all informed by post-Vygotskian sociocultural theories and are particularly relevant for this study as they emphasise the importance of the social context for learning and, more specifically, the ways in which children use their knowledge in the context of play.

Hedges, Cullen and Jordan (2011) argue that ‘funds of knowledge’ can be used by teachers as a theoretical framework for recognising, analysing and responding to children’s interests. Their own analysis extended Moll et al’s (1992) focus on adult-child interactions in the home to include teacher-child and peer interactions within the pre-school setting, referred to as “funds of knowledge developed in pedagogical relationships.”(p192). In agreement with Moll et al (1992) they found that “families were powerful primary sources of influence on children’s funds of knowledge-based interests and inquiries.” (p192). Participation in household tasks, developing relationships with adult and child family members and friends; and taking part in holidays and community experiences all contributed to children’s interests, but “centre-based funds of knowledge” were also developed within the pre-school

setting. Peers' interests and activities as well as teachers' interests, language and experiences were identified as sources of these funds of knowledge. Sources outside the family and centre settings such as cultural events and popular culture were also found to contribute to children's interests and were identified as "community-based funds of knowledge". Hedges, Cullen and Jordan (2011, p199) note that within the settings they studied "some teachers' understandings of children's interests as largely play-based, that is, activity based, clouded recognition of deeper interests and inquiries and their sources." This view is supported by the study by Peters and Davis (2011) of the strategies adults use to recognise, understand and support children's working theories. They used Claxton's analogy of "islands of interest" and considered how, with input from educators, children could develop these into "islands of expertise" (p9). Their findings suggest that educators are sometimes unsure of what to respond to and how to respond, and that they often 'hijack' the direction of children's interests rather than "establishing shared understanding and meaning-making." (p14). Their work recognises the importance of the educator in identifying and responding to children's interests in a reflective and intentional way and the key role of documentation in "identifying, tracking and revisiting these theories." (p15). This work, and that of Hedges, Cullen and Jordan (2011), appears to support an assertion that the educators' role in recognising and developing children's interests is not clearly understood by many practitioners. However, this assertion may also reflect the ongoing tensions that educators experience in reconciling different pedagogical approaches - play-based and adult-led activities.

### **Theory-building and pedagogical practice**

Wood (2010, p17) makes the case for practitioners adopting "integrated pedagogical approaches" in their teaching to reconcile the tensions between play-based and adult-led activities. These include observation, reflection and documentation of children's learning, which allow educational goals to develop around children's interests and motivations and so enhance the "potential for co-constructing knowledge between adults and children." Jordan (2005, p99) echoes this view when considering the position of subject domain knowledge within early childhood curricula, looking particularly at Te Whāriki. She suggests that the "child-centeredness of early childhood programming", influenced by developmental psychology, means that early childhood teachers are committed to a holistic, integrated curriculum at the expense of addressing complex understandings presented by domains of subject knowledge. This point is taken up by Hedges and Cullen (2005) who take a sociocultural perspective on curriculum, recognising that teachers must have access to subject content knowledge in order to support and extend children's conceptual learning, but that this subject content knowledge will be dependent on community, context and culture. They go on to assert that "an increased focus on subject content learning is not incompatible with early childhood pedagogy and philosophy, particularly if the content relates to children's interests." (p77). In a consideration of the interface between children's play and teacher's pedagogical practices Hedges (2010, p35) argues the need for teachers to work more analytically when observing children and recognise "play interests as an early point on a continuum and not necessarily representative of children's underlying interests." She makes the point that children's activity-based interests may be responses to the environment of the setting rather than an indication of a deeper,

underlying interest. She puts forward a continuum of children's interests, which includes "activity-based play interests", recognised and responded to by practitioners through the addition of resources or reorganisation of space in a setting; "continuing interests", returned to over a period of time and which may involve early conceptual learning; and "fundamental inquiry interests", related to children's deeper, fundamental questions about life as human being. Each of these interests is fed into by children's funds of knowledge and Hedges contends that such a continuum "encourages deeper understandings of children's play and interests by teachers, and thoughtful pedagogical practices." (p36). Hedges and Jones (2012, p38) argue that in order for teachers to recognise children's working theories and respond to them appropriately they must have a deep understanding of the concept. If we return to the proposal that the image of the child is productive of practice, then any understanding of the concept of young children building and using working theories must be informed by sociocultural theory. However Edwards (2006) points out that, while early childhood curriculum documents may be informed by contemporary theory, early childhood practitioners often have little opportunity to access these theoretical perspectives. Hedges and Jones (2012, p38) advocate for continued research in order for teachers to recognise the value of working theories in terms of "the complex, conceptual processes involved and the ideas and understandings that result from apparently simple everyday occurrences." They make clear the role of the teacher in "provoking and gently challenging children's current ideas and understandings, helping them refine and deepen their thinking by adding complexity."(p37). These reflections echo the work of Rinaldi (2012, p239) who refers to the "pedagogy of listening" in Reggio Emilia, which "begins from the

idea that the children are able to elaborate theories as explanations about life.” She goes on to assert that children’s theories “highlight the strongest characteristic of the identity of children and of humankind: searching for and researching meaning, sharing and constructing together the meaning of the world and the events of life.” (p245).

## **Conclusion**

The major aim of this chapter was to situate the concept of ‘young children as theory-builders’ within the current literature analysing how the concept is underpinned philosophically and interpreted pedagogically in the two particular contexts of Reggio Emilia and Te Whāriki. A description of the history and politics of these contexts formed an important basis for this analysis. The work in Reggio Emilia and the development and adoption of Te Whāriki in New Zealand are underpinned by Vygotsky’s social-constructivist theories. These theories also inform this study and this review, therefore, also considered the relationship between the work of Vygotsky and the concept of ‘theory-building’ through an exploration of his ideas about the nature of learning and an account of his theories about the role of play in early childhood. The review seeks to make clear the researcher’s view of working theories playing a part in learning where learning is seen as the active process of knowledge-construction and meaning-making taking place in a social context, and mediated by more or differently knowledgeable others.

Interestingly, in New Zealand, where the development of children’s working theories is an outcome for the curriculum, there are few examples of research into how

children build and use their theories. As noted earlier, much of the focus here has been on the educators and their response to children's theories, or on the assessment of children's learning dispositions. This review focuses on the body of work by Hedges in New Zealand as the major source of literature directly concerned with the concept of young children as theory-builders. It is this body of work, and particularly the definition of working theories presented by Hedges and Jones (2012), that informs this study.

The review also examined the concept of a "play-based environment" as a context for this study and considered the potential role of play and the role of the educator in the development of children's theories. This led to a consideration of the importance of sociocultural theory and particularly the notions of 'funds of knowledge', 'apprenticeship in thinking' and 'interpretive reproduction' to the concept of children's working theories. The development from everyday working theories to scientific concepts thus draws on funds of knowledge that children bring from different contexts. However, the extent to which this can be achieved is highly contingent on children being able to transfer, use and apply their knowledge in different contexts. Hedges (2010) suggests that by working with ideas about children's funds of knowledge, teachers can develop more informed understanding of children's interests, how these are manifest in their play, and how such interests are rooted in their engagement in everyday activities and interactions with others. However, these everyday interests may form some of the foundational knowledge on which to build subject knowledge, but play may not systematically build the organising concepts within the subject disciplines.

In completing this review it would appear that the concept of young children as theory-builders has not been explored by many researchers from outside the contexts of New Zealand and Reggio Emilia. There is research focusing on comparing and contrasting these two contexts and curricula with other national contexts or approaches (eg. Soler and Miller, 2010; Spodek and Sarcho, 2003); and researchers in the UK, Sweden and the USA have developed deep connections with the pre-schools of Reggio Emilia where the exchange of dialogue is well documented (Giudici, Rinaldi and Krechevsky, 2001; Dahlberg, Moss and Pence, 2007; Olsson 2009). This study will add to the literature concerned with young children's working theories by providing examples from a play-based context, theorising how children build and use their theories within this context, and considering what this means from a pedagogical perspective.

## Chapter 2: Introducing the Context

### Introduction

Sikes (2004, p19) makes the case for reflexivity on the part of the researcher. She points out that "a reflexive and reflective and, therefore, a rigorous researcher" is able to "present their findings and interpretations in the confidence that they have thought about, acknowledged and been honest and explicit about their stance and the influence it has had upon their work." Within the first section of this chapter I aim to present myself as a researcher and acknowledge some of the influences that permeate my work. A more detailed account of my positionality is included as part of the methodology section.

The second part of this chapter introduces the context for the study. The research was carried out in the Early Years division of a private, not-for-profit, international school in Switzerland in which the framework for teaching and learning is the International Baccalaureate Organisation Primary Years Programme (PYP). The school has also developed a policy for the Early Years division that sets out guiding principles for practice, whilst continuing to operate within the framework of the PYP. Consistent with the approach taken in the literature review towards the principles and practices of Reggio Emilia and Te Whāriki (Chapter 1), it is important to explore the historical and political context of the development of the PYP, alongside an overview of its current framework. I will also consider the philosophical underpinnings of the school's own policy for the early years, which is attached as an appendix. This section also considers the influences evident within these two



documents and the way these two documents shape the play-based classroom context for the study.

In summary, this chapter aims to:

- present the researcher
- describe the context for the study

## The Researcher

In my professional life I am employed by an international school in Switzerland as a class teacher in the Early Years department and this research represents the results of my experience as a teacher/researcher working towards an Ed.D in early childhood education. Moss (2008, p131) points out that there are many possibilities and decisions to be made about early childhood work but "each choice is a consciously ethical and political decision." During my teaching career I have been constantly aware of the tensions that surround these choices and decisions. My initial teacher training took place in 1987. In the early 1980s The Plowden report, "Children and their Primary Schools" (1967) which had shaped the Primary school curriculum in the UK, came under increasing criticism and the Education Reform Act (1988) marked the beginning of central government control of the school curriculum and the increasing politicisation of education. The arrival of the National Curriculum Programmes of Study and their associated attainment targets brought tensions between teachers and policy makers with respect to the curriculum.

In my first years of teaching I saw how teachers' different ideas about learning shaped their teaching and informed their practice. I was working alongside experienced colleagues for whom Piagetian principles formed the basis of their teaching, whilst other colleagues were questioning Piaget and the notions of 'stages' and 'readiness'. As a new teacher, the dialogue between teachers was stimulating but it was a context in which I experienced more of the tensions of teaching: the tensions between individual teachers within a school with respect to their beliefs and practices, and the tensions in my own mind with respect to the choices and decisions I would make in my classroom. In the 1990s, as I studied for my MA and read more about Vygotsky and social-constructivist theory, I became more conscious of the small, moment-by-moment decisions teachers make that can have such a profound effect on the learning taking place. The tensions associated with these decisions continue to be part of my teaching today given the unpredictable context of an early childhood classroom with a play-based approach to teaching and learning. In recent years, working in an international school context, I have continued to reflect on my practice and am fortunate enough to work in a school where this is encouraged. Most recently I have been drawn to the principles and philosophies of Reggio Emilia and my approach to this study is grounded in the idea of 'the teacher as researcher'. It is my attempt "to make the invisible visible and to see what is visible in a different light" (Moss 2008, p132).

## The School

The school in which the study takes place is an international school in the German-speaking region of Switzerland. When I first joined the school in 1996 there were approximately 250 students, boys and girls, from ages 3 - 11. The school currently serves a population of approximately 1300 students from ages 3- 18 representing 58 nationalities with the majority of students coming from the UK and the USA.

In 2001 the school was authorised to offer the IB PYP, which currently provides the framework for teaching and learning in the early childhood and primary divisions of the school.

## The Primary Years Programme

The Primary Years Programme (PYP) for children aged 3-12 was first introduced by the International Baccalaureate Organisation (IB) in 1997 and was taken up by the school in 2001. The PYP is one of three programmes offered globally by the IB, the others being the Diploma Programme, a pre-university programme introduced in 1968, and the Middle Years Programme (MYP) for students aged 12-16 introduced in 1994.

Bartlett (1998) argues that, with the exception of the United World Colleges, international schools were created for pragmatic rather than philosophical reasons, in response to pressure from global businesses and diplomats for an English-speaking education to reduce the, possibly negative, impact of parent careers on their children. He contends that there was no philosophical foundation shared by

international schools, "no deeply held, publicly-declared beliefs and values to bind them, to bond them into a coherent global system." (p77). Indeed, at its inception, the International Baccalaureate Organisation (IB) had the fundamental and practical aim of designing an internationally acceptable school-leaving certificate for students living away from their home country that would facilitate their entry to the universities of their choice. (Fox, 1998). Since then the IB has evolved and, whilst acknowledging its pragmatic foundation, is now committed to more ideological goals, evident in its mission statement, developed in 1996: "the IB aims to develop inquiring, knowledgeable and caring young people who help to create a better and more peaceful world through intercultural understanding and respect." (IB website, 2014). The IB currently works with 3,716 schools in 147 countries. (ibid.).

In providing a rationale for the development of the IB Primary Years Programme, Bartlett (1998) outlines some of the practical benefits for the introduction of a common curriculum framework for young children in international schools, which include: absolving schools and teachers of the responsibility for producing curriculum; answering the demands for a curriculum with a wider validity; providing a means of evaluating the quality of learning through common benchmarks; the production of common assessments to facilitate children transferring between schools. These reasons hark back to the pragmatism of the early days of the IB and appear to position the schools within the paradigm of modernity, within what Moss (2008, p135) refers to as the dominant Anglo-American world with its belief in "the possibility of objective and value-free knowledge producing universal solutions, including global definitions of 'good practice' and 'quality'." However, Bartlett (1998,

p80) goes on to argue that the development of an international primary curriculum “transcends the level of practical benefit”, asserting that such a curriculum offers students a “significantly different learning experience.” He contends that a common international primary curriculum is a way of developing internationally minded adults, “individuals who have spent their time in schools engaged in structured inquiry into subject matter of genuine, universal significance.” (p90). For Bartlett (ibid.), the crucial element of the primary years programme is time, arguing that an international schools curriculum that begins in early childhood at age three, lays the foundations essential for the later, already established programmes, the MYP and the IB Diploma, so that:

these individuals are nurtured over many years by methodologies that promotes a sense of wonder, that provide the tools necessary to turn wonder into research, that create a climate in which it is safe to take risks and in which the ideas of others are sought out and given value. (p90)

Again, acknowledging the pragmatics, he recognises the benefits of a common international curriculum from the age of three to ex-patriate families “in terms of security, continuity and quality” but he asserts: “for those who believe in the ideals of international education, in the vision of an approach to teaching and learning which can genuinely change schools and the individuals within them, then it is important for reasons of powerful belief.” (p90).

*Making the PYP Happen: A Curriculum Framework for International Primary Education* (IB, 2009) is the current guide to the primary curriculum. The document is underpinned by a commitment to a constructivist approach to teaching and learning, principally through guided inquiry (p6) and the main theorists referred to are

Vygotsky, Bruner and Gardner. Although the programme makes no explicit claims to be "Reggio-inspired", within the document there are traces of the five elements noted by New (2007) as being key to success of the pre-schools in Reggio Emilia. The PYP framework (IB, 2009) asserts that "by listening carefully to the dialogue between students, especially in dramatic play, the teacher can learn about their current interests, knowledge base, level of involvement and social skills." (p46). These observations are seen as a way for the practitioner to "know better the inner world of the student, analyse the interaction within a group, discover the student's strengths and difficulties, and reflect on the effectiveness of practices used to implement the programme of inquiry." (p46). The teacher is encouraged to record and share these observations with the children, with colleagues and with parents and the specific process of 'documentation' is referred to as an assessment tool. (p50). These assertions resonate with the notions of 'teacher as learner', 'the pedagogy of listening' and the process of pedagogical documentation used in Reggio Emilia.

Elsewhere in the document there are further echoes from Reggio Emilia. The importance placed on the role of the environment as the third educator in Reggio is called to mind with the assertion that "teachers of the younger students need to be mindful of the role of the learning environment when presenting provocations to the students, for them to wonder at, and be curious about, and to stimulate purposeful play." (p30). A further part of the teacher's role is seen to be the structuring "dynamic learning environments to provide opportunities for planned and spontaneous inquiries," (p43), recalling the "*progettazione*" described by New (2007,

p7). Furthermore the document highlights the child's need for extended periods of time and as much space as possible in order to learn about themselves, other children and the world around them (IB, 2009, p43). Another of the roles of the practitioner is to "be aware of the cultural and social contexts in which the student lives and learns." (p42). This is seen as being achieved in partnership with parents because "it is the student's environment- the home, the school and the community- that will shape the student's cognitive experience." (ibid.). The child is best served when the school achieves a "reciprocal and supportive" relationship with parents. (p42). Again there are some parallels with the Reggio ideal of community participation, but in this case the emphasis is very much on participation with parents rather than any involvement of the wider community. Whilst many of these ideals may be features of many curricula for schools around the world, it is noted that several citations in the bibliography for *Making the PYP Happen: A Curriculum Framework for International Primary Education* (IB, 2009) are either Reggio publications or make specific reference to Reggio Emilia.

### **The School Early Years Policy Document**

The written policy for the Early Years division of the school was introduced in 2011. Until that point the PYP framework was the sole guiding document for practice. The policy was developed through a process of collaboration and consultation between the school leadership team and the early childhood practitioners working in the school. The document takes the form of twelve principles and "reflects a theoretical kinship with John Dewey, Jean Piaget, Vygotsky and Bruner, among others." It is explicit as to the influence of the project of Reggio Emilia, stating as a first principle:

"we endeavour to investigate the links between the PYP and the educational project of Reggio Emilia". A second principle reflects the nature and importance of the image of the child in Reggio Emilia (Malaguzzi, 1994), stating: "Children are competent, creative, rich in potential, critical thinkers and problem solvers," and recognising that: "our image of the child impacts our decisions regarding space, time, materials and relationships". The role of documentation as a tool for supporting reflective practice and informing the planning of teaching and learning is included as policy, along with an emphasis on "children's symbolic languages" as a way of expressing understanding. The principle of: "The establishment of a flexible, resource rich learning environment" is consistent with the description of the way the physical environment is used at Reggio Emilia and the policy refers to the "supportive elements of the environment, including light, storage, furniture, the connection to the natural world and an emphasis on aesthetics". The document also refers to "a negotiated curriculum" based on the "student's interest and passions as well as the school learner outcomes" so, although the use of *progettazione* or projects is not specifically mentioned, the idea behind them, where teachers take children's questions and ideas and problems to create curriculum, is embedded. It is noted that these principles, along with the PYP framework (IB, 2009), shape this research, as I must be guided by them from both a professional perspective as a teacher in the school and an ethical perspective as a researcher.

### **The Play-Based Context**

The PYP framework (IB, 2009) acknowledges the links between play and inquiry as "an active engagement with the environment in an effort to make sense of the



world” (p30), however within the document there appears to be a focus on the instrumental use of play in the classroom. There is an emphasis on the environment as a way of stimulating “purposeful play” (p30); and on the provision of a variety of materials to play with in order for students “to learn about themselves, others and the world around them” (p43), and play is considered to have a “vital role” in the development of mathematical understandings “particularly in younger students.” (p83). The role of play as a way for teachers to learn more about their students’ interests and current understandings is acknowledged and encouraged (p47), but in some ways the focus on provision of materials is reminiscent of Piaget and his emphasis on child-initiated discovery through an exploration of the environment.

Within the school policy document for the early years, play is seen as “a powerful vehicle for exploration and learning.” The importance placed on the role of play in the teaching and learning of young children is made explicit through the inclusion of play as an integral part of the daily timetable: “the schedule for young learners is built around long periods of uninterrupted time during each day for adult-supported freely chosen play and adult-led small group activities,” and one role of the teacher is to “observe and ask probing questions that challenge children to comprehend at deeper levels and encourage sustained, shared thinking.” The policy also acknowledges the role of play for children, asserting: “our educators acknowledge that play is the children’s primary tool for making meaning and that free choice time, scheduled in long periods, enhances the complexity of play.” In this context, the role of the teacher is to observe, reflect on and document play and “allow educational goals to develop around children's interests and motivations.” The school policy is

also explicit about the importance of a social context for learning, acknowledging the role of adults and other children in the co-construction of meaning during conversations and play. It is this social-constructivist and sociocultural aspect of the play-based environment that is a key part of this particular context.

## The Classroom Setting

The data gathering using video, observation and field notes all took place in a single classroom setting in the school. The classroom is a large space with natural light coming from full width windows at both ends. There are two distinct halves to the classroom separated by double doors, which are left open at all times. The classroom is organised in “a range of clearly defined areas” to reflect both the PYP framework (IB, p42) and the school’s policy for the early years, but might be also be considered to be reflective of Brooker’s (2005, p119) early childhood classroom, encompassing the key features of the “play ethos”. In one half of the room there is:

- an art area with shelves of art materials such as paints, brushes, collage materials, clay, coloured papers in different sizes and textures; glue and scissors; a low shelf of ‘natural materials’ such as feathers, pine cones, stones, shells, nut and seeds; a magnetic board for displaying art work; an easel for 3 children to work at and a long table and chairs seating 8 children
- a role-play area with a small-size wooden kitchen made up of a sink, oven, fridge, microwave oven and washing-machine; a table and four chairs; shelves of plastic food, ceramic and plastic cups, saucers, plates, bowls and cutlery, a telephone and computer keyboard, two dolls with high-chair, bath and crib and a selection of fabrics and resources for dressing-up

- a low table with cushions as seating and set up with a selection of papers, crayons, pens and pencils for writing and drawing and close by is a set of drawers labelled with each child's name, on top of which are photographs of each child with their families in individual frames of different shapes and sizes.

The other half of the room is arranged with:

- a book corner made up of a low book shelf with a selection of picture books, some cushions and a small mattress on the floor, and a basket of puppets and small, stuffed toy animals
- a large, open carpet space surrounded with baskets containing a variety shapes and sizes of plain wooden blocks and a low shelf full of plain brown, foam bricks. This space serves as a construction area, a meeting area for the daily morning meetings and class story-times. The wall bordering this area is plain white and is used as a screen for the projection of images and films from the computer
- a low shelving unit with mathematical materials such as a balance scale, baskets of interlocking cubes, sets of shapes in different colours and sizes, large dice, and some puzzles and board games, next to which is a further set of tables and chairs to seat 8 children and a smaller table with two chairs for the classroom computer

The classroom walls and display boards are all painted white and there are large photographs, text and art work on display panels around the classroom detailing the children's engagement in various activities, both indoors and outdoors. In my position as class teacher I have responsibility for setting up the classroom in

collaboration with a classroom assistant who also works with the children on a daily basis. Within this environment the children may be engaged in play, in child-initiated activities or in adult-led activities.

## **Summary**

The aim of this chapter was to introduce the context for the study. I have presented myself as a teacher/researcher and reflected on some of the influences that inform my work. I have also presented the two documents that guide my teaching practice, *Making the PYP Happen: A Curriculum Framework for International Primary Education* (IB, 2009) and the school policy document for the early years and examined the historical context behind them. Finally, the physical context for the study is described and the concept of 'play-based' learning inherent within this context has been explored.

## Chapter 3: The Research Methodology

### Introduction

The research process affords the researcher many choices; choices concerned with the purpose and aims of the research, concerning the literature selected for the literature review; and concerning the research design, data-gathering methods, data analysis and reporting. Additionally, Sikes (2004, p17) points out that "researchers have to be able to justify and argue a methodological case for their reasons for choosing a particular approach and specific procedures." Wellington (2008, p22) interprets methodology as "the activity or business of choosing, reflecting upon, evaluating and justifying the methods you use," but Sikes (2004, p18) cautions that:

to present research design as being a straightforward technical matter of 'horses for courses', with researchers objectively choosing the most appropriate, if not only possible, methodology and procedures for a specific research project would be misleading and even dishonest and immoral.

She presents the researcher's ontological and epistemological assumptions, and assumptions concerning human nature and agency, as being the most significant factor influencing the choice and use of methodology and methods. Ontological assumptions relate to the nature of reality; whether reality is external and independent of the researcher, given and objectively real or whether it is socially constructed and subjectively experienced. Epistemological assumptions concern the nature of knowledge; whether knowledge can be transmitted, observed and measured or whether it is experiential and personal. In agreement with Sikes' (2004) assertion, this chapter begins with a consideration of my own assumptions

and acknowledges how my position ultimately and inevitably informs the choices made before and during the research. Additionally, Carr (2007, p276) makes the point that, when considering educational research and practice, we must ask how the concept of education is interpreted and understood, asserting that our interpretation of education influences how we engage in educational practice ourselves and our understanding of the practice of others. Therefore, this chapter also considers the research approach and design with my interpretations and understandings in mind.

Assumptions concerning human nature and agency are concerned with the ways human are seen to be able to act within the world. This research is concerned with understanding more about children's theories "as they participate in the life of their families, communities and cultures and engage with others to think, ponder, wonder and make sense of the world." (Hedges and Jones, 2012, p37). Dahlberg, Moss and Pence (2007, p43) contend that we have choices to make about whom 'the child' is and that these choices are hugely significant as they determine the pedagogical approach in early childhood institutions. Just as "constructions of childhood and children are *productive* of practice," (ibid, p52), this could also be said to be true of research in early childhood education so that choices of methodology and method made by researchers are the product of the researcher's assumptions about who the young child is and who the child is becoming. This chapter further aims to consider the methodological implications of my image of the child for the role of the children in the study.

Because the study makes use of video recordings with young children, both the participation of young children and the use of video raise important ethical

questions for any researcher. The final section of this chapter describes the ethical considerations for this research, particularly with regard to consent and continuing consent, and aims to show how these considerations are also founded on and informed by my image of the child.

In summary, this chapter aims to:

- consider my positionality with respect to the research approach and design
- detail and justify the research approach and design
- consider the implications of my positionality for the role of children in the research
- explain the ethical considerations and ethical approach for the research

## Positionality

Sikes (2004, p19) believes that researchers should reflect on how they are "paradigmatically and philosophically positioned" and be conscious of the effect of this positioning on their research practice. Pring (2004, p33) identifies two philosophical standpoints in educational research, contending that these are:

reflected in the contrast between the objective world of physical things and the subjective world of 'meanings', between the public world of outer reality and the private world of inner thoughts, between the quantitative methods based on the scientific model and the qualitative methods based on a kind of phenomenological exposure.

Pring (ibid.) goes on to argue however, that this dualism between positivist and interpretive research traditions is mistaken and that "educational research is both

and neither". However whilst agreeing with Pring, a consideration of these traditions as a dualism does provide a vehicle for reflection. In reflecting on how I am paradigmatically and philosophically positioned as a researcher I turned to another dualism: modernity and postmodernity.

The project of modernity grew from the eighteenth century Age of Enlightenment, with its ambitions for progress, truth and freedom for the individual, bolstered by the development of objective empirical scientific method, advances in technology and the growth of an industrial society. Dahlberg, Moss and Pence (2007, p20) argue that "the Enlightenment's confidence in science and human reasoning as a possibility to free human beings socially, politically and culturally still holds sway today" and the ontological and epistemological assumptions tied up in this view of the world influence the way education is conceptualised. The modernist and positivist view of the world is of an:

ordered, controllable, predictable, standardized, mechanistic, deterministic, stable, objective, rational, impersonal, largely inflexible, closed system whose study yields immutable, universal laws of pattern and behaviour and which can be studied straightforwardly through the empirical means of the scientific method" (Cohen, Manion and Morrison, 2011,p26)

In considering education within this modernist world, Usher and Edwards (2003, p24) contend that "education is very much the dutiful child of the Enlightenment and, as such, tends to uncritically accept a set of assumptions deriving from Enlightenment thought." According to Pring (2004, p 112) this view of education relies on teachers who, "through their education and training, have become 'authorities' within these different forms of knowledge." This view assumes an



inherent and pre-ordained human nature “existing independently of context and relationships, that can be fully realized through the transmission of a pre-constituted body of knowledge, assumed to be value-free, universal and offering a true account of the world and ourselves.” (Dahlberg, Moss and Pence, 2007, p20).

This modernist stance is challenged by the postmodernist perspective, which questions “the ideal of a complete and scientific explanation of physical and social reality” (Pring, 2004, p112). From the postmodernist point of view “there is no absolute knowledge, no absolute reality ‘out there’ waiting to be discovered. [...] Instead the world and our knowledge of it are seen as socially constructed.” (Dahlberg, Moss and Pence, 2007, p23). This view sees humans as being engaged in active meaning making with others and knowledge as being embedded in its situational, cultural and historical contexts. Pring (2004, p114) considers the consequences of this postmodern perspective for education, contending that it means a move away from “authoritative exposition” towards “a transaction between teacher and pupil”; a move towards transdisciplinary areas of learning and a move away from “the institutional creation and distribution of knowledge as we have known it.” (p115).

It is this postmodernist perspective that chimes with my work as an early childhood practitioner. This work is steered by my image of the child, by my assumptions concerning the nature of childhood and the ways children are seen to be able to act within the world. As a researcher I must acknowledge the ways that my image of the child pushes me in particular directions (Malaguzzi, 1994, p52) and the starting point for this research is the image of the unique and complex child participating in, contributing to, and determining their own lives, the lives of those around them and

their society. This image of the child aligns with the social constructivist theories of Vygotsky, in which learning leads development and social interaction is central to the process of development, and the view that “children’s cognitive development is embedded in the context of social relationships and sociocultural tools and practices,” (Rogoff, 1990, p8). I must also acknowledge the influence of my interest in the pedagogical project of Reggio Emilia on my practice, with its emphasis on documentation in which teacher's role is seen as that of researcher, formulating “new interpretations and new hypotheses and ideas about learning and teaching through their daily observations and practice of learning along with the children” (Gandini, 2008, p2). This means that the child is seen as a co-constructor of knowledge and the learning process is “not only for the child but also for the pedagogue, if he or she is able to encounter the child’s ideas, theories and hypotheses with respect, curiosity and wonder.” (Dahlberg, Moss and Pence, 2007, p35). Hill (1997, p171) notes that a shift or “reconceptualization of childhood” has “significant implications for research design and methods” and Janzen (2008, p292) contends that “when children are constructed as knowers and constructors of their identities and cultures, (re)consideration must be given to the research design, including the research question and data-collection methods, as well as data analysis.” The following section outlines the research approach for this study, which is informed by both the research questions and my positionality.

## Research Approach

In seeking to answer the research questions this study aims to explore and understand the nature of children's theory building. In keeping with my postmodern perspectives, epistemological and ontological stance, and my social constructivist view of learning, this research takes a sociocultural approach to enquiry and for these reasons adopts a qualitative and interpretivist approach to research. Cohen, Manion and Morrison (2011, p219) contend that "there is no single blueprint for naturalistic, qualitative or ethnographic research, because there is no single picture of the world." However there appears to be agreement on the main features of naturalistic research studies:

- they are carried out in their natural settings in which the researcher is the primary data-gathering instrument
- they are likely to make use of purposive sampling techniques
- they are more likely to use qualitative rather than quantitative methods
- data analysis is inductive and theory 'emerges' from the data
- the research design tends to emerge as the study progresses
- the natural mode of reporting is the case study

(Cohen, Manion and Morrison, 2011; Wellington, 2000)

In considering a case-study approach, I turn firstly to Cohen, Manion and Morrison (2011,p289) who assert that case studies "allow readers to understand how ideas and principles fit together". This chimes with the aim of this study, to understand more about how children build and use working theories as they go about their

everyday life in the classroom. The study focuses on real life situations and environments, and on the social behaviours, activities and relationships within them. It is a study of socially situated interactions. Stake (2005, p443) argues that a case study approach is not a methodological choice but more a choice of what is to be studied. This point is also made by Thomas (2011, p76), who describes the 'local knowledge case' in which the researcher has intimate knowledge of the context, which he considers to be a "ready-made strength for conducting case-study." This approach closely aligns with the context for this research, which is carried out by a teacher/researcher with a class of children with whom the researcher is very familiar. Yin (2009, p18) offers a definition of the scope of case study research. "A case study is an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident." This definition acknowledges the inter-relationship of the phenomenon and the context; it is because of the context that the phenomenon exists. This definition aligns with the aim of this study: to investigate the phenomenon of young children's theories within the everyday context of the classroom. The following section considers the particular case-study methodology adopted for the research, presenting a more detailed rationale for its use and a framework for analysis.

## Case Study Research

Thomas (2011, p90) argues that once the reasons for doing a case study have been established, researchers must also consider the purposes, the approaches and the process. The purpose of this study is to gain insight into young children's working

theories. It could be argued that as a teacher/researcher, professional responsibilities make this an intrinsic case study, a study in which the researcher wants a better understanding of the particular case, in this instance, the particular children for whom the researcher is professionally responsible. However, from the perspective of the role as a researcher this study is seen as an instrumental case study in which the researcher wishes to have deeper insight into an issue (in this instance young children's working theories), and the cases (the participants) play a secondary role. In this approach the cases allow the researcher to gain an understanding of something else and the choice of cases are made in order to achieve a better understanding of the issue (Stake, 2005, p446). With the research question in mind, this instrumental case study seeks to explain how young children build and use working theories in the classroom context but in doing so trades "breadth of coverage for depth of understanding" (Thomas, 2011, p101). Thomas (ibid.) argues that "potential explanations based on depth of understanding are what a case study does best relative to other kinds of research." Having considered the purpose of this case-study as instrumental and explanatory in nature, I now turn to a consideration of how the case study will be carried out.

The study aims to develop a potential model for the ways young children may build working theories, as well as the ways they use them in the play-based classroom. In order to develop this model the study takes an ethnographic, interpretive inquiry approach, which assumes "an in-depth understanding and deep immersion in the environment of the subject" (Thomas, 2011, p124) and reflects the "methodologically eclectic" nature of case studies (Cohen, Manion and Morrison,

2011, p297) by embedding ethnographic research practices within the case study design.

In a consideration of ethnographic research Aubrey et al. (2000, p111) contend that “the stated aim [...] is to understand people, and why people do the things they do.” They use the example of the teacher wanting to know more about the children they teach and their current understandings arguing that ethnographic research “offers an exciting opportunity to gain insights that may otherwise remain elusive. These insights may carry implications that are important for understanding the processes of teaching and learning.” (p112). This example ties in with the twin aims for this research: to explore children’s theories within my own professional context and to consider how knowing more about young children’s theories impacts the practice of teaching and the process of learning in an early childhood setting. An ethnographic approach for this case study provides a way of making children’s implicit understandings explicit. As a teacher/researcher it offers the opportunity for what Clough and Nutbrown (2007, p48) refer to as “radical looking” – exploring beyond the familiar to the roots of children’s interactions; a way of making the familiar strange, of making the invisible visible. However an ethnographic approach has unique characteristics to be considered. The researcher spends an extended time in the field, reflecting the anthropological origins of ethnography, and the focus is on the everyday experiences of the participants with an emphasis on how the participants see their world. The researcher takes a holistic approach, looking at social and cultural aspects of the community as a whole and acknowledging the wider context of the study and the final account is more than a description but is not an attempt at a literal reproduction (Denscombe, 2010, p80). Aubrey et al. (2000,

p116) highlight the ways in which participant observation has made an established contribution to ethnographic research, not least because it “enables the researcher to observe patterned, culture-specific behaviours, whilst immersed in the contexts in which these are occurring.” They go on to point out “it is of central importance that the participants are observed in contexts that form part of their normal everyday experiences, going about their daily lives, doing the things they would ordinarily do, with a minimum of intrusion from the observer.” (p115).

This study takes place over a period of 5 months, from February to June, in an early childhood classroom. I am in my usual role as class teacher, with the additional role of researcher and this dual role of teacher/researcher provides the context of normal, everyday experiences. A considerable proportion of my time as a teacher is spent observing children, interacting with them and taking field notes and photographs and this blends well with the role of the researcher in an interpretive case study. However, this dual role as teacher/researcher is not unproblematic (Wellington, 2000, p20). Although being ‘an insider’ does mean I have prior knowledge of the participants and the setting, there is the potential for preconceptions and prejudice and the potential for not being open-minded. During the study a research diary was kept and this provides one way of highlighting and reflecting on some of these issues, which Aubrey et al (2000, p119) refer to as “the ethnographer’s dilemma.” One major potential problem is the division of time and responsibilities between roles, however it is clear that the study must be second to my professional responsibilities as a teacher and this role takes priority throughout the research. Very often during the school day the participants are playing and interacting together. I am not participating and, given the nature of my professional

role and responsibilities, I am unable to maintain a focused observation. This is one of the pragmatic reasons for making use of digital video recording as a method for data collection and may also be considered as a way of introducing methodological triangulation into the study. However Flewitt (2006, p25) contends that “the use of video to investigate preschool classroom interaction forces a re-examination of established methodological and ethical practices in educational research.” Further consideration of the methodological implications for the use of participant observation and the use of video recording will be given in both the section of this chapter which details the ethical considerations for the study, and in the following chapter which offers further details of the data gathering methods.

Thomas (2011, p224) contends that case study and interpretive inquiry are “natural bed-fellows” as “each demands a deep understanding of the multifaceted nature of social situations.” He argues that interpretive case study is about building a theory, “by interpreting people’s words and behaviour, the ethnographer is building theory out of the naked, raw data that is available.”(p125). Thomas (ibid., p111) contrasts case studies in which theory is tested with those in which theory is built. He argues that building a theory is about “developing, almost from scratch, a framework of ideas, a model, that somehow explains the subject you are researching” (p112), and this approach aligns with the aims for this study.

As stated earlier, this study is an instrumental case study reflecting the main research question and its aim of exploring how young children build and use working theories. In considering the particular case study research process Stake (2005, p445) argues that “when there is even less interest in one particular case, a number of cases may be studied jointly in order to investigate a phenomenon.” Thomas



(2011, p141) takes this point further, contending that, in a multiple case study “the focus is unequivocally on the phenomenon” which in this study are young children’s working theories. However, in considering the framework for analysis, multiple case studies demand an element of comparison. Thomas (ibid., p141) contends that “because there are several, each individual case is less important in itself than the comparison each offers with the others.” This comparative element will be an important feature of the analysis of the data.

When considering the selection of the participants or sampling for the study the issue of generalisation comes to the fore. Denscombe (2010, p62) notes that the credibility of generalisations made from case studies are susceptible to criticism and Yin (2009, p43) asserts, “the external validity problem has been a major barrier in doing case studies.” However, aligning with the theory-building, interpretive approach for this study there is no aim to generalise the findings. Indeed Stake (2005, p443) cautions against losing focus in the search for generalisation and places the emphasis on “designing the study to optimize understanding of the case rather than to generalize beyond it.” In agreement with Stake Thomas (2011, p62) argues that ‘sampling’ of participants is not what is happening in case study research. There is no expectation that the participants are representative of the population as a whole and he suggests the participants are rather ‘chosen’ or ‘selected.’ Selection in this case is purposive to the extent that the participants are all between 4 and 5 years of age and know each other well as classmates, and convenient as the children are all members of the researcher’s class making access and ethical approval considerably less complicated. From a positivist perspective the imbalance between boys and girls taking part in the study could be seen to be problematic, however as

argued above, in a multiple case study the cases are representative of themselves and there is no claim to represent the population as a whole (Cohen, Manion and Morrison, 2011, p155). In reflecting on case study's "aura of methodological second best," Thomas (2010, p575) concludes that "it is the inability of the case study to offer generalizable findings that is at the core of the argument against this form of research as an instrument of serious inquiry." He goes on to contend that this argument "fails to recognise the limits of induction in social science generally" (p577), and offers abduction as an alternative process for building theory, abduction being a "fluid understanding explicitly or tacitly recognising the complexity and frailty of the generalisations we can make about human interrelationships." Put more simply, abduction is "making a judgement concerning the best explanation for the facts you are collecting" (Thomas, 2011, p212.) Accordingly this thesis makes use of abduction as a way of building theory from the data.

This research project is situated in the field of Early Childhood Education. It is clear by now that young children play a key role in the study and a major consideration for the methodology is the role of the children. I wish to turn now to a consideration of their role in the light of my positionality detailed at the beginning of this chapter.

### Children as Participants

Mayall (2000, p121) points out that much research, particularly in the field of psychology, "has been carried out *on* children, based on the assumption that children compared to adults, are incompetent, unreliable and developmentally incomplete". She stresses the use of the preposition 'on', noting that the aim is to study children's development and that they are to be "observed, judged and

measured". She asserts that this approach accepts what she terms "the generational order", which assumes the superiority of adult-knowledge and most commonly places the researcher as 'detached observer'. This view is shared by Greene and Hill (2005, p1), who point to an emphasis in early childhood research on "child-related outcomes rather than child-related processes and on child variables rather than children as persons." This approach comes from the modernist perspective referred to earlier but recent literature exploring research and children makes reference to a paradigm shift in thinking about children and childhood (Harcourt and Einarsdottir, 2011, p302; Alderson 2000, p242; Christensen and James, 2000; O'Kane, 2000, p136). Christensen and James (2000, p3) describe this as a "repositioning of children as the subjects, rather than the objects of research" whilst O'Kane (2000, p136) describes it as the "establishment of a new paradigm for the study of childhood, which seeks to explore childhood, children's relationships and cultures as areas of study in their own right." However, this paradigm shift towards a postmodernist perspective is not unproblematic. Punch (2002, p323) argues that research with children may be considered differently to research with adults for the following reasons, which relate to the way in which the status of children is perceived:

- Because there is an unequal power balance between adults and children in society.
- Because adults perceive children to be different - "the incompetent, unreliable and developmentally incomplete" child - and behave differently towards them.

- Because in some ways children are inarguably inherently different from adults due to their relatively less experience of the world.

In considering the role of the children in this study I draw on Punch's (2002) work and critically reflect on seven methodological decisions she identifies as significant, highlighting the reasons for the decisions taken in this research.

#### 1. Not imposing the researcher's own perceptions

Qualitative research with children and adults aims to enable participants to freely express their own perceptions however Punch (*ibid.*, p325) argues that "it is difficult for an adult researcher ever to totally understand the world from a child's point of view." Mayall (2000, p121) points to researchers working in the anthropological tradition, where the researcher seeks to "suspend notions of generational and status difference in the attempt to reach understandings of children's take on social life" using participant observation with children, which includes watching, listening, reflecting and talking with children. However, Mayall's (*ibid.*) experience is that children are always aware that adults have power over children and the two cannot operate on level terms. In this study, in line with Mayall's own approach, during participant observations there is an attempt to "work with generational issues, rather than to assume adult superiority or to downplay these issues." (p123). This will be explored further in the following chapter on data gathering methods,

#### 2. Validity and reliability

This issue centres on whether or not children are 'reliable informants'. As Punch (2000, p325) notes "a common assumption is that children lie or that they cannot

distinguish between reality and fantasy.” There is also the concern that children may say things in order to please the adult, highlighting once again the unequal power relationship between children and adults. However Thomas (2011, p62) advises against making validity and reliability a concern when doing a case study. In considering reliability he argues that in a case study “there can be no assumption from the outset that if the inquiry were to be repeated by different people at a different time, similar findings would result” and validity is meaningless in an interpretive study in which the researcher has little idea of what will be found. He argues that both reliability and validity belong to a normative research paradigm with no relevance for the case study.

### 3. Clarity of language

Punch (ibid., p328) contends that “adult researchers tend to be more conscious of their use of language in research with children.” Again my position as teacher/researcher means that I am used to talking with children of this age and with this particular group of children. I would agree with Punch who points out “the language dilemma is mutual” (ibid, p328) and again point to the relationship already developed with the children as one way of gaining their trust. It should be noted that, in my experience, some children never come to completely trust their teacher, due again to the imbalance of power in the classroom. Part of my professional role is to be aware of each child’s language development and as such I am aware of the linguistic and cultural background of the children and of their families.

### 4. The research context

Punch (ibid., p328) makes it clear that “the implications of the research setting need to be considered with particular care, awareness and sensitivity in research with children.” Due to the ethnographic nature of the research, the study takes place in the children’s own classroom and this is described in more detail in chapter two. Although at the beginning of the school year the children find the classroom set up and organised, during the course of the year the children take ownership and make decisions about various aspects of the room. Although the classroom is ‘open plan’ and the children are, for the most part, visible at all times, there are spaces in the room that are set up for privacy and require sensitivity on my part in deciding when or whether to observe those areas.

#### 5. Developing rapport

As a teacher with 25 years of experience I have a lot of experience of building rapport with young children and, as the class teacher, I have spent 6 months in the classroom with the participants prior to the start of this study. Part of my professional role is to develop strong partnerships with the families of the children involved in the research and this is also important for the research design as, for ethical reasons, the parents act as ‘gatekeepers’. This issue highlights the status of children in adult society as being vulnerable and in need of protection.

#### 6. Data analysis

Punch (ibid, p329) points out that ultimately it is the researcher who is in control of which data to include and the interpretation of that data. This study makes use of video recordings and the selection of the sections of video to be used is one issue for

consideration. The selection of video data is made by me but the children have the opportunity to watch the selections and are invited to comment on them and give their views about what is happening. In this way it is hoped to limit the tendency to process their talk through my own perspective as an adult. For ethical reasons the children are also able to withdraw their consent for the use of any part of the video at any time. Further details of the ethical considerations for the study will be given in the following section of this chapter.

#### 7. Using appropriate research methods

Punch (*ibid.*, p330) highlights the desire by researchers to “develop fun, ‘child-friendly’ methods, drawing on familiar sources or children’s particular interests.” She cautions however that although these methods may help children feel at ease “this does not mean they are not capable of engaging in methods used in research with adults” (p330). Waller and Bitou (2011, p17) point out that much of this type of research uses “techniques analogous with the norms of the early years pedagogy (such as the mosaic approach, group discussion, role play, asking questions, using pictures).” These approaches may simply reproduce the teacher-pupil balance of power in which children respond and participate accordingly. Gallacher and Gallagher (2008, p501) caution against being distracted by the “ethical allure” of ‘empowerment’ ‘agency’ and ‘self-determination’ offered by research methods designed to make research fun and relevant to children. Firstly they contest the idea that “children require to be empowered by adults if they are to act in the world (p503)”. They argue that by developing techniques specifically to allow children to participate, children’s involvement is then dependent on these adult-devised

techniques. They consider that “the very notion of ‘empowerment’ implies that without aid and encouragement from adult-designed ‘participatory methods’, children cannot fully exercise their ‘agency’ in research encounters.” Due to the ethnographic nature of the study the decision was taken not to design or use any particular method that might be considered more ‘child-friendly’, although the use of the video recorder was new to the children and many of them they enjoyed the opportunity to either use the camera or play to the camera. The use of the video recorder was piloted in the classroom so that the children could get used to its presence and they were given the opportunity to play back these recordings and watch themselves. It should be noted here that, although no child objected, my own observations were that not all children were entirely comfortable with watching the videos, even though they appeared to enjoy the recording process. Further consideration of this issue of ‘ongoing consent’ is given in the following section related to the ethical decisions for the study.

From this analysis of seven methodological issues I would argue that this particular research with children is different from research with adults, mainly because there is an unequal power balance between myself as a teacher/researcher and the children participating and also between adults and children in society, but there is also an acknowledgement that children are inherently different from adults due to their relatively limited life experiences and their developing competencies. This theme of power within the research relationship, along with the notion of the child as ‘other’, is considered further in the concluding section of this chapter, which presents the



ethical considerations for this study. These are complex due to the involvement of young children and the use of digital video recording equipment.

## Ethical Considerations

Morrow and Richards (1996, p98) contend that “the biggest ethical challenge for researchers working with children is the disparities in power and status between adults and children”. This position is supported by Thomas and O’Kane (1998) who point out that all research raises issues of consent, of confidentiality and of the possibility of abuse and exploitation, however in research with children these issues are more acute due to the power imbalance between the child participant and the adult researcher. As Dockett et al. (2009) reflect on their own work they acknowledge that there is a danger that children agree to participate because a figure of authority, an adult, asks them. This has particular implications for this study related to my role as teacher/researcher. Lahman (2008,p 285) reminds us that in all cases, not just in research, children are “Othered”. She maintains that “through all the varied images of child whether as sinner, innocent, vulnerable or competent is the constant underlying message that regardless of best efforts, child is Other to be theorised and articulated by adult”. However she goes on to contend that “the acknowledgement of child as Other is a step closer to understanding and engaging with children intersubjectively.” (p293).

Within this study there has been an attempt to make explicit my own image of the child and an acknowledgment of the influence of this image on methodological decisions. Alderson (2004, p100) contends that the researcher's image of the child also reveals their ethical relationship with the participants and she describes how the research process is influenced by this relationship. She describes childhood as a small glass cage into which we put children "and then examine how they perform within the cage's restrictions, instead of looking critically at the cage itself, its causes and effects". This research has its focus on young children's working theories and is not looking for 'learning outcomes' or specific pathways from teaching- causes and effects. There is no attempt at a glass cage but more an attempt to look at the porosity of children's worlds and of childhood – the movement of ideas between different spaces of their lives, between home and school experiences. This position is in keeping with Cocks' (2006, p262) support for the value of a reflexive approach, asserting that reflexivity can be used to "bridge the gap between the researcher and the researched". One way this research attempts to be reflexive is through the maintenance of a research diary. This reflexive and reflective attitude informs the issue of consent which are discussed below.

### **Consent**

Consent, continuing consent, and the right to withdraw are key issues for any researcher working with young children. Dockett et al (2009, p285), raise the question: "What constitutes informed consent in research with young children?" They acknowledge that, very often, the answer necessarily involves parental consent but they consider that this "does not negate the importance of gaining children's

agreement to participate in research.” They stress that seeking children’s informed consent is an ongoing process in which children “need to understand the nature of the study; what is going to happen; what will be expected of them; what will happen to the data and how the results will be used” (p288). This process involves “renegotiating consent” through an awareness of children’s verbal and non-verbal interactions that may be indicative of their willingness to continue to be involved.

Cocks (2006, p253) asserts that the search for a definition of ‘informed consent’ has centred on presenting materials that are understandable to a child, on making sure that parents wishes are not overlooked, on issues of power and on ensuring children know they can say no. She maintains that there has been little discussion on the issue of competence and how researchers assess and measure a child’s competence. For Cocks (2006, p256) the issue of ‘competence’ is problematic and is dependent on many contextual factors such as the researcher, the other participants, the time of day and the location for the research. She argues that “researchers need to move away from the restrictions of defining competence in order to find an inclusive method of gaining consent”, asserting that the process of “assent” is one way of achieving this: “assent is represented within the relationship between the researched and the researcher, by the trust within that relationship and acceptance of the researcher’s presence” (p257). Cocks (ibid.) goes on to point out that assent takes away the onus on the child to demonstrate attributes such as ‘maturity’, ‘competence’ and ‘completeness’: “rather it accepts the child’s state of being”. Assent does however place the onus on the researcher to be constantly aware of the children’s responses and ways of communicating. Most importantly, Cocks points to

the fact that assent must be embedded within an ethical framework and is “not something gained at the beginning of the research then put aside” (p257).

The ethical framework for this study represents an attempt to align with Cocks’ position with regard to gaining the children’s assent and continuing assent. In order to convey the ongoing nature or renegotiation of assent the ethical considerations addressed before, during and after the study are presented below.

### **Before the study**

In order to proceed with the study ethical approval was sought from Sheffield University and the confirmation is attached as **Appendix 1**.

In practice, the ‘gatekeeper’ for the study is the School Principal whose permission was sought in order to carry out the research. This was followed by obtaining ‘informed consent’ from the parents of the children involved. The parents were invited to a meeting to explain the study and each family received an information pack (see **Appendix 2**). Time was given to discuss the project with each other and with their child. The number of children in the study for whom English is an additional language was identified as a concern and so all families were given a list of points to cover with their child and asked to do this in their Mother tongue. The points were:

- I am trying to learn more about how children learn.
- Sometimes, as well as the usual classroom camera, there will be a video or audio recorder in the classroom recording what we all do or say.

- They will be told when the devices are there and when they are recording.
- They and their parents can see the video/audio recordings or photographs at any time.
- They can take parts of the video/audio out or delete them altogether if they don't like them.
- They can delete photographs they do not want used.
- I would like to share the videos/photographs with people I trust, who are also interested in how children learn.
- They can change their mind at any time.

The parents were then asked to complete and send in a 'Parental Consent Form' (see **Appendix 3**). Although none of the parents attended the scheduled meeting (many had already sent back the completed forms and were happy with the information given), there was some email contact and personal communication with three families. One family were concerned that their child's level of English would not be good enough to take part in the study. They were assured that the study would be looking at movements, gestures and body language, as well as spoken language in the study. In the end they decided not to give consent. Another family were concerned that their child might not be shown in a "good light". It was reiterated that they did not have to consent and their child did not have to take part but they were concerned that there may be opportunities their child would miss out on or be excluded from taking part in. The solution was reached that they would see all videos featuring their child and if they were not happy the video would be erased and the data not used. One family had previously stated that they did not wish their

child's image to be used in any school publications and were clear about not giving consent for this study.

Being in the position of class teacher necessarily means developing a close and trusting relationship with each of the children and the families taking part in the study. This is highlighted in the Early Years vision for the school, which states "We believe parents, teachers, and children contribute in meaningful ways to the determination of school experiences and aim to find ways to involve as many parents as possible in this process." (2011). In the school context within which the study takes place, the teacher is seen as researcher through the process of taking photographs, making field-notes, analysing and sharing these with colleagues and children. From working in this way I was confident that the children and parents would be accepting of me as both teacher *and* researcher. The project was explained to the children using the same list of points previously given to the parents with time for them to ask questions. During this session I was also looking for signs that children may be concerned or not wish to take part. At this point none of the children seemed concerned about taking part in the study and there was some excitement expressed by a few children at the prospect of being videoed.

Dockett, Einarsdottir and Perry (2012, p247) contend that children's assent to participate should be recorded in some way and in this study it was decided that a form would be used on which the children could record if they gave assent to me taking photographs, recording their voice and recording them using video (attached as **Appendix 4**). This was a record of the children's initial assent, although there was

an awareness that, at this time, the children may not feel in a position to say no to me. This led to a consideration of dissent, defined by Dockett, Einarsdottir and Perry (2012, p254) as: “children’s disinclination to participate, expressed verbally and/or non-verbally.” Before the study began there was a need to be clear about what would happen if any of the children did signal dissent. A set of assertions related specifically to dissent are provided by Dockett, Einarsdottir and Perry (2012, p252), namely:

Dissent does not need to be justified

Children’s dissent is binding

Children’s dissent is to be respected even when it impacts on the research.

It was decided that these ethical values would guide this research.

In an article reflecting on their study of three pre-school classes in three different countries in which they used video recording, Tobin and Davidson (1990, p276) note that:

Video-taping opens up powerful new possibilities for qualitative educational research. Some of these have the potential to empower children and teachers. Some are less benign in intent or outcome. In practice, all uses of videotape in educational research present troubling ethical problems.

Robson (2011, p180) makes two particular points for researchers to consider when focusing on the ethical questions that may arise from the use of video recordings with young children: that the production of video data is a collaborative process involving all participants, and that there is a “reciprocal relationship between ethics

and practice.” Before the study consideration was given to the event of the video capturing some behaviours or situations that might be considered to require follow-up action on child protection grounds; that might be considered controversial, might require intervention or require further investigation, such as a disclosure by one to child to another, or a physical incident between children. In this case my moral and professional responsibility is paramount and my duty of care as a teaching professional would determine my course of action. As stated earlier in this chapter, my role as a researcher is secondary to my role as a teacher. It was decided that any such information would be taken to the Principal for consideration and that the information from the video recordings may be used if necessary.

In this study the children were asked for consent as detailed above, but following Robson (2011, p183), it was considered that, in order to gain a better measure of informed consent for using video, the children should see themselves on video first. Again, due to the nature of my work as the class teacher and the position of the school in identifying the teacher as researcher, some of the children had already experienced being videoed in the classroom and watching these videos as a way of supporting their learning. Prior to the study it was ensured that all the participants had some experience of being recorded, of watching themselves on video, and of talking about their video. This also provided the opportunity to pilot the use of the camera. The pilot films highlighted the need to consider less serious, but still ethically relevant, moments that may be picked up on the recordings and may be embarrassing for the children involved, such as nose-picking or accidental exposure. The decision was taken to: ensure the videos were viewed before sharing them with



the children; anything I considered might be embarrassing for a child would be deleted; to show the recordings only to the children involved in the video and to re-iterate after watching that any part of the video could be deleted.

A fixed camera was used in the classroom as this was considered to be less intrusive than following children around the classroom. The children were told when filming would be taking place and which area of the classroom was being filmed. During the pilot use of the video camera a small number of children were very curious about the camera itself. Two children were particularly keen to watch their classmates through the viewfinder and moved the camera from one fixed position to another to keep their focus on the action. They told me they had moved it so they could continue to see what was happening. Other children were interested in moving their faces right up to the lens and were delighted to see themselves on playback. Some children would 'show' the camera various items from the classroom such as stuffed animals and again they enjoyed seeing these moments played back. It was decided after the pilot not to have any rules related to the camera in terms of touching it, moving it, or 'acting' in front of it. Although this helped the children to accept having the camera there as another piece of classroom equipment, it was clear that they were always aware of its presence. This lack of rules also provided the children with some degree of power over what was recorded.

The children had opportunities to watch themselves on video and as noted in the earlier section, although no child objected, my own observations and reflection from my research diary were that not all children were entirely comfortable with watching

the videos, even though they appeared to enjoy the recording process. After talking with the children concerned it was not considered that they had signalled dissent and they continued to participate in the study.

### **During the study**

Dockett, Einarsdottir and Perry (2012, p248) note that children signal dissent in many ways and this may happen at any time during a project. Children may use verbal signals or body language as a way of signalling their dissent. Knowing and working with the children in the study for five months before the research began meant being able to attune to the to the children's ways of communicating and gave me a better idea of when to remove myself, when to record and when to switch the video camera off. During the study a research diary was kept to reflect on the research process and on the responses of the children and this also enabled a reflexive approach to be maintained.

### **After the study**

Robson (2011, p185) draws attention to the "potential for participants' attitudes to change over time" pointing out that as children get older they may not be happy with recordings of their younger selves and may not wish them to be used. The acknowledgement that as children grow up they may change their minds about their assent places continuing responsibility on me as a researcher to ensure contact details are easily available for participants in the future, and to make decisions about ownership of the recordings. Robson (ibid.) points out that this implies "single ownership" when in reality, as the researcher, I have ownership along with the all of

the participants featured. Ultimately it was decided that, in keeping with normal school protocol, the children and parents featured would be offered the opportunity to keep a copy of the original recordings before they were deleted. This was made clear in the original meeting, in the information pack and the meeting with the children.

Robson (2011, p186) considers that “perhaps the idea of selection [...] is the most important challenge with respect to the impact of the observer.” As a lone researcher, the practical decision was taken to record for 20 minutes at a time, identify children’s working theories from the dialogue and interactions and transcribe and analyse those excerpts. It was my decision as to what was included and what was left out, what was shared with the children and what was not, however there is an awareness that these decisions were not neutral.

Tobin and Davidson’s (1990, p276) reflection prompted me to consider how I would feel about seeing myself in my role as teacher on video. Tobin and Davidson (ibid) recount how one of their teacher informants was unhappy with how she was portrayed in their final account (p277), and one issue for me to consider was the selection of excerpts from the videos and how my selection (as researcher) might be influenced by my view of myself (as teacher). The first recording made me acutely aware of how self-conscious I was while the camera was recording. There was an obvious concern with making sure the recording was clear and that the action was captured by the camera and it is recognised that this behaviour reflects my worries at the time. It was decided to keep those scenes in as part of the data, but they do

serve as a reminder of the “troubling, ethical problems” of using video in research (Tobin and Davidson 1990, p276).

Within this study, my own image of the child is the competent and capable child and it is this image that informed my methodological decisions. However, ethically I must return to Lahman’s (2008,p 285) assertion and acknowledge the child as “Othered” and I believe this is reflected in the approach to gaining consent, gathering data and analysing data described above.

## Summary

Broström (2012, p258) contends that changes in society, political support for children’s rights in the form of the United Nations Convention on the Rights of the Child, and postmodern perspectives on childhood have helped establish a new way of thinking about children’s lives in which children are seen as competent and having agency. However, as Punch (2002, p338) argues, the reasons underlying many methodological decisions in research with children “stem from children’s marginalised position in adult society or from our own adult perceptions of children rather than being a reflection of children’s competencies.”

The aim of this chapter was to set out the methodological approach to the study. It began with a consideration of how I am “philosophically and paradigmatically positioned” (Sikes, 2004, p19) and reflected on the effect of my postmodern, sociocultural stance on the research practice. This reflection was followed by a

detailed consideration of ethnographic case study research and a justification for this approach for this study. This chapter also considered the effect of my philosophical positioning on the role of the participants in the study and concluded with an explanation of the ethical considerations for the research.

The following chapter details the research methods used in the study with particular reference to participant observation and to the use of digital video recordings. It should be noted that as a novice researcher using naturalistic research, Miles and Huberman's (1994) recommendation for a tight research design with limited flexibility has been followed. However, this does not imply a step-by-step, linear approach to the research however, as the process was both iterative and recursive.

Having outlined all these methodological considerations, the following chapter shows how these were put into practice in the data collection, reporting and analytical processes.

## Chapter 4: Data Gathering Methods

### Introduction

For Cohen, Manion and Morrison (2011, p375) the main criterion for selection of any instrument for data collection is "fitness for purpose". Similarly Denscombe (2010, p154) advocates identifying a data gathering method that will be the most useful for the particular research project, suggesting that researchers should "operate on the premise that, when *choosing a method for the collection of data, it is a matter of 'horses for courses'.*" (original italics). This necessitates a return to the main research question for the study, in this case, how do young children build and working theories in a play-based context? The previous chapter argues that an ethnographic case study approach to this research offers the researcher the opportunity to explore what lies at the heart of children's play and conversations and "to make the invisible visible and to see what is visible in a different light" (Moss 2008, p132). The methods used for this study were selected with both this goal and the research question in mind. However, as pointed out in the previous chapter, this apparently uncomplicated approach to selecting a method for data collection is contested by Sikes (2004, p18) and one aim of this chapter is to be reflexive and reflective about the choice of data gathering methods for the study and show how the choice of methods also reflects the philosophical and theoretical stance set out in the previous chapter.

The study makes use of video recordings, observation, photographs and field notes as the main methods for data gathering. Whilst video recordings are used in the study as a way of capturing activities and interactions in specific contexts at scheduled times within the classroom and provide a record that can be viewed many times, participant observations and field notes are used for capturing the more selective observations of 'working theories' that occur opportunistically at different times during the school day. However data gathered from these 'participant-as-observer' observations in which the researcher is part of the normal social life of the classroom, documenting, photographing and recording as field-notes particular incidences and observations of 'working theories' taking place during the school day, are not unproblematic. As Dahlberg, Moss and Pence (2007, p154) point out: "the act of documentation never is and never can be an innocent act," and this chapter will discuss critically some of the issues related to the researcher's desire "to balance involvement with detachment, closeness with distance, familiarity with strangeness" (Cohen, Manion and Morrison, 2011, p457).

From a pragmatic perspective then, these two methods of data gathering, participant observation and video, afford a balance between the spontaneous and the planned contexts, between opportunities for taking an observer-as-participant role and opportunities for being participant-as-observer. However the use of photographs and particularly video as a means of collecting visual data also affords a multimodal perspective where, rather than focusing on the single mode of spoken language, these digital technologies reveal the "multimodal dynamism of classroom interaction" (Flewitt, 2006, p28). Nevertheless, as Flewitt goes on to point out, this

multimodal ethnographic approach presents challenges of its own and these will be considered both in this chapter and the following chapter related to the methods for analysing data. Additional sources of data from this study include video-stimulated accounts from the children and some personal communications (emails and conversations) with parents of the participants. This chapter will also introduce the participants in the study and consider how the use of methodological triangulation seeks to map out and explain more fully the details and complexity of their play and reveal the working theories within it.

In summary, the aims of this chapter are to:

- outline the rationale for the selection and use of the data gathering methods in the study
- introduce the participants
- clarify the researcher's role as observer and highlight the issues for the data related to this role
- discuss critically the technical, theoretical and cultural factors influencing the video data

## Choice of Methods

Considering one of the aims for this research, to explore children's theories and make them visible, and considering the ethnographic case study approach described in the previous chapter, with its focus on the social behaviours, activities and



relationships in real life situations and environments, the study would seem to be well served by naturalistic and participant observation described by Cohen, Manion and Morrison (2011, p465) where “the intention is to observe the participants in their natural settings, their everyday social settings and their everyday behaviours in them.” Stake (2005) celebrates the subjective nature of a qualitative inquiry, seeing this as being an essential element of understanding, but concedes a need for validation of observations through triangulation. Triangulation is the practice of viewing things from multiple perspectives (Denscombe, 2010, p346). Thomas (2011, p68) considers triangulation to be “almost an essential prerequisite for using a case study approach”, however he rejects the relationship between triangulation and validity in case studies and instead relates the need for triangulation to the desire for quality in research. He argues that “given the critical awareness that should be the trademark of good social science researchers, another viewpoint or another analytical method may make us decide to reject initial explanations.” In agreement with this, Cohen, Manion and Morrison (2011, p289) contend that "case studies recognize and accept that there are many variables operating in a single case and hence, to catch the implications of these variables usually requires more than one tool for data collection and many sources of evidence". Accordingly, this study makes use of different types of data collection and different sources of evidence as a way of revealing children’s theories, of building a fuller picture of these theories, and as a way of enhancing the quality of the study.

The image of the child is present as a recurring theme within this thesis and, as noted in the previous chapter, this has methodological implications for the research,

not least for the choice of methods for data gathering. Given the postmodern perspective of the child as unique, competent and a co-constructor of knowledge, this research rejects the superiority of adult-knowledge and role of the researcher as 'detached observer' (Mayall, 2000, p121) in favour of a paradigm taken from the anthropological tradition in which research is seen to be *with* children and the researcher uses participant observation as a way of attempting to "enter children's worlds of understanding." (ibid., p121)

Greene and Hill (2005, p3) note, that "studying children as persons implies a view of children as sentient beings who can act with intention and as agents in their own lives," a view consistent with the post-modern image of the child and, as such, respectful of the role and status of children as bearers of rights. This stance represents a move away from the premise that all children are 'the same', and recognises that children experience their own world in their own way. Nevertheless, although participant observation could be considered to be located in a paradigm that positions children as bearers of rights, Mayall's (2000, p121) view that children are always aware that adults have power over them must be acknowledged, particularly so in the context of schooling with its own cultures, expectations and structures. The role of the researcher as participant observer in this research and the relationship between the researcher and the participants will be explored further later in this chapter.

Exploring ethnographic fieldwork as a way of accessing children's views, Warming (2011, p49) asserts that one reason for using an ethnographic fieldwork approach in

her own research was to avoid verbally oriented methods such as interviews, recognising the challenges associated with gathering oral data “which favours children who master verbal expression at the expense of less verbally inclined children”. (p50). Essentially, some children’s voices are heard, whilst others are not and she concedes that during the first few months of her fieldwork some children’s perspectives and actions were only very seldom represented in her field notes. (p48). She explains that she was committed to collecting first-hand accounts and that the lack of representation of some of the less vocal children in her notes “reflects the ever present risk of reproducing the social construction of the [...] least privileged children’s perspectives and ways of acting as meaningless and insignificant”. (p49). Warming terms this as “the risk of reproducing symbolic violence.” (p48). In this study the use of video is one method of capturing the ways that young children also use materials, body language and gestures that reveal their current understandings and theories, and thus addressing the second research question that seeks to understand how young children express their theories.

Video- recording as method for data collection has become more widespread in research into Early Childhood Education as the potential of multimodal literacies has been realised. As Flewitt (2006, p25) points out, “new visual technologies have increased educational practitioners’ awareness of the potentials of learning in different modes and have changed the tools with which education researchers can collect, transcribe, represent, interpret and disseminate data”. Drawing on experiences from her own ethnographic video case studies of 3-year old children communicating at home and in a pre-school setting, she argues that video data

reveal ways that young children use materials and body language to express meaning and that this data challenges research which prioritizes the “monomodal sign system of spoken language” (p27). She highlights some of the reasons for the exclusion of nonverbal data from research: it is problematic to collect and analyse; it is seen as secondary to spoken or written data; and it is culturally and personally variable. She also recognises that when using video the researcher is faced with the challenges of linking visual, audio and written data and defining the relationships between them. However for Flewitt (*ibid.*,p48) the payoff is the build up of thick descriptions “that afford readers of the research text complex understandings of educational processes.” It is this aspect of video recording as a method for data collection that has particular significance for this study. The inclusion of both verbal and non-verbal data offers the potential for children’s theories to be revealed through their use of materials, body language and gesture as well as through the spoken word. This potential is greatly enhanced by the ability to view and review the recordings.

Within this research ‘working theories’ occur spontaneously in different contexts at different times during the school day and field notes and photographs can be used in an attempt to capture these occurrences with the researcher in a participant-as-observer role. However video also affords a method of capturing episodes of play and child-initiated activity with the researcher acting more as an observer-as-participant (Cohen, Manion and Morrison, 2011, p457). In this situation the researcher participates peripherally and as unobtrusively as possible but remains overt. The main modality for the use of video in this case is extraction (Haw and

Hadfield, 2011, p2): the aim is to use video to record children's play and to analyse the interactions in more depth. At first glance, the use of video for this purpose and in this context appears straightforward: it can be studied many times and can be slowed down if necessary, providing the 'rich' data required for ethnographic case study research, including verbal and non-verbal interactions. However Haw and Hadfield (2011, p31) caution that the three factors affecting data, technical, theoretical and cultural, "may interact in quite dramatic ways in the case of video, and that such interactions challenge the degree to which it is critically assessed as data." They assert that video data must be viewed and treated as any other source of data "with a high degree of criticality and reflexivity" (ibid.) and this position informs this study. The effect of these three factors on the research is presented later in this chapter.

It was noted in the previous chapter that, in line with the ethical stance taken for the study, the videos produced would be shared with the participants. Recent studies have centred on participatory approaches to the use of video in Early Childhood research. Robson (2010, p239) comments that video data provides "a context for interaction and shared reflection between the researcher, the child and the video episode, and is particularly supportive of participatory research which seeks to elicit children's own perspectives on their lives." This use of the video is significant for this research where the aim is to uncover children's current understandings and working theories. Robson's (ibid.) research focussed particularly on young children's own perspectives of their activities in a pre-school setting and used videotaped episodes of self-initiated play activities and audiotaped reflective dialogues between children

and their key workers. In this current study opportunities were provided for the children to comment on the videos in which they were featured providing the potential for the participants to reveal more about their current working theories as they recount what was happening in their play in what might be called 'video-stimulated accounts'. Theobald (2012, p32) describes how she uses video-stimulated sessions in which children watch a video recording of a specific event in which they were involved, and then account for their participation in the event. Theobald concludes that the video-stimulated accounting sessions allow children to be involved in the interpretation of data. She asserts that "when viewed from an interactional perspective and used alongside fine grained analytic approaches, video-stimulated accounts are an effective method to provide the standpoint of the children involved and further the competent child paradigm." (p32).

The choice of methods for this research considered the aims of the research, the philosophical positioning taken by the researcher and the theoretical underpinning of the study. The remainder of this chapter considers the use of participant observation and video in a more pragmatic way, outlining some of the practical considerations for each method whilst bearing in mind the technical, theoretical and cultural factors that influence the way data is gathered, what is gathered, and the status given to that data (Haw and Hadfield, 2011, p29). The following section begins by introducing the participants and goes on to consider the role of the researcher as participant observer in the study.

## The Participants

The children taking part in the research were all members of the researcher's class of 4 and 5 year olds. There were 20 children in the class, 13 girls and 7 boys, and permission to take part was sought from the parents of all 20 children, in line with the Sheffield University ethical guidelines (attached as appendix 1). 19 children were given permission to take part. Of these, one had parental consent with the proviso that any video used would be shown to the parents and could be deleted if they wished. This was agreed to and noted on the consent form. One boy did not have parental consent to take part and, as the study began, two of the boys left the school. This left a total a total of 17 participants (13 girls and 4 boys). All 17 children gave their initial consent to take part and ongoing consent was sought during the study, in line with the ethical approval for the study. There were no withdrawals during the course of the research.

**Table 1** below shows the participants represented by a pseudonym, their gender and their age at the beginning of the study.

Name	Gender	Age at beginning of study (years.mths)
Jane	F	4.6
Peter	M	5.5
Lucy	F	4.6
Adam	M	5.5
Rachel	F	5.1
Lucia	F	4.10
Joe	M	4.9
Rosie	F	4.10
Jake	M	4.7
Chloe	F	5.1
Cara	F	5.2
Sandra	F	4.6
Tracy	F	5.2
Helen	F	5.4
Vera	F	5.1
Lily	F	4.6
Megan	F	4.6

**Table 1: the participants**

For ethical reasons specific information concerning each child's nationality and mother-tongue is not included in the table, however the participants represent 14 different countries (UK, Germany, Australia, Sweden, France, Israel, Columbia, Spain, USA, Brazil, Canada, Switzerland, Italy and Algeria) and 8 mother-tongue languages (English, French, German, Spanish, Portuguese, Italian, Swedish, and Hebrew). Other than English as an additional language, no child participating in the study has any identified special educational needs.



## The Role of the Participant Observer

One of the major difficulties of ethnographic research with young children is for the adult researcher to enter into children's worlds. For the teacher/researcher this difficulty is heightened due to the power relationships already established within the classroom context. Mandell (1988, p464) describes one potential way for researchers to "capture the dynamics of children's interactions and to fit into children's interpretive acts without disturbing the flow," through the adoption of the role of 'least adult'. This role is described as "a membership role, which suspends adult notions of cognitive, social and intellectual superiority and minimizes physical differences by advocating that adult researchers closely follow children's ways and interact with children within their perspective." (ibid.) Mandell acknowledges many dilemmas with the role of 'least adult', one being that children have difficulty accepting an adult as nondirective. She considers that this "stems from their lack of experience of adults as participatory, enjoyable, and non-judgemental." (p442). For this particular research, carried out by a teacher/researcher, this 'least/adult' role would be particularly problematic, but also as Christensen (2004, p173) points out, "it seems simply to wish away the complexity of the differences and similarities between children and adults as they are currently positioned." Christensen (2004) favours the stance taken by Mayall (2000, p174) in which the researcher is seen "first and foremost as a social person and secondly as a professional with a distinct and genuine purpose." Mayall situates her approach, in the field of Child Health Care, as somewhere between 'least adult' and 'detached observer.' (p122). She acknowledges, what she terms the 'generational issues' rather than trying to

downplay them, stating: "I am asking children, directly, to help me, an adult, understand childhood." (p122). She goes on to describe how she uses research conversations with children in different contexts to explore children's knowledge, arguing that "through conversing with children we can learn about what they know and, to some extent, how they learn." (p120). Mayall (ibid., p133) highlights the advantages of research conversations as a means of data-collection with children: the researcher is able to "*somewhat*, hand over the agenda to children, so that they can control the pace and direction of the conversation, raising and exploring topics with relatively little researcher input", and the researcher is also able to "tap into one of the means whereby, through talking with each other, children firm up knowledge, and learn more about aspects of their social worlds." This position and the use of research conversations fit well with both the role of the teacher/researcher in this study and with the aim of uncovering and exploring the children's working theories.

When the researcher is in the role of class teacher the children are accustomed to notes and photographs being taken, as this is part of the daily routine. As explained earlier these notes and photographs are regularly shared with the children as part of the school day for the purpose of reflecting on their learning and planning for future learning. Within the study, during these moments the teacher may also be in the role of researcher, attempting to use iterative techniques for data collection with Rapley's (2011, p278) assertion in mind: "Always return to the field with the knowledge you have already gained in mind and let this knowledge modify, guide or shape the data you want to collect next." One concern with this approach is that

the participants in the study are so familiar with having their activities and conversations documented they may become almost unaware that it is happening and during these times the role of the researcher could shift from being considered to be a “participant-as-observer” to being a “complete participant” acting in a more covert way (Cohen Manion and Morrison, 2011, p465). For this reason it was decided to always make notes directly in the presence of the participants; to read back notes on conversations between the researcher and the participants, and conversations only involving the participants; and to share any other notes, observations and photographs with participants, along with a reminder about the research. It was decided to write up field notes as soon as possible after each observation, by the end of the same day at the latest.

Cohen, Manion and Morrison (2011) highlight “degrees of participation” in observation, outlining a continuum moving from “complete participation to complete detachment.” (p457). In this study the ‘participant-as observer’ role described above is balanced by the use of video which affords the researcher more of an ‘observer-as-participant’ role. Video-recordings are used in the study in an attempt to capture ‘working theories’ occurring in specific contexts within the classroom and at times the researcher may be considered as a non-participant and the video recording might be seen as typifying complete detachment. However, the use of video was overt and the researcher participated peripherally in the children’s activities. The children were aware of the presence of the video camera and the researcher was always present in the room during filming but was generally not involved in the activities. As explained in the ethics section of the previous chapter,

the videos were 'structured observations', made according to a schedule, with the context decided in advance. The following section presents the technical, theoretical and cultural influences, referred to by Haw and Hadfield (2011, p31), on the use of video for this particular research context. Technical influences relate to the effect video technology has on the nature of the data; theory affects the type and range of data collected; whilst cultural influences affect how the participants respond to the presence of the camera, as well as the relative status given to video within a range of other data.

## Using Video as a Data Gathering Method

### **Technical Considerations**

The quality of sound is one key issue highlighted as often being the weak link in the production of a high quality video (Haw and Hadfield, 2011; Heath, Hindmarsh and Luff, 2010). When piloting the use of the video camera in the classroom, it became clear that sound would be problematic for this research. Early childhood classrooms are inherently noisy places and the problem with the in-built microphone in the video camera as the main sound recording tool is that it picks up sound from all around. The alternative was for the participants to wear clip-on microphones, but this was not really feasible for a number of reasons:

- there would be no certainty about which children would choose to go into the area being filmed and so play would have to be interrupted in order for the children to clip on the microphones. This interruption would certainly disrupt the 'naturalistic' setting for the research.

- the type of microphones that could be considered would be limited. The cheaper option requires a wire to run from the microphone to a receiver but this is not at all practical with young children playing. Wireless microphones would be the only practical option and they are expensive and so the study would be limited by the small number of microphones that could be provided.

After recording several pilot videos using the integrated microphone it was clear that although not perfect, it would provide audible data that could be transcribed and it was decided to continue using it.

In considering the choice of camera for the study the first option was to use the camera with which the children were all familiar- a compact camera with an HD recording setting - and some pilot recordings were made using this camera. One of the problems with this camera is that the children are very familiar with it and are accustomed to picking it up and using it when they need to. For this reason many of the pilot recordings were interrupted. The size of camera was considered to be important if it was to remain as unobtrusive and un-intrusive as possible and so it was decided to use a small camcorder, dedicated to the purpose of recording the children and this was talked about with them. Through their actions both in the pilot recordings and in the actual recordings, the children demonstrated some ownership of the camera (they enjoyed looking through the viewfinder, they moved the camera around and they brought items to the 'show' to the camera), but for the most part recording was uninterrupted. Some consideration was given to the use of a wide-angle lens as a way of capturing more of the action in the spaces to be recorded.

Heath, Hindmarsh and Luff (2010, p48), point out that the use of a wide-angle lens tends to distort the image, noting that “settings which involve large numbers of participants, such as classrooms, can prove particularly difficult in this regard since the more you attempt to encompass the action, the more you lose access to the details of their conduct.” As the aim was to capture detail in the recordings it was decided to use the small camcorder without a wide-angle lens.

### **Theoretical Considerations**

Following and framing the action might also be considered to be essentially a technical consideration for the research, however there are theoretical issues wrapped up in the decision-making, with theory affecting the way video data is collected. Within this research the video recordings themselves are considered to be one part of a whole and without the context they are meaningless. Detailed descriptions of the context for each video were therefore kept as part of a research diary and these descriptions form an integral part of the data. Three videos were made in each of three different areas of the classroom, the ‘construction area’, the ‘role-play’ area, and the ‘art area’. The videos were made during a 4-month period (March-May) and groups of three videos were made on consecutive or near to consecutive days. A rough outline schedule for filming was made at the outset of the research, and the choice of the actual three filming days and times for each area was made one or two days in advance. Planning for nine sessions of filming was a way of keeping the amount of data gathered down to a level it would be possible for a lone researcher to analyse within a reasonable time-frame, but also gave some flexibility around the classroom timetable and the sorts of interactions and activities

that might be happening at the time. The decision to film on successive days was taken as a way of being able to capture moments when the children were returning to ideas they had previously worked on. They often leave play items overnight and return to pick up the play the next day and it was considered that this might be an important element for this study. The particular areas of the classroom were chosen for the different opportunities they offer children to develop their ideas and because, in this classroom and with these participants, these areas are most often sites for child-initiated activities.

One of the key issues for this research was whether to have the camera in a fixed position and film those children that happened to be 'in-shot' or to have a 'roving' camera following particular children. Arguments about the best way to film in research are not new (Heath, Hindmarsh and Luff, 2010, p40). Denzin and Lincoln (2003, p240) consider that the debate between two pioneers of film in the area of anthropology, Margaret Mead and Gregory Bateson, "vividly dramatizes these issues". In the conversation, (Denzin and Lincoln 2003, pp265-271) Bateson considers the use of film to be an art form, stating:

I'm talking about having control of a camera. You're talking about putting a dead camera on top of a bloody tripod. It sees nothing.

Mead considers film to be an objective record:

*Bateson:* If you put the damn thing on a tripod, you don't get any relevance

*Mead: No, you get what happened.*

As Denzin and Lincoln (ibid., p240) point out “it [the camera] is, of course, both and neither.” However it is acknowledged that the decision as to whether to use the fixed camera or roving camera within this research was influenced by ethical and practical considerations as well as ontological perspectives. In this study it was decided to place the camera in a fixed position on a tripod for each recording, which was considered to be less intrusive and facilitated researcher’s dual role of teacher/researcher. One option for the research would have been to ask a third person to operate the camera and follow a specific group of children but this would have introduced another perspective to the research. As Haw and Hadfield (2011, p35) note, “ in classroom videography, how we define teaching and where we look for learning are highly influential in what we film and the perspectives adopted.” The use of the camera cannot therefore be considered to be ‘neutral’ and whoever operates the camera makes their own decisions about what to include, what to focus on, when to zoom in, who to follow. Finally it was decided to set up the camera and begin recording while the children were present and already engaged in their play. Again, initially this was for both ethical and practical reasons. Ethically it was important to be sure that the children were aware that the camera was recording so that they could move away if they wished, and from a pragmatic perspective it was important to be sure that the limited field of focus for the camera was positioned so that it would capture some ‘action’. It was decided to do a check on the camera roughly half-way through recording to make sure it was still recording and positioned in such a way that it was capturing the ‘action’. There were times



when the camera was repositioned slightly during filming because the 'action' had shifted from the field of focus but as it happened, quite often it was the children who decided to move the camera during recording, either as part of their play or because they were interested in viewing the play through the viewfinder and needed to change the camera position to follow the action and allow them to continue viewing. This first happened during pilot-filming and was not something that had been anticipated. It had been considered to be important when positioning the camera that it did not interfere with the play setting or the free movement of the children and recording began with the camera on a tripod close to a wall. In fact, it could be argued that the involvement of the children added to the data in that it represents the view the children think is important and the decision was taken to have no rules related to the camera which meant the children could move the camera if they wished. It is noted that at times this did cause some frustration as there were two notable incidences of the camera falling and data being either lost or severely reduced in quality.

### **Cultural Influences**

Cultural influences affect the response to the presence of the camera and the status given to the data. As mentioned earlier, the children were used to being recorded and seemed to enjoy their efforts being captured. One child (Joe) would ask many times: "Are you going to send it to my mom?" In the end his mother did come in to see the video and Joe was very excited to show her the part where he was "having a coffee." There were also times when the children would bring items to 'show' to the

camera such as stuffed animals, toys and items of clothing. There was one incident of a child specifically planning her activity around the recording:

In the previous month I had completed filming 3 videos of the 'Construction area' and I had now moved on to video the 'Art area'. This was the second day of filming. The children had been told where and when the camera was recording and I had just finished the 30 minutes and switched off the camera.

**Rachel:** Mrs. Hill why do you video over there [the art area] and not over here? [the construction area] You did over there yesterday.

**Me:** Well I have 3 videos of the construction area and now I am videoing the art area.

**Rachel:** Oh, but we are not playing with blocks now [in the construction area]. We are doing cars.

*(She goes away and I pack up the camera. Rachel then comes back to me with a car)*

**Rachel:** I am going to draw a car now

*(She goes to the Art area and a moment later she returns)*

**Rachel:** You don't have the camera there now!

These types of interactions demonstrate that the children were comfortable with being recorded and saw their own potential uses for the data being gathered. Speer and Hutchby (2003,p 334) contend that researcher concerns about the presence of a recording device distorting or contaminating data:

only make sense if we work with a restricted view of data collection practices which treats them not as social occasions to which participants bring a whole range of everyday experience, knowledge and comprehension, but as neutral mechanisms for the retrieval of information, as separate and distinct from the interactional and social contexts of which they form part.

For my part, I was much more self-conscious about the presence of the video camera, and never 'forgot' that it was present. There was a tension between my role as teacher and that of researcher and this is clearly visible in some of the recordings. In considering if my actions were 'natural' and I can only provide an honest and personal conclusion that the presence of the camera did affect me. I appear uncomfortable at times and there are some points where I glance directly at the camera in a way that seems to be checking that the 'action' is being captured. As I wrote in my research diary after reviewing the first video:

*"Children seem fine, relaxed, happy. I look stilted, worried, anxious. Clearly over-thinking my role. Need to think about that."*

Haw and Hadfield (2011, p26) point out the paradoxically 'partial' nature of video as providing only a limited field of vision and failing to capture the "nuances and emotions that give specific meaning to an interaction". They point out that "the most commonly cited criticism of video is that it is used to make assertions about the intentions and perspectives of participants when it actually only contains data about 'visible' behaviours." (p27). This apparent paradox relates to the issue of whether video is treated as a form of data or as a form of information from which data can be generated. Haw and Hadfield (2011,p27) assert that the status of video as a source of data depends on "the extent to which the phenomena under study are visible or have to be operationalized to make them available to be captured on video." For this study, this means the extent to which children's theories are explicitly visible or whether children's theories can be visualised implicitly through a set of behaviours or actions. This accords with Prosser (2011, p479), for whom the

terms 'visible' refers to imagery and naturally occurring phenomena that can be seen, whilst 'visual' is not about the images but the perception and meanings attributed to them. As Haw and Hadfield (2011, p28) point out, "it is often the context, including the interactions that precede and follow a specific interaction, which gives it meaning for both the participant and the researcher." Within this study this means the researcher is looking not just at observed, sometimes subtle and possibly minute movements that may reveal children's working theories but also at the wider context in which these behaviours took place, moving from the micro to the macro level to consider what may have contributed to the working theories. This multilevel analysis is also highlighted by Flewitt (2006, p30) who maintains that video data provide insights not only into the dynamics of classroom interaction on the micro level of individual children and teachers in individual classrooms, but also reflect the broader ideological practices, embodied in the classroom environment and in the movements of teachers and children.

Flewitt (2006, p29) argues that visual data should not be seen as simply an 'added extra' to more traditional audio and written methods, but that it is the combination of visual, audio and written data that allows the researcher to explore the relationships between the focused view of individual children at particular moments in time and the wider view of children observed over time and in different social contexts. This 'zooming-in' and 'panning-out' affords the development of the thick descriptions essential for an understanding of the processes under inquiry- in this case the development and application of 'working theories' by young children.

## Summary

This chapter aimed to provide a rationale for the selection and use of the data gathering methods within the study and to look critically at the main methods used: participant observation and digital video recording. The methods chosen have been shown to contribute to the aims of the research, to explore children's working theories and make them visible, addressing the research questions for the study. Equally importantly, the choice of data-gathering methods reflects the sociocultural approach to the research and the postmodern image of the child that informs the study. The methods chosen have been shown to provide a balance between the spontaneous and the planned contexts, between a focused view and a wider perspective of the classroom context and a multimodal perspective afforded particularly by the use of video recordings.

One of the problems with video for a lone researcher is the volume of data produced. In this case it was hoped that specific activities and interactions would be captured and it was therefore decided to make approximately 3 hours of video and selectively transcribe those sections that were relevant. The rationale for the selection of these episodes and the methods for transcription are discussed in the following chapter, which details the methods used for the analysis of the data.

## Chapter 5: Analytical Processes

### Introduction

In line with the reflexive and reflective stance taken as a researcher, this chapter begins with a rationale for the process of analysis. Consistent with the main research question for the study and with the rationale for the collection of the data, a qualitative approach to the analysis of the data has been taken. As Denscombe (2010, p274) points out, “in a ‘raw’ condition qualitative data are likely to be difficult to interrogate in any systematic and meaningful fashion,” highlighting the necessity for qualitative data to be prepared and organised “in a way that makes them amenable to analysis.” This chapter aims to explain the processes for the organisation of the data gathered from the observations of the children’s play and conversations, from the informal interviews, and from the scheduled video recordings of the children in the classroom context.

Saldaña (2011, p89) contends that the purpose and outcome of data analysis is “to reveal to others through fresh insights what we’ve observed and discovered about the human condition.” With this in mind and a return to the research questions for the study, this process of analysis seeks to reveal what young children theorise about, how these theories are expressed, and how young children build these theories. Cohen, Manion and Morrison (2011, p535) make the point, however, that qualitative data are “multi-layered and open to a variety of interpretations.” As a novice researcher, in order to make sense of the data in this study there has been an attempt to develop what Rapley (2011, p274) refers to as “a qualitative analytic

attitude” which to me means being open to uncertainty and intuition whilst creating a coding schema from the detail in the data. A description of the coding and interpretative process for the research makes up the final section of this chapter.

In summary, the aims of this chapter are to:

- provide a rationale for the process of interpretation of the data
- explain how the data was organised for interpretation
- examine the particular issues related to the analysis of video data
- describe the process of coding and interpretation of the data

## Rationale

As an interpretive researcher my analysis of the data is viewed as “a matter of providing an understanding rather than providing something that is an objective, universal truth” (Denscombe, 2010, p236) and the process of analysis for this study begins with a return to the research questions:

- What do young children theorise about?
- How do young children express their theories?
- How do they build these theories?

The previous chapter indicated that the methods were chosen with the purpose of making children’s theories visible. The rationale for this analysis continues that purpose. The process of analysis aims to make visible the children’s working theories and provide some insight into how these theories are expressed and constructed.

However, qualitative research recognises the role the researcher plays in constructing the data (Denscombe, 2010). In chapter two, I presented myself as a teacher/researcher describing my professional background and acknowledging the theories and philosophies that guide my work and shape the context for the study. In chapters three and four, I acknowledged the interpretivist ontological and epistemological beliefs that influenced the choice of case study as an approach to the research and the choice of methods for gathering data. I also considered how my image of children as “knowers and constructors of their identities and cultures” (Janzen, 2008, p292), has pushed the research design in particular directions (Malaguzzi, 1994). Chapter three also set out the ethical values that guide this research, with a particular emphasis on the ethical considerations for research with young children. Each of these assumptions, values and beliefs influenced the design of the research and therefore also influence the process of data analysis, in agreement with Braun and Clarke (2006, p12) who argue that “researchers cannot free themselves of their theoretical and epistemological commitments, and data are not coded in an epistemological vacuum.”

The research is small-scale but is a focused and in-depth multiple case study and, in line with the research questions, the analysis aims to capture the rich detail, the complexities and the subtleties of young children’s theories, as well as the factors and influences that contributed to their development. The aim is not to merely describe children’s theories but to examine the underlying ideas; to go beyond a semantic approach to thematic analysis, and take a latent thematic approach (Braun and Clarke, 2006), returning to the idea of making the invisible visible. Braun and



Clarke (2006) identify two primary ways of analysing qualitative data: using either an inductive approach or a theoretical, deductive approach. However, consistent with the framework for the design of the study presented in chapter three, this study makes use of abduction as an approach to analysis, presented by Thomas (2010, p577) as “processes of garnering and organizing information to analyse and deal with our social worlds.” The analysis was “data-driven”(Braun and Clarke, 2006, p12) in that the themes eventually identified were not pre-conceived and there was no pre-existing coding framework, however, in line with the research questions for the study, Hedges and Jones’ (2012, p37) definition of working theories was used as a framework for the selection of the data for analysis:

the tentative, evolving ideas and understandings formulated by children (and adults) as they participate in the life of their families, communities and cultures and engage with others to think, ponder, wonder and make sense of the world in order to participate more effectively within it.

By using this definition the analysis focused not only on the content of the children’s theories, reflecting the first research question, but also on the social nature of the theories, reflecting the second and third research questions related to how young children build and express working theories in a play-based context.

Cohen, Manion and Morrison (2011, p535) note that “qualitative data analysis is distinguished by its merging of analysis and interpretation and often by the merging of data collection with data analysis in an iterative, back and forth process,” and this was the case for this study. It has been noted that the schedule for video recording was fixed, mainly for ethical reasons, but also to keep the amount of data generated

within reasonable limits. However the videos were watched on the day of recording and the general, semantic themes identified within them influenced the subsequent observations and field notes gathered as data.

## Organisation of the Data

### **Selection**

The data corpus for the research consists of all the data collected during the course of the study, which includes each of the 9 videos in their entirety (approx. 245 minutes) and all observations and field notes, records of communication with parents, and the entries in my research diary.

Whilst all of the observations, field notes, conversations and diary entries are considered as forming the data set, specific sections of the video recordings were selected to be part of the data set being used for transcription and analysis. The selection of these sections highlights the role of the researcher in the production of data and this is noted by Bezemer and Mavers (2011), who identify the methodological and epistemological implications of re-presenting multimodal interactions. They take a “social semiotic” approach to the analysis of video data, foregrounding the choices and decisions made by the transcriber in the production of the final transcript. They highlight the ‘framing’ of the transcript, arguing that the transcript “views the ‘original’ observed activity through a professional lens which is, inevitably, different from the lens through which the participants in the ‘original activity’ constructed it.”(p194). This is true for the data in this study. The video recordings were originally ‘framed’ as a classroom context in which the children

freely participated in play. In selecting and transcribing sections of the video-recordings, a new frame is added as the children's play is considered from a particular theoretical perspective and with the research questions in mind. The chosen sections were those instances in which the children were considered to be building or using working theories and, as noted earlier, Hedges and Jones' (2012, p37) definition of working theories was used to guide the selection.

This selection process involved multiple viewings of the video recordings in an "incremental process of refinement" (Bezemer and Mavers, 2011, p195) and initially reduced this data set to 7 episodes. However as the analysis progressed a return to the videos identified a further 6 examples of theory-building and these were also transcribed and analysed further.

### **Transcription of Video Data**

The transcription and dissemination of visual data present challenges of their own (Luff and Heath, 2012; Denscombe, 2010; Flewitt, 2006). Transcription is not a straightforward exercise and the transcription of video-recordings is particularly problematic and this is highlighted by Plowman and Stephen (2008, p541) who point out that "when this data is translated into another medium to facilitate interrogation by researchers or practitioners, the very richness of the images produced by video leads to some methodological challenges." One particular challenge is the 'translation' between modes, from images and gestures into words (Bezemer and Mavers, 2011). Flewitt (2006, p34) argues that "the term 'representation' is a more fitting description of the interpretive processes involved in the transformation of

visual, multimethod data resources into the written forms required by academic writing.” This is supported by Bezemer and Mavers (2011 p196) who contend that translation between modes can never be perfect, arguing that, from a social semiotic perspective, multimodal transcripts go beyond being a translation of description, “they are transduced and edited representations through which analytical insights can be *gained* and certain details are *lost*.” This perspective is consistent with one of the aims of this research, highlighted in both the methodology and in the rationale for the choice of methods for data-gathering, which is to explore beyond the familiar and to make the invisible visible. Bezemer and Mavers (2011, p196) contend that the transcript is a tool, which renders visible:

the socially and culturally shaped categories through which the researcher sees and reconstructs the world. From this perspective the ‘accuracy’ of a transcript is dependent not on the degree to which it is a ‘replica’ of reality, but how it facilitates a particular professional vision

For this research the following practices were employed when transcribing the video recordings:

- All transcriptions were transcribed by the researcher in order to remain close to the data and to guide future data collection
- The audio recording was not always clear and there were a few instances when reasonable interpretation had to be used. These are noted in the transcripts as unclear.
- The word order and use of grammar as it was spoken by the children is used in the transcripts. English is not the first language of many of the children and this represents an attempt to keep their voice in the data.

- The established conventions of a full transcript to record intonation or emphasis were not employed, although pauses are recorded where important to maintain the overall picture of an exchange of dialogue. I acknowledge Denscombe's (2010, p277) assertion that this does mean, "the data are stripped of some of their meaning."
- The transcripts consider the visual content of the recordings and are presented as a multimodal matrix with separate columns for dialogue and movement/gesture. (Flewitt, 2006, p39).
- Time is represented vertically, providing "an impression of how meanings made unfolded synchronously and diachronically and how they map onto each other" (Bezemer and Mavers, 2011, p202).

An example of a transcript is attached as **appendix 5**.

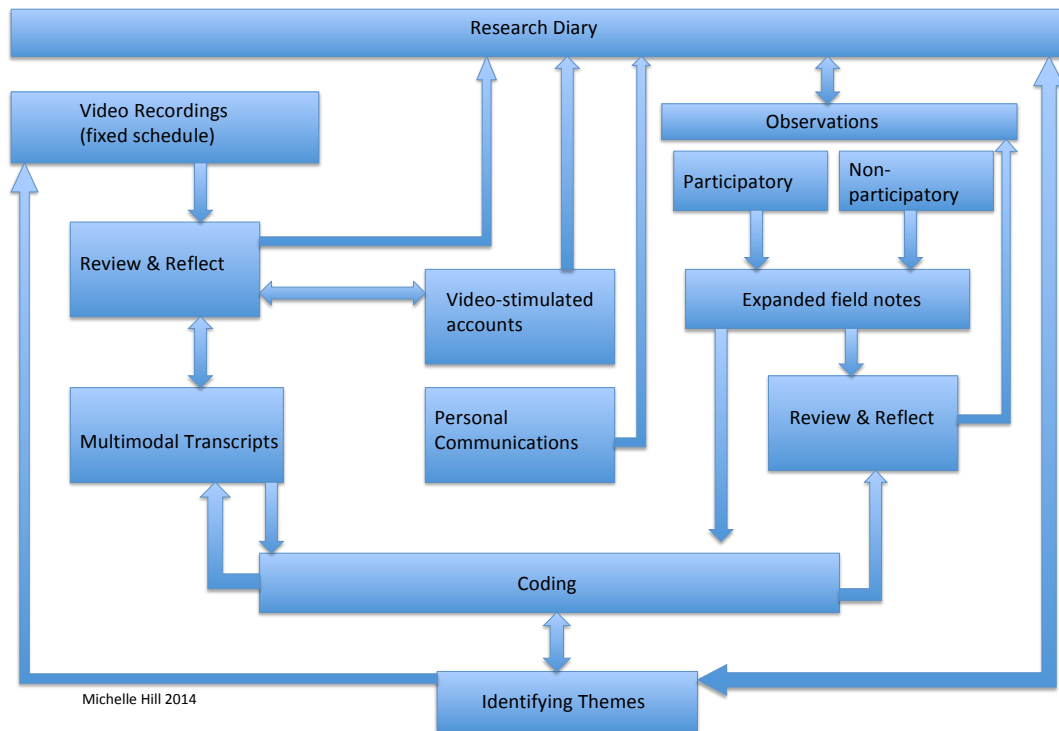
### **Preparation of Field Notes from Observations**

Cohen, Manion and Morrison (2011, p472) note the risk of bias associated with the use of observations in research, pointing to selective data entry and selective memory as two possible sources of bias. In this research all field notes were made *in situ* and handwritten in a bound journal. These quick and often fragmentary notes were of conversations, descriptions of children's activities and descriptions of my own activities and questions. These notes were expanded on, sometimes with the children, written up immediately after the event, dated and stored in a computer file. The expanded notes contain more detail about the setting and context, the participants present, the activities and the time. Even so I must agree with Cohen, Manion and Morrison (2011, p472) and acknowledge, "our memory neglects and

selects data.” (ibid). An example of field notes from the study is attached as **appendix 6**.

## Process of Coding and Interpretation

As a novice qualitative researcher Rapley’s (2011, P276) “mundane and generic analytic practices” that he contends cut across many forms of data-analysis methods were a starting point. He suggests beginning by engaging in a close, detailed reading of a sample of data. Braun and Clarke (2006, p16), in their guidelines for the use of thematic analysis of qualitative data, also suggest an immersion in the data “to the extent that you are familiar with the breadth and depth of the content.” They do point out however that their guidelines are “exactly that”, and that qualitative data analysis necessitates a movement back and forth, working in a recursive way, rather than in a linear way. This movement back and forth was also necessary for the data gathering using observations, which was iterative and to some extent dependent on the initial analysis of the videos and of previous observations. This relationship between data analysis and data-gathering is revealed in **figure 5.1** overleaf, which represents the process of analysis:



**Figure 5.1: The process of data analysis**

The initial active reading and re-reading of the entire data set, and re-viewing of the video recordings several times resulted in initial ideas and patterns noted in my research journal and on the transcripts. The next phase was to move from what was observed and video-recorded being said and done by the participants to “exploring and explaining what is ‘underlying’” (Rapley, 2010, p276), through a process of coding and Braun and Clarke’s (2006) guidelines for thematic analysis were used as a path. They suggest:

- Generating initial codes
- Searching for themes
- Reviewing themes
- Defining and naming themes

## **Generating codes**

Miles and Huberman (1994, p56) describe codes as “tags or labels for assigning units of meaning to the descriptive or inferential information compiled during a study.”

The phase began by working through the complete data set, and marking each unit of text with a descriptive code. It should be noted that during this phase manual coding was used, as opposed to computer assisted coding, and this was mainly for technical reasons, although using paper transcripts and marking on them directly was another way of maintaining closeness to the data. In the video transcripts both the audio and the visual content was coded. Initially my focus was concerned with a descriptive analysis of processes related to research question three (how do children build their theories?), and this initial coding resulted in a list of 17 codes presented in

**Table 5.1** below:



**Table 5.1: Initial coding list**

Coding List

Process	Definition
clarifying	Making the meaning clear
demonstrating	Physically acting out an idea
directing	Giving a direct instruction to another
justifying	Giving a reason for personal behaviour
Integrating knowledge and experience	Drawing on existing knowledge during current context
explaining	Giving a reason for something happening
responding	Providing an answer to a question or statement
negotiating acceptance	Conceding with conditions
disagreeing	Rejecting an explanation or suggestion
elaborating	Adding detail or complexity
constructing	Building on a suggestion or direction of another
presenting	Showing something to others
declaring	Stating knowledge as fact
physically embodying knowledge	Moving in way that is a concrete expression of current knowledge and understanding
hypothesizing	The prediction of the outcome of an observation or event, using existing knowledge or understanding as a framework
Appealing to a higher authority	Making clear the source of knowledge as being legitimate and credible (books, an older person)

These process codes provided a useful way of looking deeper at what is happening as the children build and use their working theories however, from re-reading and

re-viewing the data it was clear that they do not take account of the initial thoughts, ideas and patterns about the data which were more content-based. Perhaps more crucially, these codes did not offer a way into addressing the first research question: what do young children theorise about? At this point the analysis was firmly at the semantic level, but there was one particular phrase in the data that kept coming back to me and which prompted me to re-read the data through a different lens and code in a more critical way with a focus on relationships reflecting “the sociocultural contexts and structural conditions that enable the individual accounts.”(Braun and Clarke, 2006, p14). It was at this point that a shift occurred from “more verbatim, descriptive labels to more conceptual, abstract, analytic labels” (Rapley, 2011, p277). This round of coding generated a further 19 codes presented in **Table 5.2** below:

**Table 5.2: second coding list**

Label	Description
death	The physical act of dying
birth	The physical act of giving birth
motherhood	Being a mother
family	Being part of a family group
inequality	Seeing things as unequal and therefore unfair
grief	The sense of loss
self	Knowledge of who you are as an individual
justice	Punishing wrongdoing
responsibility	Having a duty towards others (related to morals)
morals	A sense of right or wrong
social norms	Behaviour that is socially acceptable
obligation	Having a given duty towards others
power	Being in control
authority	The power to give commands/make decisions
guilt	Having done wrong

## Searching for themes

This second round of coding led to the identification of two distinct themes. A theme “captures something important about the data in relation to the research question, and represents some level of *patterned* response or meaning within the data set” (Braun and Clarke 2006, p10). It was during this phase that two distinct themes were identified: ‘explicit working theories’ and ‘implicit working theories’.

- Explicit theories usually expressed as explanations in response to questions or observations. They may occur in child/child or child/teacher interactions, often informally in conversations and generally relate to the natural and physical world. In this study they are seen in the process coding as “explaining”, “justifying”, “appealing to a higher authority”, “questioning”, “clarifying”.
- Implicit working theories are revealed rather than expressed directly. They may be physically embodied in child-initiated activities and in play when some element of imagination is involved. They generally relate more to existentialist questions about human nature and society such as power, justice and equality.

These two themes relate specifically to the second research question concerning the ways that children express their working theories, but also offered a new way of looking at the main research question to consider whether the means of expression (explicit or implicit) reflects different ways that different children build their theories or whether different types of theory are built and expressed in different ways. The codes and their attached data were sorted into two distinct groups. The entire data set was then reviewed with these implicit and explicit theories in mind. According to

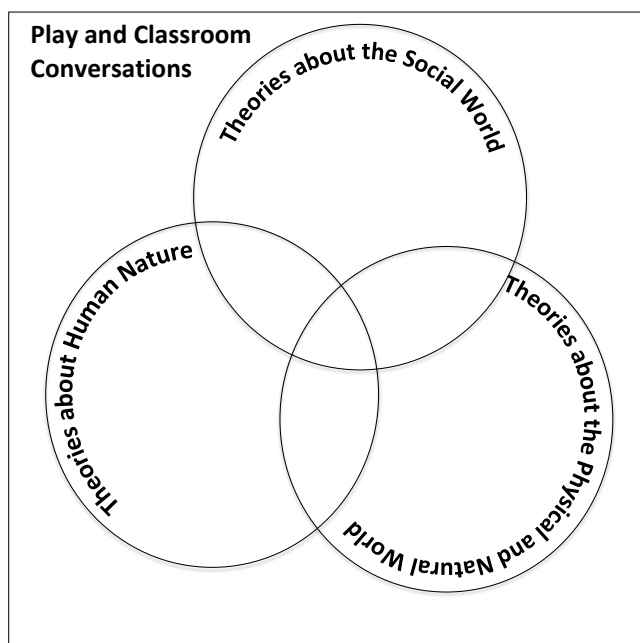
Braun and Clarke (2006, p20) “This is when you start thinking about the relationship between codes, between themes, and between different levels of themes.”

### Reviewing themes

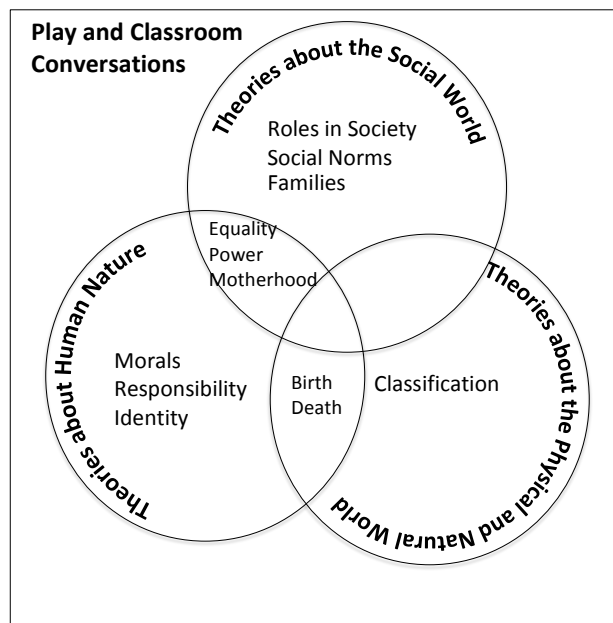
After further rounds of reading and re-viewing three further types of theory were identified: theories about the self; theories about the social world; theories about the physical and natural world. Refinement of the themes was necessary and this process of abduction lead to the conclusion that implicit and explicit theories are secondary to the primary themes: theories of human nature, theories of the social world and theories of the physical and natural world. These primary themes relate directly to the first research question concerning the form of children’s working theories and represent a pattern of meaning within the data set (Braun and Clarke 2006, p10).

Bazeley (2009,p9) asserts that “themes only attain full significance when they are linked to form a co-ordinated picture or explanatory model” and at this stage it was possible to produce a ‘thematic map’ to reflect the “meanings evident in the data set as a whole.” (Braun and Clarke, 2006, p21). This is presented as **figure 5.2** below:

**Figure 5.2: Thematic framework for children’s theories**



It was now possible to plot codes and associated data extracts onto the ‘thematic map’ and to see the relationships between them. An example is shown below in **figure 5.3:**



**Figure 5.3: Thematic framework for children’s theories with examples of codes taken from the data**

### **Defining and naming themes**

Braun and Clarke (2006, p22) contend that it is important at this stage to be able to define clearly “what your themes are, and what they are not.” It was at this point that a connection was made between the themes identified in the data and the organising themes used in the curriculum framework of the International Baccalaureate Primary Years Programme. This was referred to in chapter two as being the curriculum document used in the setting for the research. The IBPYP framework for the curriculum is organised around six themes, three of them being “Who We Are”, “How we Organise Ourselves” and “How the World Works” (IB,

2009, p11). Having reviewed the data once more and having considered the descriptors for the IBPYP themes (IB, 2009, p12), in accordance with the recommendation of Braun and Clarke (2006, p22) the final major themes are named concisely and are described below:

- **Theories Related to Human Nature:** *to self identity; to beliefs, values, religion; to rights and responsibilities; to relationships; to life and death*
- **Theories Related to The Social World:** *to the structures of human society- families, communities; to organizations in society such as schools and workplaces; to the roles people play in these organisations*
- **Theories Related to the Physical and Natural World:** *to the physical and biological world; to scientific laws and principles; the animal and plant kingdoms*

Each of these kinds of working theory may be expressed implicitly or explicitly. These themes offer a way to recognise and categorise the children's current working theories and to consider their origins and their development within the play-based context.

## Summary

This chapter aims to explain and describe the processes used for organising and analysing the data. This analysis made use of Braun and Clarke's (2006) guidelines for thematic analysis and indeed Braun and Clarke (ibid.) call for thematic analysis to be considered as a method in its own right. (p4). With regards to qualitative data analysis, Rapley (2011, p288) notes that the novice researcher may find themselves

“engaging in it in a very procedural way.” It should be noted however that the ‘messiness’ of this analysis is somewhat lost in the effort to make sense of the process to the reader.

Braun and Clarke (2009, p5) contend that “through its theoretical freedom, thematic analysis provides a flexible and useful research tool, which can potentially provide a rich and detailed, yet complex account of data.” The following chapter aims to provide such an account.

## Chapter 6: Presentation and Interpretation of the Data

### Introduction

This chapter aims to present a rich and detailed account of the data, consistent with the ethnographic case study approach described in chapter three. Flewitt (2006, p45) contends that:

The credibility of an ethnographic research text pivots not only on the robustness of the conclusions drawn based on a broad body of data acquired over time, but also on the transparency of the criteria for data selection, the depth and accuracy of data representation, and the need to convince readers of the research that the conclusions drawn are consistent with the evidence provided.

In seeking to achieve credibility, this chapter also aims to address the questions presented in the introductory chapter, the questions that drive this study:

- What do young children theorise about? (RQ1)
- How do they express their theories? (RQ2)
- How do they build these theories? (RQ3)

This represents a challenge for the researcher in finding a way to present the data in a form that is readable, making sense of the 'messiness' of data collection, the different types and modes of data gathered, the many voices in the study as well as the theories within theories, overlaps between theories and the factors contributing to the development of theories.



Vignettes provide one way of presenting the data in accordance with the ethnographic approach taken for the study. According to Grbich (2007, p214), “a vignette is like a photo with blurred edges, and it provides an example or small illustrative story which can clarify a particular point or perspective regarding some finding in the data.” This chapter presents extracts from the data in the form of vignettes as a way of building a thick description of the participants and of their relationships with each other, with their environment and with the researcher. Where the vignettes represent data from video recordings, they contain the multimodal transcript as a way of portraying the “spatial simultaneity of multimodal meaning-making” (Flewitt 2006, p44). Some of the vignettes contain still images from the recordings as a way of conveying more of the detail and rich information contained in the video-recordings. Data from participant observations and conversations is also presented in the form of vignettes taken from field notes. Some photographs are also included, again as a way of building the description and adding rich detail to the account in order to “provide a sufficiently revealing, varied and full picture of the phenomenon, participants and settings’ (Cohen, Manion and Morrison, 2011, p240).

The previous chapter outlined the process of data analysis in which incidences of working theories were selected from the videos and observations. Flewitt (2006, p45) notes that “the processes of representation always involve processes of selection, limiting what the reader of a research text can know about the dynamic event” and, in aiming to provide a credible account of the data this chapter seeks to be transparent about the process of selecting data for presentation.

In summary, this chapter aims to:

- Provide a rationale for data selection and presentation
- Present a rich and detailed account of the data, “interspersed with relevant figures, tables emergent issues, analysis and conclusion” (Cohen, Manion and Morrison, 2011, p301), and addressing the three driving questions presented earlier.

## Selecting Data for Presentation

The identification of different themes for working theories within the data indicates the content of the children’s theories and thus provides evidence to address the first research question. However the thematic framework (figure 5.2) indicates that there are many overlaps and any given working theory may be about aspects of human nature, the social world and the physical and natural world. The following vignette (6.1) provides an example:

### Vignette 6.1: Helen and the worms

April: Outdoor learning. Approx. 9am

Field-notes from a conversation

*The children begin each day playing outside in an area that includes access to a small garden with a pond. There are some bales of straw and a popular activity is to turn over the bales to see what is underneath. Helen (5yrs 6mth) and I turn over a bale of hay and there we find a newt. Helen picks it up and examines it carefully as it moves slowly from one hand to another. She counts the toes on the front leg and then the back leg. She puts the newt back under the hay bale and asks for help to turn over another hay bale. Helen spots a centipede and she notices how quickly it moves...*

1. Helen: That’s because it has so many legs. So many we can’t count them. They are so close together.
2. *(She pauses and continues to watch the centipede)*
3. Helen: I think it’s going to find its Mummy
4. *(Under another bale we find some worms. Helen picks up the largest and longest worm and examines it carefully)*
5. Helen: It’s a Mummy one... Or a Daddy one.
6. *(She gently moves all the worms closer together before covering them back up)*
7. Helen: They are a family all together.

Initially Helen is interested in the way the animals in the garden move. In **line 1** she expresses an explicit working theory about the physical and natural world in the form of an explanation - the more legs the creatures have, the faster they move. She then begins to ponder more about the life of the creatures she is observing and applies her knowledge of human family groupings to the lives of the garden animals. She builds a working theory about the natural world that also has aspects related to human nature (**line 3**) and the social world (**lines 5 and 7**) namely that worms and centipedes (or possibly *all* garden creatures) live in family groups, and the young are looked after by the parent, which she theorises must be the mother. Helen's interest in the garden and the creatures that live in it provides a context for both the use and the development of working theories related to the natural world, the social world and to human nature.

The research diary kept during the study, highlighted other apparent areas of interest for the children which provided different contexts for the development of working theories:

## Extract from research journal: August 4<sup>th</sup>

Initial thoughts on data...the themes that seem to be emerging are:

### **Dying/Life after death**

This comes up in the first video in March (Shark Attack). The whole vignette is really about playing at being dead and working through what happens to you. Chloe talks about dying and not waking up, and then Lily also offers to die. ...Adam also reveals his ideas about death being final and what happens after you die. He seems to get some of his ideas from Scooby Doo, which he references when watching the video a few days later.

Later in the year another group of children incorporate death and returning from death into their play. The idea of covering a body with tissues or paper (seen in the Shark Attack video) is repeated. Tracy talks about being 'dead forever' and not having her face covered.

### **'Goodies and Baddies' – Good and Evil**

There are some references to Superguy in the videos. Adam talks about superpowers and about practicing at being a superhero. 'Goodies and baddies' were explicitly discussed. Peter seems to be particularly knowledgeable. Adam talks about guns being used against 'baddies'. Peter and Adam have a conversation about the use of jail for 'bad people'. Of interest here is the way song lyrics seem to be a source of information or interest.

### **Jobs and Work / Families**

This theme is explicit when Cara takes on the role of waitress. She has the tools for the job (pencil, pad, open/closed sign) and from her mannerisms in the video seems to take on 'signs' of being a waitress - her tone, her stance, the discourse. In a second part from the same video, Cara and Lucia talk about jobs and work explicitly and separate themselves as 'workers' from everyone else. (Is this a theory? - Worker as separate from others?) Adam seems to suggest that having a job and being a parent are mutually exclusive.

Adam and Peter talk about being 'The Boss of the World, Peter refers to being 'the boss of people'. Again Cara has the theory of the 'worker' and 'other'. In the video of the assembly Rachel is in the role of teacher. The group has taken on the idea of performing in an assembly. Rachel leads the 'musical ensemble'. Rachel uses the movements and discourse she has seen and heard. The other children accept her as being in control.

As might be expected, 'families' is a theme for play-who'll be the mummy?

This prompted a closer analysis of the areas of interest or play theme that provided a context for the theories identified during the course of the study. Consistent with the multiple case study approach to the research described in chapter three, the following table (**table 6.1**) summarises: the play theme/data event in which each participant appears, the types of theories constructed within these data events, the method of data-gathering used and the month in which these theories were observed.

**Table 6.1: Children’s interests and related theories during the study**

Participant	Area of interest/ play theme	Type of Theory	Data source	Month
Jane	The assembly Death and dying	Social/Human nature Human nature	Video and conversation Observation/parent correspondence	March June
Peter	Bosses Good and evil Death and dying Swimming pools Families Boats/floating & sinking	Social/human nature Human nature Human nature Social Social/natural world Physical & natural world	Observation/conversation Observation/conversation Observation/conversation Observation/conversation Conversation Observation	April & June March, April, June June June May March
Lucy	Death and dying Homes	Human nature Social	Observation Video	June April
Adam	Death and dying Good and evil Swimming pools Boats/floating & sinking	Human nature Human nature/social Social Physical & natural world	Video/conversation/re-view/ parent conversation Conversation Observation/conversation Observation	February, March, April March, April, June March, June March
Rachel	The assembly Plants Houses/homes	Social/Human nature Natural world Natural world	Video and review Conversation Video	March May April
Lucia	Death and dying The assembly The café Plants	Natural world Social Human nature/social Natural world	Conversation Video Video Observation	March March May April
Joe	Houses and homes The café	Social/human nature/, natural world Social/human nature	Video/observations/conversation Video/conversation/parent conversation Video, observation	April, May, June May
Rosie	Popular culture Death and dying The assembly	Human nature Human nature Social/Human nature	Video, observation Observation video	April, May, June February, June March

**Table 6.1 continued: Children’s interests and related theories during the study**

Participant	Area of interest/ play theme	Type of Theory	Data source	Month
Jake	The café	Social, human nature	Video	May
	Families/brother	Social, human nature	Video	May
	Death and dying	Social, human nature	Observation	June
	Plants	Natural world	Observation	April
	Houses/Homes	Physical world	Video	April
Chloe	Death and dying	Human nature	Observation, video, conversation	February, March, June
	Families/mother role/birth	Human nature/social	Video, conversation, review	March, May
	The assembly	Social/human nature	Video	March
Cara	The café	Social, human nature	Video, review	May
	Motherhood/birth	Social/human/natural world	Video	May
	Making village	Social/ human nature	Observation/conversation	June
	Swimming pools	Social/human nature	Observation	June
	Houses/homes	Human nature/physical world	Video	April
	Family role/mother	Social/human nature	Video	May
Sandra	Family celebrations	Social/human nature	Video	May
	Plants	Natural world	Video	April
	Death and dying	Human nature	Observation	June
Tracy	Motherhood/birth	Human nature/natural world	Video	May
	Making village	Social	Observation/conversation	June
	Swimming pools	Social /human nature	Observation	June
	Death and dying	Human nature	Observation	June
Helen	Worms	Human nature/natural world	Observation/conversation	April
	Family celebrations	Social/human nature	Video/review	May
Vera	Plants	Natural world	Video	April
Lily	Death and dying	Human nature	Video	March
	Birth	Human nature	Video	May
	Families	Social/Human nature	Video	May
Megan	The assembly	Social/human nature	Video	March

This research makes no attempt at a formal quantitative analysis of the data, but the table does offer some insight into the first research question concerned with the content of children's theories. During this study, in each case there is evidence of theory-building related to aspects of human nature and to the social world. Although there was some evidence of children theorising about the physical and natural world, these theories usually contained some aspect related to human nature and the social world. There were very few instances of children's theories that could be considered as purely about the physical and natural world.

The table also highlights particular interests evident in the data: some children's deep and continuing interest in death and dying, repeated discussions about good and evil, and an interest in replaying of adult roles in society. Looking at the number of times each of these interests is represented in the data, the fact that these ideas are returned to throughout the study, and the types of working theories that appear to be in operation, they could be said to be representative of "fundamental inquiry interests" (Hedges, 2010, p33) within which the children are using, and simultaneously developing, their working theories. This continuum of children's interests and inquiries was highlighted in the literature review for this study and asserts that "underpinning the children's intent observation, participation in, and contribution to social and cultural activities in the home, centre and community settings, there appears to lie a fundamental inquiry about life as a human being." A review of the data for this study suggests that during the period of the research many of the children shared fundamental inquiry interests about death and dying; morals, power and justice; and families and social roles, particularly motherhood.



This evidence of young children building their theories through shared interests relates to research question three for this study: how do young children build their theories?

Evidence for the second research question for the study, which is concerned with how working theories are expressed, comes from an examination of these fundamental inquiry interests through the lens of the children's implicit and explicit working theories identified in the previous chapter. Explicit working theories are expressed as explanations in response to questions or an observation, while implicit working theories are revealed through movement, gesture and body language. The children's working theories as they follow their interest in death are presented first, followed by data highlighting the children's working theories concerning family roles, as they follow what seems to be a fundamental inquiry interest in motherhood. Finally, an account is given of the children's working theories regarding morals, power and justice in society.

In addition to fundamental inquiry interests Hedges' (2010, p33) continuum also presents "activity-based play interests" and "continuing interests." The data from this study also provides instances of working theories being used and developed in the context of these "activity-based play interests" and "continuing interests." Examples of these are presented in the remaining section of this chapter.

## Fundamental inquiry Interests

### Death

During the course of the study it was noted that the children had a deep and continuing interest in death, in what it means to be “dead forever” and in what happens after death. This interest had been noted in their play in the months prior to the formal data gathering for the study and, as the data shows, it continued for the duration of the study, such that it could be considered to be a “fundamental inquiry interest” (Hedges, 2010, p33). The data provides many examples of the children playing a game in which the face of the ‘dead’ child is covered with a tissue. At the very end of the study, in a session to review the data with the children and check for on-going consent, the children confirm the rules of the game:

Tracy tells me, “Oh that’s when we played ‘Dead Forever’. We died and if your face is covered you are dead forever.” The children all agreed that this game was “so fun.”

The following photograph (**figure 6.1**) was taken during one of these games.



**Figure 6.1: Rosie playing 'Dead Forever'**

This image from early February shows Rosie lying on her back on the floor, her arms above her head and her body at an angle and she is motionless amongst the play items. Two tissues cover her face. Her body position is striking. She lies in a position that appears uncomfortable, on her back, arms up and legs apart suggesting vulnerability. The apparent limpness of the body and the position could be said to be the physical embodiment of Rosie's theory about the physical nature of death. This body position and the dishevelled nature of her clothing almost convey a suddenness associated with a more violent end to life. This contrasts with the images in **figures 6.2** and **6.3** taken in June, which suggest a more peaceful ending. They show Lily and Rosie as 'dead' (**figure 6.2**) and 'dead forever' (**figure 6.3**). Both

have outstretched arms, the legs together and the body straight. The manner of death may be influenced by the 'princess' role both children are playing.

**Figure 6.2: 'Dead'**



**Figure 6.3: 'Dead forever'**



In March the following episode was recorded.

### Vignette 5.1 : How about I die too?

March 8<sup>th</sup>

11.44am in the classroom

Participants: Adam (5yrs 6mths), Chloe (5yrs 5mths), Lily (4yrs 7mths)

The camera is placed on a low cupboard and focussed on the carpet area.

This is a large area with a mattress and cushions at one end. Around the carpet are a range of sizes and shapes of wooden blocks as well as a set of brown, foam building bricks of uniform size and shape. Earlier in the day a group of children had created a 'swimming pool' made from the brown blocks and in this extract 3 children are playing next to the 'swimming pool'.

Chloe lies motionless on her back on the mattress. She explained earlier that she has been bitten by a shark in several places on her body. Lily sits next to her, dressing Chloe's wounds with paper. Adam sits and watches Lily for a short time before turning away, apparently losing interest.

1. **Lily:** How about I die...too?

Adam turns back to face her

2. **Lily:** OK?

3. **Adam:** And I've left you there because I had to practice doing Superguy.

Lily gets up quickly and runs out of shot

4. **Lily:** Yeah, but I was quite dead and you noticed me.

Adam gets up and puts a piece of rubber he was holding on a shelf

5. **Adam:** Yes, because I could do diving and I spotted you.

Chloe remains motionless.

Adam goes just to the edge of shot and bends down. He takes Lily's wrists and walks backwards back into shot dragging Lily by the wrists. She is on her back, body limp, her head is back, eyes closed and her hair is dragging on the ground. Adam heaves her next to Chloe. He walks away

6. **Adam:** Lily is dead and now there is only me left in my family and *that's not fair for my life.*

It is the final line and specifically the phrase “*and that’s not fair for my life*” (**line 6**) that suggests that, for Adam, this episode represents a working theory about the *unfairness of death*. The image below (**figure 6.4**) is a still taken from that video recording. It shows Adam dragging Lily’s limp body across the floor, the physical embodiment of a shared working theory of the effects of death by drowning.



**Figure 6.4: Adam drags Lily from the water**

In the foreground lies Chloe. As I approach to check the camera and record some observations, Chloe turns her head very slightly towards me to tell me she is “dying and not wake up.” I take this to mean that she is ‘dead’. The conversation continues and is re-presented in **vignette 6.2**:

### Vignette 6.2: Chloe's shark attack

7. Chloe: I was dying and not wake up	shaking her head slightly
8. Me: You were dying?	
9. Chloe: Yes because a shark eat me	she lifts her left arm and makes a claw with her hand
10. Me: Oh no!	
11. Chloe: Here and inside of my tummy	she lays her hand flat on her chest
and here	lays hand on her stomach
and here	lays her hand on her forehead
and here	points to right elbow
and here	points to left and right thighs
	Lily is kneeling dressing Chloe's wounds. She looks up at me.
12. Lily: And she's having a baby and we have to look after her...	

Each place that Chloe points to has been covered with a tissue. Interestingly her face is not covered completely by the tissue, indicating that she is not “dead forever.” There seems to be an implicit theory amongst the children that death is not necessarily a permanent state, indicated by Lily's assertion that Chloe must be taken care of **(line 6)**. This idea is repeated as the play unfolds **(Vignette 6.3)**:

### Vignette 6.3: Chloe comes back from the dead

1. Adam: Lily is dead and now there is only me left in my family and that's not fair for my life.	Lily stays lying down. She opens her eyes, moves her head very slightly to look at Adam.
2. Lily: But you have to look after us too, right?	
3. Adam: Yeah, but you're dead and I'll have to put you in the cross where the cross goes and you'll be dead in there.	Chloe suddenly sits up.
4. Chloe: And I come back alive	

Lily seeks reassurance from Adam that he will look after her and Chloe, even though they are dead **(line 2)**. Adam does not share the theory about death being temporary and clearly has his own theory about what will happen, making reference to a cemetery **(line 3)**. Chloe is equally clear in her response, getting up quickly: she can come back alive **(line 4)**.

Later, when watching the video, Adam tells me: "The cross is in the graveyard. Like in Scooby-doo. And there are ghosts."

I ask him: "Can people come back alive?"

He replies: "No, they can come back alive but are ghosts and you can't see them"

This is an example of the role played by television and popular culture in the funds of knowledge Adam brings to his play. It is also indicative of the way Adam is building



his working theories about death through a combination of his funds of knowledge, his fundamental inquiry interest and through the social construction of knowledge in play. This building of a working theory becomes even more apparent four days later when Adam is forced to rethink his theory as new knowledge is brought to light.

**(Vignette 6.4 )**

**Vignette 6.4: Adam and Peter talk about the footballer Fabrice Muamba**

March 12<sup>th</sup>. Morning snack at approx. 10am  
Field-notes from a conversation

*Peter (5:6) and Adam (5:6) are eating snack together in the classroom. They are good friends and they often choose to play together. I join them at the table.*

1. Adam: *(looking directly at me)* Do you know the world's greatest football player, he died and went to the doctor and the doctor electrocuted his heart and he became alive. He didn't even come back alive by a ghost.
2. Peter: That's not true
3. Adam: *(to me, his eyes are wide open as he speaks)* He says that's not true but my cousin told me.
4. Peter: Sometimes people can be wrong
5. Adam: Well even everyone in the world says it's true.

*Later that day I tell Adam's mum about his interest in the footballer and she tells me that Adam's older cousins have been to stay and had told him the news story about the footballer (the story had been headline news in the UK).*

Adam responds to his new funds of knowledge. His theories about death are evolving as he integrates this new knowledge from a respected higher authority (his cousin) with his previous knowledge gained from popular culture. However, the

following day brings a new challenge to Adam's theories. This is documented in the following vignette (6.5):

### Vignette 6.5: The dead newt

13<sup>th</sup> March. After Outdoor Learning at approx. 9.30am  
Field-notes from a conversation

*The children begin each day playing outside in an area that includes access to a small garden with a pond. A group of children find a dead newt in the garden and as they come in three children, Lucia (4:11), Peter (5:6) and Adam (5:6) begin telling me about it at the same time, talking over each other excitedly. I stop them and ask how they know the newt was dead.*

1. Lucia: It had its eyes open and I don't think it was sleeping
2. Peter: People can die with their eyes open
3. Lucia: Sometimes they can die with their eyes closed or open
4. Adam: (indignantly) Or half open
5. Lucia: If they are dead they don't move
6. Adam: They go to heaven
7. Peter: People believe in it but that's where they stay alive, where the skeletons are.
8. Adam: They die on earth and then they go to heaven where they started.
9. Peter: I've got a book about digging up the past. The skeletons stay on earth and dirt goes on top
10. Me: So skeletons stay on earth?
11. Adam: (referring to conversation of the previous day) No. They go to heaven. And the person who is a football player died and came alive again-boom!

This vignette contains an example from Lucia of an explicit theory related to the natural world: Dead things do not move and may have their eyes open (lines 1 and

5). Adam then brings in the idea of heaven, suggesting that people and animals begin and end in heaven **(line 8)**, and he moves the focus more towards theories about human nature. Peter implicitly rejects Adam's theory: "People believe in it..." **(line 7)**. This could be taken to mean that Peter doesn't believe in heaven, and indeed he goes on to appeal to a higher authority to endorse his theory - a book **(line 9)**. At the end of the conversation Adam is certain of his theory that people and skeletons go to heaven **(line 11)**. He re-iterates however that it is possible to be revived from the dead, a change from his earlier stance, and it would appear that his "boom" **(line 11)** indicates the defibrillator used to resuscitate the footballer.

In response to an email to the children's parents about the game, Adam's mum replies:

*"I have not heard of him talking about a game called 'dead forever', but I do know that both he and his 4 year old sister are interested by 'dying' temporarily (e.g. in a computer game, or Snow White before she is kissed back to life by the prince), and dying forever as when their Grandparents' dog was put down over Christmas. I get the feeling that 'dying forever' is quite hard for them to imagine as in their world an adult can normally make things better and fairy stories have happy endings where death is normally temporary or only for the really bad guys."*

Email communication from Adam's Mum.

Three months later this same fundamental inquiry interest continues as a different group of children play 'Dead Forever.' **Vignette 6.6** and **figure 6.5** provide an account of their play as documented in field notes from participant observation:

#### **Vignette 6.6: Playing Dead Forever**

7<sup>th</sup> June, 11.45am. Towards the end of the morning session in the classroom.

A group of children have once again made a swimming pool using the brown foam building blocks. Jake (4:11), Tracy (5:6), Chloe (5:8), Rosie (5:2) and Helen (5:8) are playing. I am observing the play, making notes and taking photographs. Suddenly there is a change of focus in the play:

*Jake announces: "Pretend I've died", and he lies face down on the floor motionless.*

*The four girls lift Jake and move him about 2 meters onto a cushion on the floor.*

*Tracy: Pretend I am a doctor. He's dead. We have to wrap him up*

*They cover Jake in tissues and a blanket until satisfied that he is completely hidden.*



**Figure 6.5: Covering Jake**

**Helen:** He's all white. His head is white, and his tummy is white, his feet and arms are white.

**Chloe:** His bum is white

*(Tracy, Helen and Chloe all laugh. Jake remains completely motionless)*

**Rosie:** He is dead.

*The play continues as Tracy then decides to be dead and Peter joins in.*

1. **Tracy:** Guys, I'm dead. Put tissues over me.

*(Peter joins the play)*

2. **Peter:** I want to be dead

*(He lies down and Chloe, Helen and Rosie begin placing tissues over him. Jake remains motionless for a while longer then stands up and joins in)*

3. **Tracy:** Now me. Use the tissues on me

*(Helen covers Tracy's face with a tissue)*

4. **Cara:** Can you breathe?

5. **Tracy:** Actually don't do my face. I don't like it. I want to come back alive so I don't want a tissue on my head. I don't want to be dead forever.

6. **Tracy:** (to Peter) Do you want to be dead forever?

7. **Peter:** No

8. **Tracy:** (addressing the others) Then don't cover his face.

In this final episode of the 'Dead Forever' game Tracy makes the rules explicit (**lines 5-8**) and they seem to represent a theory about two states of death—a final, permanent state when you are 'dead forever' and a more temporary state, from which it is possible to come back to life – a theory about human nature and also about the natural world.

These vignettes provide evidence of children theorising about death and what it means to be dead. They also provide evidence for the third research question concerned with the ways young children build their theories. They illustrate the way working theories are co-constructed by the children as part of their shared fundamental inquiry interests within the context of play and classroom

conversations. Their theories may be modified in response to new funds of knowledge or evidence that is contrary to the theory but there is also evidence that children's tentative working theories may be reinforced by popular culture or by the actions of adults or peers. These issues will be returned to in the following chapter.

The vignettes also provide evidence for research question two, concerned with the way theories are expressed. They highlight the way the children may express their theories explicitly during play or conversation in response to a question or observation, or may physically embody their working theories in play, expressing them implicitly through movement and gesture. The implicit expression of a working theory during imaginary play is evident in the following section in which the Chloe explores motherhood and family roles.

## **Motherhood**

During the study there are many instances of the children playing families, particularly, as might be expected, in the role-play area of the classroom. These instances could be considered as examples of activity-based play interests or could also be seen as a way children use play to explore a fundamental inquiry interest and develop working theories associated with it. The following vignette **(6.10)** includes still shots from a video recording made in March in the 'construction area of the classroom. It shows Chloe looking after her 'baby'.

### **Vignette 6.10: Chloe taking care of the baby**

March. 11.44am in the classroom

Participants: Chloe (5yrs, 5mths), Lily (4yrs, 7mths)

There is a large carpet area with a mattress and cushions at one end. Chloe is sitting on the mat and a baby doll is lying on the floor close by. She has a small basket of doll's clothes next to her.





1. Chloe picks up the doll, supporting the head with one hand and the feet with the other.



2. She stands up and holds the doll facing her to her chest. She strokes the back of the doll's head with her hand. She brings the doll over to Lily.



3. She crouches down, cradling the doll in her arms. Then Chloe and Lily look down at the doll's face. Chloe holds the doll in a standing position, facing outwards, supporting it so that it stands, and keeping one hand at the back of the doll's head.



Chloe: I was doing that for make him walk, look.



Later...



4. Chloe stands up, raises the doll's arms and holds the doll by the hands with its feet touching the floor. Chloe is bent over and she walks around with the doll in front of her, bouncing it gently off the ground. Her eyes are focussed on the top of the doll's head.

5. Chloe 'walks' the doll in front of her. She takes 2 steps for every 'step' she makes for the doll. She comes to two small wooden blocks and 'jumps' the doll up onto the first one and down and then up onto the second one and down. She is talking to the doll all the time. The words are unclear but the tone is encouraging and praising

6. Chloe sits cross-legged, her back to the camera with the doll face-up across her knees and she is stroking its head. She gets up, looks back at the camera and, cradling the doll in her arms, moves towards the camera. She stands in front of the camera, facing it and rocks the doll back and forth in her arms singing quietly.
7. She brings the doll right up the camera, holding it with one hand under the arms. As she sings quietly she points to the doll with her free hand.

The camera falls

This vignette **(6.10)** is an example from the data that provides evidence of a child using play as a way to express her working theories about motherhood and about how mothers behave. The still shots re-present Chloe's knowledge about taking care of babies. Although the stills provide evidence of Chloe's knowledge of baby care, it is her working theories about what it is to be a mother that are physically embodied in her actions. In each of the stills there is evidence of a theory about what caring for a baby means to a mother. This is evident in the way Chloe looks at her baby and in the gentle way she handles it. It is most clearly seen in **picture 2** as Chloe stands with baby on her hip, her hand gently placed on the back of the head and her chin touching the top of the baby's head in a seemingly loving way. There also appears to be an element of motherly pride, a sense that Chloe is 'showing off' her baby, seen when she takes the baby to Lily as if to present the baby for Lily to stroke and admire (**picture 3**). Finally Chloe includes the camera as an audience for her baby, holding the baby in her arms up to the camera (**picture 6**) and then moving in closer and pointing at the baby for the benefit of the camera (**picture 7**). This is also an example of how the children used the video camera for their own purposes during the study and shows Chloe's awareness of and comfort with the presence of the camera recording her play.

In a later video recording from May and re-presented in **vignette 6.11**, Chloe once again uses play to explore the role of mother.

### Vignette 6.11: Chloe and Jake prepare for dinner

May: 10:00 in the 'home corner' of the classroom

Participants: Tracy (5yrs 5mths), Vera (5yrs 4mths), Sandra (4yrs 9mths), Cara (5yrs 5mths), Chloe (5yrs 7mths), Lily (4yrs 9mths), Jake (4yrs, 10mths)

This takes place in the 'role-play' area of the classroom. It is set up with a small wooden kitchen. There is a sink, a fridge, a microwave, a washing machine and a small table with chairs in the centre. There are shelves with various kitchen utensils, pots and pans and crockery and there is a selection of plastic 'food'. In this vignette a large group of children are planning to have a family lunch. There is a noisy and busy atmosphere.

1.	Chloe stands at the table, looking around, her hands on her hips and then hands next to her mouth, calling loudly...
2. Chloe: Mummy, mummy...mummy	
3.	There is no reply
4. Chloe: OK! I am the Mummy. I am the mummy now	
5.	Jake stands next to her at the table, putting food on his plate and not looking up at her
6. Jake: No you're not	Not looking at Chloe, focused on filling his plate
7. Chloe: Yeah I am	
8. Jake: No	Continues filling his plate
9. Chloe: Yeah	
10. Jake: I am the brother	
11. Chloe: The brother?	she points at him
12. Jake: And I am allowed to have lots (of food)	He sits down at the table with pile of food in front of him
13. Chloe: OK. You're my kid. Kid, It's not time to eat.	continuing to point her finger
14. Jake (under his breath) yes it is	Jake looks up at her
15. Chloe: Not time to eat	She says this slowly emphasising each word and pointing her finger at Jake with each word. Jake picks up some 'food', pretends to eat it, then throws it over his shoulder. Chloe watches him and grunts loudly then walks around and smacks him on the shoulder.
16. Jake:(loudly) Ow-wa!	He looks directly at Chloe. She walks away with a quick glance around the classroom.

17.	Less than a minute later Chloe returns to the play. She is at the sink with Lily, their backs are to the camera and Chloe appears to be giving Lily instructions about something. Lily wants to do something else. Chloe turns to Lily, waving her finger...
18. Chloe: Well you can't. I am the Mummy	Sandra is nearby and realises and approaches Chloe with her hands on her hips
19. Sandra: Hey, I am the Mummy	She stamps her foot, her hands still on her hips
20. Chloe: OK. Two Mummies, two Mummies	Waving her finger between herself and Sandra, then turning her back on Sandra and continuing to talk sternly to Lily...
21. Chloe: No, you can't 22. Sandra: I was the Grandma. I was the Grandma... I was the Grandma	
23.	Chloe continues talking sharply to Lily, pointing a finger into her face. Sandra pushes between them, holds Lily by the waist, picks her up and moves her away.

This vignette shows the prestige associated with the role of 'Mummy' and the way Chloe is determined to keep the role. There are also indications of an implicit working theory about the power associated with motherhood, a theory that a mother figure holds power and has authority over others. Chloe initially establishes that no-one else has a claim to the role by calling loudly several times around the home corner and waiting for a reply (**lines 1-3**), she then stakes her claim (**line 4**). She defends her right to the role when challenged by Jake by positioning him in the role of her child and effectively giving herself power over him (**lines 13 and 15**). There seems to be an implicit theory that this allows her to berate him both verbally

and physically (**line 15**), although immediately after she hits Jake she is seen to step out of the play as she looks around almost guiltily, apparently looking to see if a teacher has seen her behaviour (**line 16**). On her return to the play, Chloe again takes up the role of 'Mummy'. This time she makes explicit her theory that there is power associated with the role (**line 18**), however, in Chloe's brief absence Sandra has taken on the role of Mummy and makes this clear to Chloe (**line 19**). Sandra's claim is accepted by Chloe but Chloe does not give up her own claim and indicates that there could be two Mummies and continues in her role before Sandra can respond (**lines 20 and 21**). Sandra quickly takes on a new role of 'Grandma' who comes between mother (Chloe) and daughter (Lily) and skilfully diffuses their argument (**lines 22 and 23**). With this movement she appears to simultaneously protect her 'grand-daughter' and admonish the actions of 'Mummy.' Sandra has a theory that 'Grandma' is a more powerful role than 'Mummy'. The working theories here are related to power and relationships within families, in this case that - certainly in female roles - power comes with seniority. These same theories appear to be held by several different children and this is interesting when considering research question three, concerned with how young children build their working theories. It appears that by participating together in these dramatic play situations children come to agree on and share the same working theories. This points to a possible role of peer culture and the use of play in the building of working theories and this will be considered in the discussion chapter.

In the following vignette (**6.12**) the experience of birth and motherhood is explored and the theme of death is referred to briefly but poignantly.

### Vignette 6.12: Tracy's baby

May: 13:00 in the 'home corner' of the classroom

Participants: Tracy (5yrs 5mths), Cara (5yrs 5mths), Lily (4yrs, 9mths)

This takes place in the 'role-play' area of the classroom. The role-play area has been set up with a small wooden kitchen. There is a sink, a fridge, a microwave, a washing machine and a table with chairs in the centre. There are clothes for dressing up and 2 dolls. In this vignette Tracy is wearing a bridal veil and is sitting on a chair with a doll lying face down on her lap. Lily is standing next to her and Cara is out of shot at Tracy's feet. The children are discussing how the play will develop next.

- |   |  |
|---|--|
| 1. Cara: Pretend you went to school   |  |
| 2. Tracy: ...but I was having a baby in my tummy ...pretend she was just born in my tummy | She turns the doll to face in towards her body   |
| 3.  | Cara and Lily argue over a crown. Tracy watches and waits  |
| 4. Tracy: And pretend I had a baby in my tummy  |  |
| 5. Cara: And your baby was sick so it died  |  |
| 6.  | Tracy puts her head to one side, turns her mouth down, clearly not happy with the suggestion   |
| 7. Tracy: No  |  |
| 8.  | She makes a line with her finger from her chest down.  |
| 9. Tracy: pretend you cut open my belly and there was my baby. You used that.             | She indicates a pair of plastic scissors from a play doctor's set  |
| 10.   | Cara appears kneeling in front of Tracy with the pair of scissors. She has her back to the camera but leans into Tracy opening and closing the scissors. Tracy moves the doll so that it is now face up and sitting in her lap. She cradles the doll |
| 11. Tracy: Shh baby shh! She's cute.<br><br>(some unclear conversation)                   |  |
| 12. Lily: (to Tracy) How about I was born today?  |  |
| 13. Tracy: (to Cara, indicating Lily)<br>She was born from me. She was born from my tummy |  |

This vignette represents a very brief moment in a longer play episode but indicates that the children explore feelings such as grief and loss, which feed into their working theories about motherhood and death. In **line 5** Cara makes a suggestion that Tracy's new-born baby should become sick and die. Tracy rejects this idea outright and her face and body language suggest that this is not something she would want to contemplate playing. She goes on to suggest that she should give birth and that Cara should perform what appears to be a caesarean section, indicating where Cara should make the necessary incision (**lines 8 and 9**). The baby is born and Tracy takes on the role of mother, expressing her pride in the baby (**line 11**). Also of interest in this episode is **line 12** where Lily suggests, "How about I was born today?" Three months earlier, in March, it was Lily that suggested to Adam "How about I die too?" This indicates Lily's continuing fundamental inquiry interest about life – about the origins of human life as well as the end of human life and is also indicative of the time span over which children may build some of their theories. Once again the physical embodiment of working theories in these vignettes provides evidence for how working theories are expressed. There is also evidence of children stepping in and out of play as they negotiate their roles and their status within the play, or encounter situations that may be too upsetting or painful to contemplate. Both of these ideas will be discussed in the following chapter.



## Morals, Power and Justice

The data from the study also point to a fundamental inquiry interest in power and justice for some of the children. This interest is represented in terms of “Goodies and Baddies” and this is made explicit in a conversation that takes place between Adam and Peter and is presented below as **vignette 6.7**.

### Vignette 6.7: goodies and baddies

March. Morning snack at approx. 10am

Field-notes from a conversation

*Peter (5:6) and Adam (5:6) are eating snack together in the classroom. They sit side by side at the table and begin listing “Goodies” and “Baddies” as they eat. I join them, sitting down at the table with them.*

1. Adam: “Luke Skywalker is a Goody.”

*(I ask what is a Goody or a Baddy? What makes someone a Goody or a Baddy?)*

2. Peter: Goodies want peace and everything the same for everybody, and justice. Baddies are ...like in Star Wars... They want power and they want to rule the galaxy.

3. Adam: They fight the Goodies to get power.

4. Me: Are there other types of Baddy?

5. Adam: (answers immediately) Knights. Knights can be Goodies *and* Baddies.

6. Peter: Goodies don’t want anyone to get hurt or killed so they fight.

This conversation shows Adam and Peter drawing on their funds of knowledge from popular culture, in this case the Star Wars movies, and building their working theories together. Peter sees 'goodies' representing peace and equality for all (**line 2**). He recognises that the search for justice and equality may have to be fought for and places the 'goody' in the role of a saviour, fighting to save others (**line 6**). Both Adam and Peter are agreed in their theory that 'baddies' on the other hand, have only one goal –the achievement of power (**lines 2 and 3**). Adam recognises the duplicitous side of human nature when he proposes that it is possible to be both a 'goody' *and* a 'baddy' (**line 5**).

In April this same two children are involved in another conversation and this is represented in the following vignette (**6.8**).

### Vignette 6.8: the IRS

April: 12.15 in the classroom eating lunch.

Field-notes from a conversation

*The children are having lunch together. They sit at 2 tables in the classroom and all have a packed lunch. Adam (5:7) and Peter (5:7) are sitting at separate tables. I am sitting at Peter's table. Peter begins banging his water bottle loudly on the table. Other children join in and I ask Peter to stop:*

1. Me: (to Peter) You see, if you do something then others will follow
2. Peter: That's because I'm the boss of the world
3. Me: Really?
4. Adam: (joins in from his seat at the other table) No you're not. The IRS is the boss of the world
5. Peter: Yeah, the IRS makes the rules
6. Adam: Yes. If you want to be like something like a fire fighter or in the army you have to ask the IRS and pay money.
7. Peter: So if they say something you do it.
8. Me: Where are the IRS?
9. Adam: In a special office
10. Me: How do you know about them
11. Adam: Because they are in a song
12. Peter: But they might not be real if they are in a song
13. Adam: It's in America
14. Me: Can you tell me anything else about them?
15. Adam: They have guns so if a baddy is being mean to people they have to stop them from being mean.
16. Me: what is the song?
17. Adam: (thinks) Somebody's Watching Me
18. Me: (I sing a bit of the song I know with the same title)
19. Adam: Yeah, that's it.

In this conversation Adam presents a theory that there is an organisation that rules the world from an office-the IRS (**line 4**). Peter joins in with Adam to co-construct a more detailed picture of an organisation that makes rules (**line 5**), takes money in exchange for favours (**line 6**) gives orders (**line 7**) and keeps order (**line 15**). However Peter becomes sceptical when Adam reveals that his knowledge about the organisation comes from a song and he questions the validity of Adam's source (**line 12**). Adam's reply that the organisation is in America (**line 13**) is possibly an attempt

to add kudos to his claims, or a way of distancing the IRS and thus making it difficult for Peter to verify the claims. It could also be a reference to the Internal Revenue Service in the US, which he may have heard about. It is unclear whether Peter is convinced. Tied up within this explicit theory of the 'IRS' could be working theories about the role of a government in society as a slightly sinister 'big brother' watching over and controlling people's lives, but also administering justice albeit through the use of force. This particular idea echoes the conversation from March presented in **vignette 6.5** in which "goodies don't want anyone to get hurt or killed so they fight" (**line 6**).

The influence of popular culture in the form of a song is made explicit in this vignette and also in the following **vignette 6.9** from June, in which Adam and Peter question Cara and Tracy about a jail they have made (**figure 6.6**):

**Figure 6.6: Cara and Tracy making a jail**



### Vignette 6.9: Tracy and Cara's village with a jail

16<sup>th</sup> June: Morning session. Child-initiated activity.  
Field-notes from a conversation.

*Tracy (5:6) and Cara (5:6) have been building a town using wooden blocks and I am in my 'teacher' role asking about their play.*

*They tell me about they have made a village with " a kids area, a petting zoo, a sleeping centre and a jail."*

*Cara tells me the jail is for "the bad guys, robbers and bad people."*

At this point Peter (5:9) and Adam (5:9) join in the conversation from the other side of the room where they have playing together:

1. Peter: *(questioning Cara about who might go in the jail)* Bad people who kick and fight all the time?
2. Adam: And backstabbers?

*(I am a little surprised by this choice of word and ask about it)*

3. Me: What are backstabbers?
4. Adam: Oh, they smile in your face but they are horrid to your friends. They steal something.
5. Me: How do you know about them?
6. Adam: It's in a song in my car and I asked my Mum about it
7. Peter: *(questioning him further)*: Do they smile in your face and then get a dagger and get you in the back - because that's in the name?
8. Adam: I'm not sure...no, no they don't. They are just horrid to your friends.

This vignette provides further evidence of the ways children build and modify their working theories. Adam changes his working theory using his funds of knowledge from popular culture and his Mum's clarification of the meaning of the song, so that his theory about 'baddies' now includes 'backstabbers' – people who "smile in your face" but act differently when your back is turned (**line 4**). Peter seeks further clarification about 'backstabbers', having taken a more literal meaning himself (**line 7**). It could be that he doesn't agree that being "horrid to your friends" is a serious

enough crime for being jailed but that the use of a dagger would merit imprisonment. Adam on the other hand, seems aware of the more menacing nature of the crime. For him it seems to be not just about someone being “horrid to your friends” it is also about the sinister nature of the “smile in your face.” Within this vignette there also appears to be a working theory about morals in society, about being ‘two-faced’. For Adam, people who act in this way are “baddies” and should be imprisoned.

It is interesting to note that Cara and Tracy include a jail in their village amongst such family-orientated facilities as a playground, a zoo and a hotel. It provides evidence of a shared implicit working theory that, wherever you are, there are always people in the community that are “bad” and that society should provide a place in which to keep these people so that everyone else can be safe to enjoy their surroundings.

This particular vignette also provides further evidence for the social nature of children’s working theories, in this case how children’s theories meet in the classroom. Cara and Tracy are joined by Adam and Peter and their theories are informed and built on by each other. All three vignettes in this section come from classroom conversations and highlight the importance of this informal and often overlooked context for young children to express, discuss, modify and extend their working theories about human nature and the social world. The provision of opportunities for the expression, development and recognition of children’s theories will be discussed in more detail in the following chapter.

## Activity-based Play Interests and Continuing Interests

The activity-based play interests and continuing interests discussed by Hedges (2010, p34) also provide a context for children to develop their working theories. Activity-based play interests develop in response to the play environment and “may not necessarily be representative of children’s wider home and community interests” however the notion of funds of knowledge may enable a better understanding of these interests. One example is shown in the following vignette (**6.13**) from a video made in May.

### Vignette 6.13: Cleaning for the party

May.10:00 in the 'home corner' of the classroom

Participants: Vera (5yrs 4mths), Sandra (4yrs 9mths), Cara (5yrs 5mths), Jake (4yrs, 10mths)

This takes place in the 'role-play' area of the classroom. The role-play area has been set up with a small wooden kitchen. There is a sink, a fridge, a microwave, a washing machine and a small table with chairs in the centre. There are shelves with various kitchen utensils, pots and pans and crockery and there is a selection of plastic 'food'.

Vera wants to organise a party.

- |   |  |
|---|--|
| 1. Vera: (Excitedly) Clean up, clean up the party's tonight                                       |  |
| 2.  | She puts her hands on Jake's shoulders, facing him   |
| 3. Vera: The party tonight, the party tonight   |  |
| 4. Sandra: Everybody listen to me   | She has her hands on her hips. She slaps her hands against her thighs and repeats  |
| 5. Sandra: Everybody listen to me   |  |
| 6.  | Vera goes to Cara, holds her by the arm and whispers loudly into her ear   |
| 7. Vera: It's the party tonight. You ask everybody to tidy up and make everything nice and shiny. |  |
| 8.  | Vera claps her hands and jumps up and down. There is a brief silence   |
| 9. Jake: Let's have lunch   |  |
| 10. Chloe: It's partytime   |  |
| 11.   | There is a lot of talking, noise and movement  |
| 12.   | Sandra comes into shot, Stella talks to her directly in French/English   |
| 13. Stella: Dis le faire "nice and shiny". OK?  |  |
| 14.   | Sandra turns to the rest of the group and speaks loudly  |
| 15. Sandra: You need to do it nice and shiny.   |  |
| 16.   | Vera has a cloth and Sandra has a sponge and they both 'clean' the surface in the home-corner, rubbing chairs, table, shelves and putting away the food, plates and utensils |



In this vignette Vera takes the opportunities offered by the home corner to organise a party. Vera's mum has been a regular visitor to the class during the year to organise various cultural celebrations and parties for the children and Vera also seems to enjoy this role. In this vignette Vera is clear that everything must be "nice and shiny" for the party perhaps in response to a working theory about cleaning and tidying before inviting guests developed as part of what Rogoff (2003, p176) refers to as "intent participation" at home. This theory is physically embodied as Vera experiences the excitement and apprehension of preparing for a party. Vera often plays at cleaning the home-corner and it should be noted that although this vignette is presented here as an activity-based interest, perhaps in response to the environment, further observations may reveal a continuing interest or a fundamental inquiry interest about gender identity and the role of women in society.

A further example of a continuing interest is represented in **vignette 6.14**, which comes from a video recording in March and shows a group of children recreating a school assembly as they play. **Figure 6.7** is a still photo from the video.

### Vignette 6.14: The assembly

March. 11.30am in the classroom

Participants: Rachel (5yrs 2mths), Jane (4yrs 7mths), Lucia (5yrs 7mths), Chloe (5yrs 5mths), Rosie (4yrs 11mths) Megan(5yrs 2mths)

The previous day a group of children had created chairs they could sit on made from the blocks. The chairs have a back, a seat and a small 'table' in front. In this vignette a group of children are making new use of these chairs.

Rachel and Rosie are standing facing the chairs. Rachel is holding a 'microphone' made from a magnetic stick with a ball-bearing on the end ('geomags'). Rosie has two brown foam blocks she is holding as a violin and bow. Jane, Lucia, Chloe and Megan are sitting down. Jane holds two brown, foam blocks as if holding a violin; Chloe, Lucia and Megan play keyboards.



Figure 6.7: The assembly

- |  |   |
|--|---|
| 1. Rachel: Ready, set, go. Are you ready?                        |   |
| 2. Jane: Yes   |   |
| 3. Lucia: La, La La, La  | Lucia taps the blocks in front of her with her fingers, playing the piano. At this the others join in playing their instruments and La, la ing.   |
| 4.   | Rosie is standing up and holds one block under her chin with her left hand and moves another block across the top of it with her right hand. She moves it back and forward.   |
| 5.   | Jane holds one block under her chin with her left hand and moves another block across the top of it with her right hand. She moves it back and forward, sometimes slowly and sometimes quickly. She doesn't look at Rachel. At one point she closes her eyes and begins singing. She moves her bowing hand in time to the rhythm of her song. |
| 6.   | Chloe plays the piano on the small table in front of her. She moves the fingers of both hands up and down the blocks. She smiles at the others and seems a little unsure of joining in. Then she focuses on her hands, moving her fingers up and down playing notes.  |
| 7.   | Rachel moves amongst them waving her right arm and using the 'microphone' as a conductor's baton. At one point she moves to the front.  |
| 8. Rachel: I'm here  | She makes bigger movements with her arm and bends her knees more, attempting to make eye contact with Jane  |
| 9. Rachel: (noticing that Lucia is not playing) Lucia! Over here | She continues conducting, moving around at the front, using big arm movements   |
| 10. Rachel: This is great  | After approx. 1 minute 30 seconds her arm movements are smaller and slightly faster and she uses both arms, crossing them in front of her, until she makes a final dramatic uncrossing of arms, and raises them above her head with a shout...  |
| 11. Rachel: E-nough!   |   |
| 12.  | Jane, Chloe, Sandra and Rosie stop playing, are quiet and look at Rachel standing quite still with her arms raised. There is a pause of approximately 4 seconds. Rachel brings her arms down.   |
| 13. Rachel: Thank you.   |   |

This episode is clearly a joyful experience for Rachel **(line 10)**, and for all the children involved. It seems that all six children are physically embodying and, at the same time developing a theory about how musical ensembles work, and particularly about the role of the conductor within a musical performance. The play episode follows an experience of being in a school assembly during which older children have performed, evident from the conversation that takes place while re-viewing the video:

*Rosie tells me, "We were in assembly for pretend."*

*Rachel then explains her role: "We were introducing ourselves to the audience.*

*I'm being the teacher and then I am showing the kids the notes what to do."*

*Rosie clarifies, "...and when she does this (stretches arms out), we stop. That's a song I just learned. We were pretending there was a book for violin or piano."*

This simultaneous embodiment and development echoes Holzman's "tool and result" analysis of Vygotsky's notion of the ZPD discussed in the literature review, and provides some evidence about how children build their theories, simultaneously expressing and developing their theories together as they play. This will be discussed further in the next chapter.

In the following **vignette (6.15)** Tracy and Cara have been following an apparent continuing interest in swimming pools and have once again made a swimming pool using the brown foam blocks (**Figure 6.8** shows the pool in use):



**Figure 6.8: Jumping in the pool**

### Vignette 6.15: The swimming pool

May :12.15pm Over lunch

*Tracy (5:5), Cara (5:5), Peter (5:8) and Adam (5:8) are having lunch together at one table and are chatting about the morning activities. Tracy and Cara have spent time making a 'swimming pool' using brown, foam building blocks. Around the edge of the 'pool' is a 'seating area', with storage for shoes and there is a diving board made from wooden blocks. They have also made invitations to invite the other children to use the pool and they are talking about how the system will work.*

1. Tracy: Their invitation is their ticket... or they can choose to have a seat.
2. Cara: If there's not enough seats they can sit on the floor, but there can't be too much people.
3. Tracy: It's only open today and tomorrow.

*I ask them why they had decided to build a swimming pool and Peter joins in the conversation.*

4. Peter: 'Cos you like being the boss of people? Like the guys who work like the life savers, or the person who takes the tickets-there's a boss of them and they are the boss in their swimming pool.
5. Adam: You need showers and a place to change.
6. Cara: The place round the carpet is it.
7. Peter: And if you have little kids who can't swim you can make a play area for them.
8. Adam: I know how to make showers 'cos I made one once with my mobilo.
9. Cara: And if people want to come again they have to ask us
10. Peter: People who work in swimming pools have to make sure there are no sharks or fish and make sure it's safe
11. Tracy: And we don't want small kids to crawl in.
12. Adam: You don't have to worry about fish because they can't even go on the roads to there. The people put the water in. I think we should get blue blocks because water isn't brown.
13. Peter: We could colour one side blue and one side brown.
14. Adam: oh good idea-double sides
15. Tracy: Oh, we could have brown for the little kids 'cos it's not as deep
16. Cara: If we made it we have to stand at the side. We can't have fun.
17. Tracy: We have to make sure it's safe.

Cara and Tracy bring their funds of knowledge about swimming pools to their play, providing seating areas, clothing storage and a diving board and now turn their attention to system they will put in place for letting other children use the pool (**lines 1 and 9**). Cara is keen to ensure the pool will not be overcrowded (**line 2**). As the conversation continues the four children gradually co-construct their knowledge not only of how swimming pools operate but organisations more generally. Peter brings his established working theories of organisational hierarchy to the conversation, explaining that there is a person who oversees all workers – a boss (**line 4**). As the conversation turns towards the safety aspect of swimming pools, theories about corporate responsibility are developed as Peter explains that one of the responsibilities of a pool worker is to “make sure it is safe” (**line 10**). Tracy picks up on this and focuses on the safety of very young children (**line 11 and 15**), possibly drawing on her experiences with her younger sibling at the local pool. Finally Cara indicates that the responsibility for safety lies with herself and Tracy as the builders of the pool. They also must act as life-guards, identified as a serious role and as such they may not “have fun” (**line 17**). There are also theories about the responsibility to provide of appropriate facilities. Peter and Adam highlight some features of a swimming pool that Tracy and Cara may not have included in the construction (**lines 5 and 7**) and Adam declares his expertise at shower construction (**line 8**). The combination of joint funds of knowledge and developing working theories results in a shared plan of action for the swimming pool. This episode provides evidence of the ways the children’s prior knowledge and experience contributes to the co-construction of working theories within the play context.

The final example from the data of a continuing interest within which working theories operate relates to houses and homes. Part of the planned curriculum for the class during the period of the study relates to structures- specifically looking at how different structures are built in different ways. Joe showed a particular continuing interest in the construction of houses and homes, more specifically houses and homes for his collection of action figures.

In this **vignette (6.16)** from early April Joe makes a home for his Pokemon action figures.

**Figures 6.9** and **6.10** show the model and his subsequent drawing.

#### **Vignette 6.16: A house for the Pokemon**

Joe brings his Pokemon models into school to share. He decides to make a home for the Pokemon using recycled materials. He is helped in his quest by Peter and Lucy. He makes two bedrooms and a chimney and I join the group as he is inspired by a piece of packaging to make a roundabout. Joe is very much in charge and makes all the decisions about where things go and how they will look. He brushes away Peter's suggestions and asks for some help from me to make the roundabout. I find a split pin to fix it to the house. He is delighted with the results and when he finishes he decides to draw the finished house. This is one of the first times Joe has represented something he has made on paper.



**Figure 6.9: Joe's House for the Pokemon**



**Figure 6.10: Joe's drawing**



This vignette offers a first glimpse of Joe's working theories about homes and about the physical and social needs of 'living things' as Joe appears to use the knowledge he has about human needs and apply this to the Pokemon world. Pokemon is an example of popular culture from the gaming industry and Joe's Pokemon need somewhere to sleep and somewhere to play. Joe provides these for them in the house that he makes.

Later in April the scheduled video-recording sessions in the art area of the classroom take place and in one of these videos Joe is seen to be keen to make a house for his collection of Angry Birds. Angry Birds could be seen as being representative of "app culture" ie. popular culture based around characters from applications for mobile devices. **Figure 6.11** is a still from the recording and sets the scene for **vignette 6.17** in which Joe decides to make a drawing first, as a plan for the house.

**Figure 6.11: Planning the Angry Bird house**



### Vignette 6.17: A House for the Angry Birds

April: 10.50am in the Art area of the classroom

Participants: Cara (5yrs 4mts), Jake (4yrs 8mts), Joe (4yrs 7mts),  
Lucy (5 yrs 3mts), Rachel (5 yrs 3mts)

Joe has brought in a small bag containing a set of plastic 'angry birds'. He decides to make a house for them but wants to draw it first. He is kneeling at the low table with a piece of A3 paper in front of him and the plastic bag of 'Angry Birds' beside him on the table. Jake, Cara and Rachel are at either side of him, also kneeling, and looking at his drawing of a house. They also have a small bag of recycling materials

1.	Rachel picks up two yoghurt lids and places them top-down on Joe's drawing
2. Rachel: So maybe this is where we can...this can be...this is the food and this is the water	she runs her index finger round the inside of one lid
3. Lucy: Let's make a swimming pool.	leaning in, in front of the camera, talking to Joe
4. Joe: Yeah	
5. Lucy: Let's make a swimming pool, let's make a swimming pool	sitting on the corner of the table, again talking to Joe
6. Cara: That's the house	
7. Joe: We need to do a swimming pool <i>and</i> a house. Well, we need some things. Mrs. Hill! I want to pick some things up.	standing up
8.	He walks over to me off camera
9. Me: (Out of shot) You need to pick some things up? What from the recycling? Shall we take a bag and go and get some things?	
10. Joe: (excitedly) Yeaahhh	

This time Joe decides to draw the house first and so create a design to work from.

The design becomes a co-construction as other children add their ideas. Joe has the basic design and Rachel begins adding details using the recycling materials (**line 1**).

The availability and shape of the lids appears to suggest to her that the Angry Birds will need food and water (**line 2**). This could be seen as an implicit theory held by Rachel about the needs of living things, which she then applies to the Angry Birds.

Lucy thinks less about the basic needs of the Angry Birds and more about their social needs as once again the recurring idea of a swimming pool resurfaces (**line 5**) and Joe agrees that a swimming pool is needed.

Later, in **vignette 6.18** Cara and Jake stay to make the beds for the Angry Birds. They decide how to use the recycling materials they already have.

### Vignette 6.18: Beds for the Angry Birds

1.	Cara picks up a small rectangular cardboard box that is lying on the table
2. Cara: Oh, and we need this for a sleeping bag. They can sleep in it.	
3.	She opens one end of the box and holds it close to her face
4. Cara: Ssshhhhhhh!	
5. Jake: No. This is their covers	waving a piece of green plastic
6. and <i>this</i> ...	indicating a cardboard tray
7. is their bed.	
8. And that's their...	
9.	picks up the box and looks at it
10. that's their sleeping bag when they go on holiday.	
11. Cara: Yeah!	
12.	She picks up a cork and holds it up
13. Cara: And this? This?	
14. Jake: It's for a lever to make the house closed and open	
15.	raises his hands above his head

Cara and Jake focus on where the Angry Birds will sleep. Again the availability and properties of the materials seem to prompt the children's ideas, so that a box suggests a "sleeping bag" and a cork suggests a "lever" and the children incorporate these ideas into their play.

Joe's interest continues into early June when he is in the garden and comes across a group of small plastic tigers, left as a provocation for the children. Joe immediately sets to work to build the tigers a house, detailed in **vignette 6.19**.

### Vignette 6.19: The tiger house

1.



A group of small tigers appears in the garden and Joe decides to build a house for them.

2.



He works over a period of days to construct their new home. He tells me the house needs strong walls and the holes must be blocked. He uses pinecones to do this.

3.



He is clear that the tigers will need a roof for protection against the rain and for shade. He makes this by first using sticks and then using pine branches laid on top of the sticks.

4.



Finally the tiger house is ready and the tigers are put in place.

5.



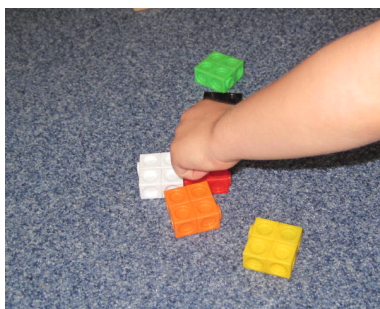
Joe returns every day over a week to play with the tiger house. He leaves them food in the form of nuts and seeds found in the garden.

Initially Joe considers the basic physical needs of the tigers - the need for protection from the elements and the need for food. This is prompted perhaps by the change of environment to the outdoors and he perseveres in order to provide the shelter the tigers need before he begins to play with them.

In late June Joe makes a group of colourful dragons from plastic cubes and makes each dragon a home using wooden blocks (**vignette 6.20**).

## Vignette 6.20: The dragon houses

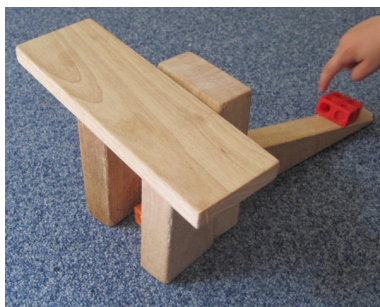
1.



Joe has made a collection of 'dragons' from multilink. Each one is a different colour.

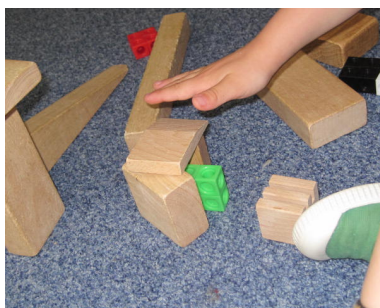
He tells me: *"I need help to make a house for my dragons."*

2.



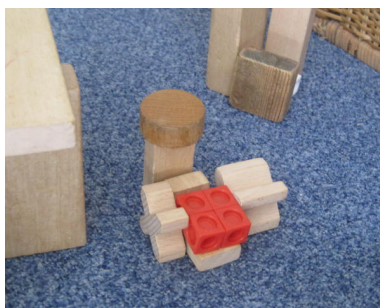
He makes a house using wooden blocks and places his orange dragon inside. *"I need another one- one for every dragon so they can fit. The orange house has a slide so the other friends can come and play and slide. I'm good at making houses because I'm thinking in my imagination because my mum told me. And I'm good at building dragons."*

3.



He makes a small house for the green dragon and I take a picture. Joe asks to look at it. *"Now take one without my hand. It's better without my hand and you can send it to my Mum"*

4.



*"The red house has side guards so the naughty guys can't get him. He just fires them and the naughty guys can't get him."*

He puts a round piece on top *"This is the flyer. He can fly up and go to another country"*

5.



*"The black house is for driving in".*

He goes through each house telling how the dragons can use each one- for jumping, sliding, flying, driving.



Each dragon has a different home designed for its different needs. The houses reflect Joe's current and developing theories about the functions of a home: homes are a place for inviting friends over to socialise and have fun (**picture 2**), and they also provide safety, security and a place to which you can return (**picture 4**). Finally, in **picture 5** Joe begins to imagine a home that can move around with you- a home you can drive. In this vignette Joe also demonstrates meta-cognitive thinking as he considers how he has used his imagination in the process of making both the dragons and their homes (**picture 2**) and, along with **picture 3**, also shows the importance he places on sharing his thinking with his Mum.

Joe's continuing interest in houses and homes is prompted by a teacher-initiated theme investigating structures and provides some evidence of theories being developed in response to the curriculum. Joe's collection of action figures from popular culture also appear to drive his interest and thus contribute to the development of his working theories as he considers the needs of the different creatures. These five vignettes (**6.16 - 6.20**) not only demonstrate how this continuing interest provides a context for Joe to simultaneously use and develop his working theories related to human nature, the social world and the physical and natural world, but also demonstrate the value of returning to this interest over a prolonged period of time and the opportunities presented by a change in environment, both of which are important considerations for research question three concerned with how children build their theories. These ideas will be discussed further in the following chapter.

Although much of the data presented points to children developing their working theories over time and returning to them at a later date, table 6.1 indicates the more transient and fleeting nature of some of these working theories for some of the children. These theories are expressed “in the moment” and there is no evidence of them being returned to at a later date and an example is presented below:

### Vignette 6.21: Peter wonders about my family

May 21st.

Field-notes from a conversation during lunch.

*The children are eating together at a long table and I sit next to Peter and open up my computer. Peter (5:8) leans over and looks at a photograph on the laptop. I tell him it is my daughter.*

1. Peter: Do you have a brother or a son or something?
2. Me: No son, but I do have a brother
3. Peter: Is he bigger than you?
4. Me: He is 2 years older than me
5. Peter: Oh, so he must be a Dad.
6. Me: Actually he isn't a Dad
7. Peter: Oh. Well how is he bigger than you?

In the example above Peter holds a working theory about the age at which men become fathers. More specifically Peter's working theory is that any male who is older than me must be a father and this is made explicit in his final wondering expressed in the form of a question: “How is he bigger than you?” (**line 7**). I interpret this to mean: “If he [my brother] is older than you he must be a father”. This final example also provides evidence of the importance of the relationships developed within the classroom context for theory building. In this instance the relationship between the child and the teacher is such that the child is interested in

the teacher's family and the teacher responds openly, inviting further questions from the child.

## Chapter Summary

This chapter aimed to present the rich and detailed account of a "broad body of data acquired over time" (Flewitt, 2006, p45) required by an ethnographic case study. It acknowledges that "the researcher cannot reproduce all observed interaction but must analyse all data so that the passages selected for presentation are informed by analysis and interpretation of the complete data set" (Flewitt, 2006, p45). As such, the notions of fundamental inquiry interests, continuing interests and activity-based play interests as a way of selecting the data for presentation in the form of vignettes were presented. These vignettes provide evidence for the questions driving the study. In response to the first research question the data point to children building theories about human nature, the social world and the physical and natural world. The examples re-presented children building theories about such fundamental issues as death, motherhood, power and justice, morality, roles in society, and about the needs of humans and of animals. In considering the ways children express their theories the examples show the use of gestures and body language as a way children express their theories implicitly, usually in the context of imaginary play. Explanations, suggestions and proposals in response to questions or observations were used as children expressed their theories explicitly in conversations. In considering the third research question concerned with how children build their theories there is evidence of the important role of peers in the process as theories are co-constructed in the context of play and classroom conversations. Children's

shared interests appear to be important for the continued development of theories and offer a context for their modification and refinement as children respond to new evidence from peers, from adults and from their own observations as well as using their funds of knowledge from home and from popular culture such as film, television, songs and apps. The role of play and conversation also appear to be significant in the development of children's working theories as they use these contexts for their own means.

This evidence forms the basis for the discussion in the following chapter, which offers a critical appraisal of working theories. It also considers the importance of the role of peer culture in working theories and reflects on the implications of children's theories for pedagogical practice.

# Chapter 7: Discussion

## Introduction

This chapter aims to take a reflective and reflexive view of the data presented in the previous chapter as evidence of young children's working theories in a play-based classroom. In being reflective, this chapter will examine the data in the light of the professional aims for the study which were both personal - to explore children's theories within my own classroom context; and more widely relevant - to consider how knowing more about young children's theories may impact the practice of teaching and the process of learning in early childhood settings.

The first section of the chapter will address each of the driving questions for the study:

- What do young children theorise about? (RQ1)
- How do they express these theories? (RQ2)
- How do they build these theories? (RQ3)

The second section will examine the impact of the research on my own pedagogical practice, as well as considering the possible wider implications of the research for the practice of teaching in the context of a play-based classroom.

In being reflexive this chapter also reviews the methodology for the study and so the final section will look at the processes for data collection and analysis and identify strengths and possible weaknesses. It will also consider the research process in the

light of my positionality embedded within the philosophical and theoretical underpinnings presented in chapter three.

In summary this chapter keeps the research questions in mind whilst aiming to:

- Consider what the data reveal about the children's theories and about the children as theory-builders
- Provide a critical appraisal of the concept of working theories
- Explore what the data mean for me as a teacher and for the children in my context
- Consider the wider implications of the research findings for early childhood education
- Review and reflect on the methodology adopted for the study

## What do young children theorise about?

Hedges and Jones' (2012, p36) definition of working theories presents a picture of young children theorising about the world, making sense of it and their own place in it as a result of active inquiry driven by intellectual curiosity. In looking more closely at young children's theories and analysing them thematically at a latent level, this study presents data showing children building and using working theories related to three fundamental areas of their lives: human nature, the social world and the physical and natural world. Working theories about human nature look to the self and what it means to be human and as such they represent the child's search for self-identity and a place in the world alongside a developing understanding of

beliefs, values and morals; working theories about the social world relate to the organizing structures of human society and what it is to be part of these structures; whilst working theories about the physical and natural world relate to science, to a developing understanding of scientific laws and principles and an understanding of the animal and plant kingdoms. These three categories of working theories chime with the work of Lindfors (1999, p46) who identifies three fundamental human urges - the social, the intellectual and the personal, or the urge to “connect with others, to understand the world, and to reveal oneself within it.” Children’s theories about human nature evident in the data are concerned with relationships, particularly within families; with birth, with death and with life after death; with justice, inequality and the responsibilities humans have towards others.

In a study of moral development from a sociocultural perspective, Tappen (1997, p91) highlights the sociocultural situatedness of moral development. He argues that “from a Vygotskian perspective [...] moral development is necessarily shaped by social, cultural, historical and institutional forces,” contending that this perspective gives rise to questions concerning “the ways in which the activities of adults and more competent peers encourage children to move through Vygotsky’s zone of proximal development from their actual level of moral functioning/activity to their potential development level.” Taking a sociocultural stance and drawing on Bakhtinian theories of co-authorship, Edmiston (2003) asserts that the development of ethical identities begins in early childhood (p198) arguing that child-adult co-authoring in dramatic play can affect the formation of ethical identities. (p209). The data from this study are supportive of Edmiston’s assertions concerning the

development of ethical identities in young children but also suggest that child-child co-authoring occurs as children scaffold each other's working theories about human nature and evidenced particularly in the conversations between Adam and Peter and in the game 'dead forever'.

The data suggest that the children's interest in death and dying prompted not only working theories about the natural world, which considered death from a biological perspective such as what happens to your body after death, but also theories about human nature, considering the emotional effects of death, such as loss and grief. In academic literature many of the studies investigating children's ideas about death are related to counselling (eg. Pettle and Britten, 1995) and nursing (eg. McGuire et al., 2013) and consider subjects such as grief counselling and therapeutic work with children. Some additional studies come from the field of psychology and seek to determine the development of children's concept of death eg. Nagy (1948) and Kane (1979). These studies take a Piagetian stance on development, but of interest for this research are the references in these studies to young children's understanding of death as a temporary state, which the data from this study appear to support. Taking a sociocultural approach Corsaro (1985, p203) describes the basic structure of what he terms the "death-rebirth theme" he observed in children's spontaneous play. He identifies four phases: the announcement of death; the reaction to that announcement by peers; the strategies to deal with the death; and finally, the rebirth. He makes the connection between children's perhaps limited experiences of death and dying through television, film and fairy-tales and the "magical quality" of the death-re-birth themes he observed. Corsaro (ibid.,p208) contends that this play



theme allows the children “jointly to share any concerns or fears they have about death” but acknowledges that further research is needed in order to “develop the full implications of these activities for our understanding of children’s life-worlds.” This goes back to Hedges’ (2012, p143) idea of children testing out and revising their working theories before internalising concepts, and her proposal that working theories may “act as a mechanism for developing everyday knowledge” (p143). The findings from this study build on this idea, suggesting that working theories concerned with human nature and the social world simultaneously contribute to and are developed within the peer culture of the classroom. Looking at the children’s spontaneous play in this study through the lens of working theories, their deep and on-going interest in death and dying resulted in the incorporation of working theories about death into their play. These theories were implicit and verbalised or physically embodied within the play scenario. The number of children involved in this game suggest that working theories about death became part of the peer culture of the classroom and it may be that this “Dead Forever” game that the children considered as being “so fun” created the zone of proximal development within which the children continually constructed and reconstructed their theories about death and its consequences. It provided a context in which the children could develop their understandings through the expression, modification or rejection of their working theories. These ideas will be explored further in a consideration of the role of peer culture in working theories.

Some of the theories about the social world represented in the data are concerned with family structures, with the roles family members play and the relationships

between them. During the study the children role-played family life and the role of 'mother' assumed particular significance and conferred a certain amount of power to the player. As shown in chapter six, there was evidence in the data of the children using play to build theories about the role of 'mother' through the exploration of emotions of motherhood such as joy, love, pride, frustration, guilt, fear and, albeit briefly, grief. These theories were expressed implicitly in the physical embodiment of the role. This evidence supports Edmiston's (2003, p200) argument that "dramatic playing can be significant in shaping identities because it relies on past experience and anticipation of future actions and relationships, thus establishing a liminal space in which possibilities-rather than certainties- for being and identifying can be explored." By exploring the possibilities for being a mother the children develop their working theories about motherhood and the social identity of 'a mother'. This physical embodiment of working theories about the role of 'mother' could also be seen as playing a role in the development of gender identity as children actively construct what it means to be a boy or what it means to be a girl. Rogoff (2003, p71) describes the debate over the question of "whether gender differences are biologically inevitable or culturally malleable." She argues that from a sociocultural perspective "gender roles can be seen as simultaneously biologically and culturally formed." However, arguing from a feminist, poststructuralist perspective, Blaise (2005, p14) takes issue with the biological and socialization theories of gender formation arguing that "these perspectives fail to acknowledge the complexities of relationships between individuals and the social worlds they live in, particularly children's abilities to distinguish for *themselves* ways in which the social world is organised." Blaise (ibid., p20) contends that "children take an active part in

understanding gender and constructing it for themselves and others.” This supports the views of MacNaughton (1997, p63) who asserts that “when you watch children’s play you can see them create and recreate their understandings of what is normal behaviour for boys and girls, women and men.” Working theories may act as a bridge between cultural understandings and children’s personal understandings of who they are and what their place is in the world.

Further working theories about the social world in the data are concerned with organisations in society such as schools, workplaces and governments; and with the roles people play in these organisations, the relationships between them and the responsibilities they hold. In his observations of children role-playing ‘bosses’ Corsaro (1979, p54) asserts that the children equated higher status with power and he goes on to contend that “it may be many years before the children understand that bosses have other duties besides giving orders.” The data from this study does show evidence of children building theories about the power and status that come with being ‘the boss’, but in conversation the children also considered the responsibilities that come with the role, towards both the ‘workers’ and the customers, including aspects of safety and provision. This indicates that the role-play was only one part of an ongoing inquiry into the role of a ‘boss’ and that classroom conversations provided a complementary and equally important way for the children to explicitly express, test, clarify, modify and extend their working theories about the role. The importance of play and classroom conversations are discussed further in the following section, which considers how young children expressed the working theories identified in the data.

## How are working theories expressed?

The data from this study provide evidence of children building and using theories as part of continuing cognitive inquiries as they play and interact in conversation in the classroom. This section considers how children may use these two classroom contexts as arenas for the expression of their working theories.

### Play

The data indicates that play affords the children opportunities to construct and use working theories mostly related to human nature and the social world and to express these theories implicitly. However, rather than focusing on what play *does* for children, this section attempts to answer Wood's (2010, p11) call for a focus on "what play *means* for children", foregrounding the children's meanings and purposes. This perspective reflects the post-modern image of children previously described. The data provide evidence of children bringing their continuing cognitive inquiries to the play context and using play as the context in which they express, try-out and modify or affirm their working theories related to human nature and the social world. Traditional theories drawing purely on biological or cultural understandings of socialization, might see this as a process of the individual, each child quietly internalising adult skills and knowledge as part of the process of preparing for a future life as an adult (Löfdahl , 2010; Blaise , 2006). Corsaro (1985, p18) presents a view of socialization that not only considers the collective and communal activity of children but also, crucially, operates in the present so that

children are seen to “create and participate in their own unique peer cultures by creatively taking or appropriating information from the adult world to address their own peer concerns.” He refers to this process as interpretive reproduction. Evaldsson and Corsaro (ibid., p381) examine play and games as part of a process of interpretative reproduction in children’s lives and assert: “play and games have multiple meanings as the children not only share the joy of the play, but use play and games to address complexities and ambiguities in their relations with each other and adults. Further, children’s play and games help them to prospect about ongoing and future changes in their lives.” From a working theories perspective, play in the sense of interpretive reproduction could be seen as an arena to which children bring their continuing cognitive inquiries and in which, together, they express, try out, modify or affirm their working theories about human nature and the social world.

This is not to present the play arena as unproblematic, as children also use the space to exercise both individual and collective agency. Studies show that in play some children are more powerful players than others, some children’s goals and purposes in play are advantaged whilst others are marginalised; and children may use the play arena as a site for disruption and resistance (Grieshaber and McArdle, 2010; Löfdahl, 2010; Rogers, 2010). **Vignette 6.11** of this study provides evidence of play as a potential site of power struggle as Jake attempts to disrupt the play firstly by disputing Chloe’s claim to the mother role and then by not only ignoring Chloe’s instruction that it is not time to eat but ‘eating’ in a way that emphasises his refusal to accept her as the ‘mummy’. Combining both sociocultural and post-structural perspectives, Wood (2013, p4) asserts that in play children are able to try out different possibilities for gaining and maintaining power, for control and for

resistance. She proposes that “children’s agency involves their motivation to learn, to become more competent and knowledgeable and to manage the social dynamics of institutional and interpersonal power.” If, as Wood (*ibid.*, p11) suggests, “pretence is a form of agency” and, as argued here, a site for the expression and development of working theories then these two elements may work together as children explore the feeling and meaning of power in human nature and the social world.

### Classroom conversations

There have been several studies that have looked at children’s talk in the classroom mostly focusing on adult-child interactions and mostly focusing on the role of the adult as ‘questioner’ and the role of the child as ‘respondent’ eg. Gjems (2011), Siraj-Blatchford and Manni (2008). However as Rinaldi (2006, p64) asserts: “explanatory theories are extremely important and powerful in revealing the ways in which children think, question and interpret reality, and their own relationships with reality and with us” and so, in considering the importance of everyday classroom conversations in this section, the focus is on what everyday classroom conversations mean for children. The conversations documented as part of this study contributed to the children’s continuing cognitive inquiries and afforded the children opportunities to express their working theories both explicitly and implicitly in the form of explanations as well as questions, justifications, clarifications and disagreements. There is evidence of children appealing to ‘higher authorities’, such as older family members, adults or books as sources of knowledge to validate their theories. Classroom conversations appear to have a reciprocal nature, acting as both

a way of contributing to and a way of expressing working theories in the context of continuing cognitive inquiries. Similarly these conversations contributed to the play in the classroom and were themselves stimulated by play in the classroom. The data suggest that conversations, particularly at mealtimes, were part of the peer culture of the classroom and there was evidence of the children using these times when sitting together to initiate, take part in and enjoy conversations that reflected their continuing cognitive inquiries. Conversations were also noted that came about as a result of inquiries meeting in the classroom, where one group of children became interested in the play of another group and sought to find out more about the ideas being expressed in the play, for example in **vignette 6.9** when Peter and Adam question Cara and Tracy about the people who belong in their jail. In the classroom conversations documented, the children used them as an arena for the exchange of their working theories about human nature and the social world. These exchanges were an important way for the children to consider, modify or affirm their own working theories.

## How do young children build their theories?

The data suggest that young children's working theories are tentative in nature as they change in response to new information, and porous as they develop within a sociocultural context. Working theories can be fleeting, expressed in the moment without re-consideration, or can be developed and refined over long periods. However this is not to suggest that working theories simply form as children go about their lives taking in information and cultural knowledge - the "child as

knowledge, identity and culture reproducer” (Dahlberg, Moss and Pence, 2007, p44). There is evidence of children actively constructing working theories in order to deepen their understandings of the world and what it is to be a human and social being. This echoes Rinaldi’s (2006, p64) assertion that: “the search for the meaning of life and of the self in life is born with the child and is desired by the child.” The data point to young children developing much deeper everyday or spontaneous concepts (Vygotsky, 1986, p190) than the “intuitive, tacit concepts embedded in everyday contexts” proposed by Fler (2009, p282).

The data presented in the previous chapter indicate that children’s interests, whether fundamental inquiry interests, on-going interests or activity-based interests (Hedges, 2010), are integral to the notion of working theories. Hedges and Jones (2012, p36) assert that working theories are the result of cognitive inquiry and the data from this study suggest that these cognitive inquiries may continue over long periods. Within these continuing cognitive inquiries children construct, develop and express their working theories. There is some evidence of children using working theories in continuing cognitive inquiries related to the school curriculum as well as evidence of the impact of the environment and the resources available to children in the development of their theories. In looking at working theories in relation to the notion of funds of knowledge there is evidence in the data of children’s using and developing working theories in their continuing cognitive inquiries related to interests from the home context. However, the data support Corsaro’s (1997, p115) assertion that, whilst funds of knowledge gained within the context of the family are an important part of children’s experiences, “once children move outside of the family, their activities with peers and their collective production of a series of peer



cultures become just as important as their interactions with adults.” In this study, interactions with peers in play and conversation played an important role both in providing a context for the expression of working theories and in supporting the development of working theories related to human nature and the social world. The data provide evidence of children’s inquiries meeting in the classroom, either in play or in conversation, leading to the construction of new theories, the revision of existing theories, and the rejection of previous theories. The evidence from this study builds on Hedges and Jones (2012) assertion that working theories are the result of cognitive inquiry and suggests that working theories both contribute to and are produced by the peer culture of the classroom.

This study took place in an early childhood classroom, described in detail in the introduction to the study, and the data indicate that the resources in the classroom may have influenced the subject content of the role-play happening in the classroom. For example, in the home corner, equipped with a kitchen area, the children almost exclusively took on either family roles in play themes related to mealtimes and parties, or social roles related to restaurants and eating out. However the data provide evidence of children using these play themes to develop working theories about the acquisition and maintenance of power and about equity and equality. In **vignette 6.11** Chloe clearly understands the power of being the ‘mummy’ and regains this role that she had stepped away from by taking the role of a second ‘mummy’, only to have her power usurped by the introduction of a ‘grandma’. These interactions are supportive of Wood’s (2013, p11) assertion that: “children are not simply influenced by their environments but act in ways to change them.” However,

given the availability of more open-ended and flexible resources in other areas of the classroom the children expanded their play themes to incorporate their wider interests and concerns.

In concluding this section, this study focused on the ways young children build their working theories in the classroom context. The data show working theories acting as both a tool for and the result of continuing cognitive inquiries, supporting Hedges and Jones' (2012, p36) assertion that working theories are:

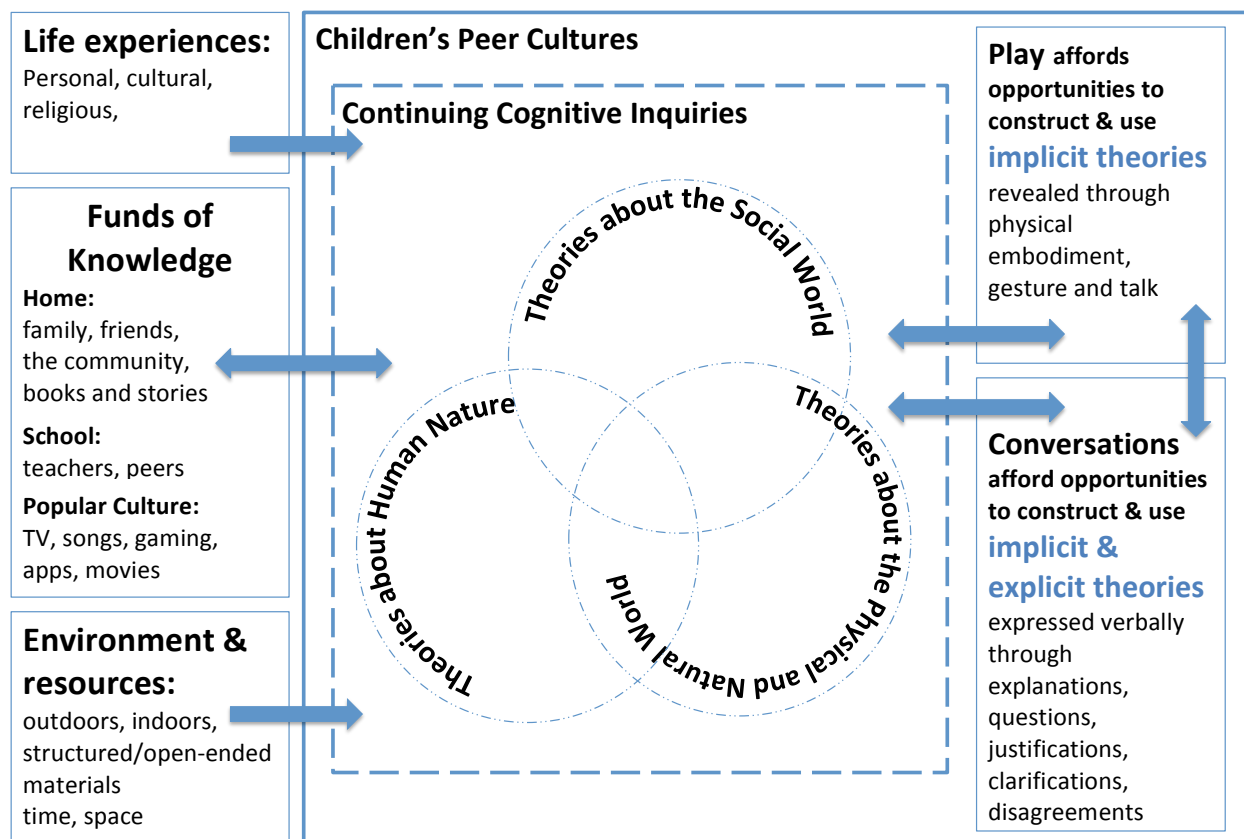
the result of cognitive inquiry, developed as children theorise about the world and their experiences. They are also the on-going means of further cognitive development, because children are able to use their existing (albeit limited) understandings to create a framework for making sense of new experiences and ideas.

However the data from this study suggest that working theories in the classroom are the result of continuing cognitive inquiries, play and classroom conversations which all contribute to and are productive of the peer culture of the classroom. In this context of participation in the life of their peer culture, children develop working theories about human nature, the social world and the physical and natural world as they go about constructing their ethical, social and gender identities.

**Figure 7.1**, below represents children's working theories, which are situated as an integral part of the children's continuing cognitive inquiries. The diagram acknowledges additional factors that may contribute to working theories as well as indicating the ways that working theories may be expressed within the play-based classroom.

## Theorising working theories

**Figure 7.1: Young children’s working theories in a play-based context**



Working theories are shown as three interlocking circles, symbolising their interconnectedness, and formed by faint, dotted lines to emphasise their tentative and porous nature. These working theories are located within a square representing the context of the children’s continuing cognitive inquiries. The use of the plural (children) here is deliberate and important. The space within the square also symbolises what takes place *between* children as they go about their inquiries. The border of the square is permeated by arrows indicating the contribution of children’s life experiences and funds of knowledge and the impact of the environment and resources available to children. The broken line of the border symbolises children as “perpetually becoming” (Olsson, 2009, p14).

Continuing cognitive inquiries, play and classroom conversations are represented in **Figure 7.1** as key components of the children's peer cultures. This study suggests that these three elements interconnect to provide a context in which the children can produce and share the activities, routines, values and concerns that make up the peer culture and that, over time, working theories can become an integral part of the peer culture of the classroom

### Peer culture and working theories

This study looked at the working theories constructed and used in one particular context – the play-based early childhood classroom. The focus for this study therefore, was children's working theories within the life of the classroom community. However the study did not focus specifically on children's theories in the context of pedagogical relationships between teacher and children, the aim was to explore children's theories as they played and interacted in the classroom with their peers and teacher in an established classroom culture. Corsaro (1997, p96) defines children's peer culture as "a stable set of activities or routines, artefacts, values, and concerns that children produce and share in interaction with peers." The working theories presented in chapter six were formulated as the children participated in the life of their peer culture. They are representative of a particular group of children, a peer culture in a particular setting at a particular time.

Evaldsson and Corsaro (1998, p381) assert that, "Children who are together over long periods of time produce and participate in shared peer cultures that reflect

their general concerns as children and their more specific concerns as a group of children who have an interactional history.” This interactional history of the children in this study was made clear when the children were asked to meet for a final time to review the data and check for on-going assent to the research. By this time the children had moved on into Kindergarten and, as is the nature of international schools, had been placed in three different classes along with new incoming children. The following extract is taken from the research diary:

What a joy! The children were so happy to be back together, even though they see each other in the corridors and in the playground almost every day. When I remarked on how good it was to be back together Helen replied, “Oh but we are not. Rachel and Jane are not here.” These two girls had moved away, one to the USA and one to Australia. There was silence just for an instant, and Joe captured the mood of that moment: “I’m sad about that.” I think he spoke for everybody and, in a strange way, I am glad that they were sad. (Extract from research diary, October, 2013).

The data indicate that together the children created and recreated working theories that had significance for them as a group, weaving them into life in the classroom and at the same time creating bonds with each other over time. The data provide evidence of working theories becoming part of the classroom culture – notably the theories about death and dying; and theories related to the children’s construction of their ethical identities and social identities – theories about morals, power, justice and responsibility. These theories were ongoing over the school year, involving many members of the children in the classroom community. In developing these theories the children used their shared knowledges of popular culture in the form of cartoons, movies and action figures; shared life experiences such as family and community events; as well as their individual funds of knowledge from their own

home and cultural contexts. The data in this study are supportive of the work of Evaldsson and Corsaro (1998, p385) who recognise the importance of a sense of belonging or community for the development of peer culture routines and activities. It appears that, given time together, children are able to revisit theories, re-define them and re-shape them jointly so that the theories themselves become part of the classroom culture. However, children's peer cultures are not unproblematic as studies drawing on post-structural theories of 'choice time' and 'free play', typical elements of the 'play-based classroom', point to power relationships that may favour some children whilst disadvantaging others (Blaise, 2006; Löfdahl, 2006; MacNaughton, 1997), a point discussed earlier in relation to play as an arena for the expression of theories.

## The impact of these findings on practice

This study presents evidence of young children bringing their funds of knowledge, life experiences, interests and concerns in the form of continuing cognitive inquiries to the arenas of play and classroom conversations and to the creation of a peer culture in which, together, they express, try out, modify or affirm their working theories about human nature, the social world and the physical and natural world. In considering the role of the teacher in this process, this is not seen as evidence for the implementation of a "laissez-faire" approach to play or conversations, in fact quite the contrary. Firstly it demonstrates the value of close and careful observation of children's play and conversations, but secondly and crucially, it demonstrates the need for in-depth and critical analysis of these interactions in order to understand

the peer culture and what this means for children and to address the issues raised within this context. As Wood (2013, p13) suggests: “by paying attention to the microanalyses of children’s play, alternative meanings and interpretations become accessible, which open up the possibility for deeper engagement with the socio-political dimensions of children’s play cultures and practices.” In Reggio Emilia this is referred to as “a pedagogy of listening” (Rinaldi, 2006, p 64). In this context listening is:

a metaphor for having the openness and sensitivity to listen and be listened to – listening not just with our ears, but with all our senses. [...] Listening is an active verb that involves interpretation, giving meaning to the message and value to those who offer it (Rinaldi, *ibid.*, p65).

The pedagogical practice of documentation is key to a pedagogy of listening. It is a pedagogical practice defined by Rinaldi (2006,p68) as “producing traces/documents that testify to and make visible the ways of learning of the individuals and the group.” It has at its heart the image of the teacher as researcher and thus teaching becomes researching. This listening, documentation and research takes place in each teacher’s own unique context, each with its own social, political and curricular demands and each with their own image of the child.

However, this study acknowledges current debates about the role of the early childhood teacher, about the ongoing tensions between play-based and teacher-directed activities in the classroom, and about the role of the curriculum in early childhood education. The literature review for this study described the New Zealand context in which working theories are a goal for the curriculum, so that “[children] develop working theories for making sense of the natural, social, physical, and material worlds” (Te Whāriki, 1996 p82). Hedges and Jones (2012, p38) note that “in

order to respond wisely and appropriately teachers must first develop a sufficiently deep understanding of the concept of working theories, in order to be able to notice and recognise children's working theories as they are enacted or expressed" and it is hoped that this study will add to this understanding. Peters and Davis (2011) identified issues and dilemmas for practitioners associated with recognising working theories in practice. The findings from the current study situate working theories firmly within the context of children's *continuing* cognitive inquiries coming from the children's urge to deepen their understandings of how the physical and natural world around them works and what it means to be human and social within that world. As these inquiries evolve, working theories may be revealed implicitly rather than expressed explicitly. As has been noted, recognising working theories requires careful observation, analysis and interpretation of children's interactions, documented over time. Further issues for practitioners identified by Peters and Davis (*ibid.*, p9) relate to how practitioners respond to children's theories: "if and when adults should deliberately try to disrupt working theories" and "whether to lead, or whether to work with the child's focus." (p14). This study recognises the partial and sometimes fragmented nature of children's theories, as well as the misunderstandings and 'magical thinking' that children may bring to their theories. It indicates that working theories develop over time, maybe over months, that children wrestle with conflicting ideas and take on board knowledge from a variety of new, and sometimes unexpected, sources that may disrupt their theories. This is not to suggest that practitioners should not intervene in children's theories but it does suggest that there is value in taking time to document and analyse children's working theories before deciding when and whether to intervene, and what sources or forms of knowledge



practitioners can help children to connect with in order to develop and refine their working theories.

This research has personal meaning for me as an early childhood educator working in the particular context in which the study took place. It represents a detailed description of five months in the lives of the children in my care through the lens of working theories as well as being a reflection of my professional practice as an educator. It presents me with an opportunity to re-consider my role and the decisions I make in my practice as I consider the major question raised by my findings: What does knowing about children's working theories mean for the processes of teaching and learning in my classroom?

In my own context, an international school in Switzerland committed to the inquiry-based Primary Years Programme of the International Baccalaureate curriculum (IBPYP), there is already a commitment to the process of documentation in the early years and this research provides me with a new lens with which to carry out the process - the lens of working theories. By taking time to learn more about the peer culture within the classroom and listening, in the fullest sense of the word, to children's working theories in play and classroom conversations, it is possible to document children's current understandings and interests about human nature, the social world and the physical and natural world. However, this raises the more pragmatic questions of how teachers might respond to children's working theories and how they can develop them further, particularly in a context where a curriculum is established.

As noted in the Literature Review, children's interests have long been seen (and advocated) as a source for curriculum planning, although the freedom and flexibility to do this is increasingly constrained in some contexts. A pragmatic solution is to take a dual approach, where curriculum planning is also a resource for teachers to extend and develop children's interests and working theories. A dual approach would thus provide a framework for progression and ensure that children engage with curriculum content, however that is defined.

The IBPYP framework for the curriculum is organised around four themes: “Who we are”, “How we organise ourselves” and “How the world works” and “How we express ourselves” (IB, 2009, p11). These organising themes closely align with the three categories of working theories identified in this study. It is suggested that by running these organising themes concurrently and throughout the school year, documentation of children’s continuing cognitive inquiries and working theories offers a way for children to contribute to the curriculum. In effect the curriculum can respond as the peer culture of the classroom develops over the school year. This study demonstrates the power of peer culture in the classroom and suggests that, by listening and documenting, this power can be harnessed and used by teachers to develop a more responsive curriculum that is reflective of children’s own interests and inquiries. As an example, the ‘Dead Forever’ game documented in chapter six offered the opportunity for the teacher to adapt the curriculum to the children’s interest in death and dying by adjusting the ‘Who we are’ curriculum theme in response to the game.

This study also highlights the importance of different arenas for the development of children's working theories. The term 'arena' is offered here as a metaphor for the space to which children may bring, reveal, share and exchange their working theories. It is a space within which these theories can be challenged, tested, modified and affirmed. The metaphor is consistent with the post-modern image of the child as 'social actor' in which "children are seen to act, take part in change and become changed by the social and cultural world they live in" (Christensen and Prout, 2002, p481). These two arenas, play and classroom conversations, offer teachers opportunities to observe, listen and interpret working theories and to reflect on them before choosing whether or not to step into the arena. However it should be noted that they are also spaces into which outsiders can be invited or denied access.

The methodology for the study is considered in the following section and in particular the way in which the use of video in the classroom can be supportive of reflective practice

## Methodology review

In reviewing the methodology this section aims to consider the research process in the light of my positionality as well as considering more specifically the processes for data gathering and data analysis and identifying strengths and possible weaknesses.

One of the strengths of the research was the sense of community in the classroom and my own depth of knowledge of the children developed in the 6-7 months leading up to the data-gathering process. These two elements were crucial to this research particularly for the ethical considerations and for the data gathering processes. Having a close relationship with the children was essential in order to be sure of the children's assent and continuing assent for the research. This relationship was also a crucial part of my role as a participant observer in an ethnographic case study in order to be able to enter into children's worlds and provide the rich detail about the participants and their actions and interactions. The sense of community and the established trust in the classroom also facilitated the optimal use of the video camera as a tool for data gathering. As noted in chapter three, once the rules for the use of the camera were abandoned the children appeared more comfortable in the presence of the camera interacting with it and occasionally using it for their own intentions. My close relationship with the parents of the children also offered the children another avenue for bringing their concerns about the research to my attention and this happened after the data gathering had been carried out and the children and I had met for a final time to review the data. Following this meeting I received an email from the mum of one of the participants who told me that her child had enjoyed the session very much but was disappointed that she did not see herself in the videos we had reviewed. She (the child) very much wanted to be part of the research. This came as quite a blow to me as I felt I was at "risk of reproducing symbolic violence" (Warming, 2011, p48). I decided to meet again with this child and together we reviewed the data in which she featured and she left me reassured that her voice was heard. It is suggested that when research is carried out by early

childhood educators within their own classrooms, their in-depth knowledge of the children, the community and the developing peer-cultures are invaluable for both ethical and methodological reasons.

It was noted in chapter three that choices made by researchers reflect the researcher's assumptions about who the young child is and who the child is becoming and this study is reflective of my image of the post-modern child as unique and complex, participating in, contributing to, and determining their own lives, the lives of those around them and their society; a co-constructor of knowledge, competent and developing new competencies. However, one potential weakness of the study is the comparatively small amount of data representing the children's own perspectives on their working theories. Video-stimulated accounts were used as an opportunity for the children to give their perspective on their play, however the children used these opportunities to clarify their actions or meanings, for example in **vignette 6.3** Adam clarifies his source of knowledge about graveyards as being 'Scooby-Doo', and in **vignette 6.14** Rosie explains her role as a teacher. Notes from my research diary show that the children watched:

In comparative silence with the occasional unsolicited commentary eg. oh that's when...The children seem reluctant to really engage with the videos - they used the viewing as a reminder/recap/recall and tended to describe what they had done rather than go further and say why they were doing it.

There was a certain reluctance on my part to probe further or to share my thinking with the children, as it seemed that perhaps the children wanted to keep their play private. However, as Rinaldi (2006, p68) points out, one of the primary tasks of documentation is "to ensure that the group and each individual child have the

possibility to observe themselves from an external point of view while they are learning.” This means making children’s thinking visible and sharing this with the children as part of the process of teaching, learning and researching.

One further potential weakness of the study is reflected in the comparatively small amount of evidence of children’s theories about the physical world. The research design for this study did not include planned observations of teacher-led activities or teacher/child interactions and it maybe that these are additional arenas for children’s theories about the physical world and this could be the subject of future research.

## Summary

This chapter aimed to examine the data in the light of the research questions for the study and consider what young children theorise about (RQ1), how they express these theories (RQ2) and how they build them (RQ3). In addition this chapter aimed to consider how knowing more about young children’s theories might impact the practice of teaching and the process of learning in early childhood settings. The three categories of working theories identified in the data are situated within the context of children’s continuing cognitive inquiries. These inquiries, taking place in the arenas of play and classroom conversations, are seen as both productive of and contributive to children’s peer cultures. Building on the work of Hedges and Jones (2012) it is suggested that children’s peer cultures play a pivotal role in the development of working theories in the classroom context. In the context of their participation in the life of their peer culture, children develop working theories about

human nature, the social world and the physical and natural world as they go about constructing their ethical, social and gender identities. Equally, working theories also contribute to the developing peer culture of the classroom within which children participate in continuing cognitive inquiries and construct, modify or reject their working theories. Other factors identified as contributing to working theories include: children's life experiences, funds of knowledge and the classroom environment, including time, space and materials.

This chapter also presented a consideration of the potential impact of the findings of this study on classroom practice, returning to the contexts analysed in the literature review, Reggio Emilia and New Zealand, as well as considering the potential of documentation for the production of a responsive curriculum. The chapter concluded with a review of the methodology for the study, identifying some strengths and some possible weaknesses.

This findings from this study suggest that by constructing, deconstructing and reconstructing their working theories within peer cultures, children are able to construct their own meanings about themselves, about life and about the world they live in. This suggestion will be considered further in the concluding chapter.

## Chapter 8: Conclusion

### Introduction

This thesis represents a multiple case study carried out in an early years classroom with seventeen children aged 4-5 years. The research seeks to explore how young children build and use theories in a play-based classroom, examining ideas from the educational contexts of Reggio Emilia and New Zealand, and building on the empirical work of Hedges (2011, 2012, 2014), Hedges and Jones (2012) and Peters and Davis (2011).

The research is underpinned by the social constructivist learning theories of Vygotsky in which learning is seen as leading development (Vygotsky, 1986), and sociocultural theories where social interaction is seen as central to the process of development, development being “embedded in the context of social relationships and sociocultural tools and practices,” (Rogoff, 1990, p8). Informed by Dahlberg, Moss and Pence’s (2007, p52) assertion, in reference to pedagogical work, that “constructions of childhood are *productive* of practice”, and the work of Malaguzzi (1994, p52) who contends that our own image of the child guides our relationships with children, this study takes a reflexive approach, making explicit the image of the child on which it is founded. This child is unique and complex; being and becoming; participating in, contributing to, and determining their own life, the lives of those around them and their society.



The research draws on Hedges and Jones' (2012, p36) definition of working theories as a guide for identifying working theories present in the data. Working theories are represented by:

The tentative, evolving ideas and understandings formulated by children (and adults) as they participate in the life of their families, communities and cultures and engage with others to think, ponder, wonder and make sense of the world in order to participate more effectively within it.

## Main Findings

### Categories of working theories

Three categories of working theory are identified as the children interact in their play-based environment: theories about human nature; theories about the social world; and theories about the physical and natural world. These categories are defined below:

- **Theories Related to Human Nature:** *to self identity; to beliefs, values, religion; to rights and responsibilities; to relationships; to life and death*
- **Theories Related to The Social World:** *to the structures of human society-families, communities; to organizations in society such as schools and workplaces; to the roles people play in these organisations*
- **Theories Related to the Physical and Natural World:** *to the physical and biological world; to scientific laws and principles; the animal and plant kingdoms*

It is suggested that these theories are constructed in the context of the children's continuing cognitive inquiries, which have their roots in children's fundamental interests, their ongoing interests or their activity-based interests (Hedges, 2010). Working theories are theorised as playing an integral part in children's continuing cognitive inquiries and may be expressed explicitly or implicitly. Explicit theories are expressed verbally, usually as explanations in response to questions or observations, but also as justifications, appeals to higher authorities, as questions and clarifications. They may be transient, fleeting and expressed 'in the moment'. Implicit working theories are revealed over time and may be expressed verbally or physically embodied in movement, actions and gestures during play. Theories about human nature, the social world and the natural world were more evident in the data than theories about the physical world and it is suggested that this may be due to the context of the observations (i.e. play and classroom conversations), and that theories about the physical world may be more evident in adult-child conversations and adult-led activities. This is one potential area for further research.

The research presents multiple examples of children using and developing working theories about death and dying, about motherhood and about morals, power and justice. It is suggested that working theories may provide a mechanism for children to explore and develop their ethical, social and gender identities, acting as a bridge between cultural understandings of morals, ethics and gender roles and children's own understandings of who they are and their place in the world.

## Arenas for theory-building

In addressing the main research question for the study, the research aims to explore children's theories in a play-based classroom and two contexts typical of the play-based classroom emerged as sites for the expression of working theories: play and classroom conversations. These two contexts appear to act as arenas to which young children can bring their continuing cognitive inquiries and share and exchange their working theories. Within these supportive and safe arenas theories can be listened to, challenged, tested, modified and affirmed. Whilst play has been the subject of several empirical studies, everyday classroom conversations between children remain relatively unexplored and are perhaps a context for learning that is overlooked in the classroom. This study uncovers evidence of children using everyday peer-peer and child-teacher classroom conversations as an opportunity to continue their play inquiries, extend their working theories and develop their peer cultures. These everyday classroom conversations may be a possible area for future research.

## Peer cultures and theory-building

This study provides evidence of a pivotal role played by children's peer cultures in the production and development of children working theories and indeed, this study also provides evidence of working theories themselves becoming part of the children's peer culture. It is suggested that there are three main contributing factors to the production and development of both peer cultures and working theories in the classroom: a strong sense of community felt by children, a shared "interactional

history" (Evaldsson and Corsaro, 1998, p381), and the time over which working theories are given to evolve. This study also recognises the role of children's funds of knowledge from home, school and the community as contributing to children's continuing cognitive inquiries and thus to their working theories. However the study indicates the need for teachers to look closely at children interests, to go beyond the surface structures and look for evidence of the children's "search for the meaning of life and of the self in life" (Rinaldi, 2006, p64). The process of documentation is suggested as a strategy for practitioners to listen to, interpret and reveal children's working theories and as a way of blurring the boundaries between teaching and researching. This process of documenting children's ideas, explanations and understandings as tentative, emerging and evolving theories, highlights a responsibility to respond to them, even within the context of a curriculum framework. Although it has been noted that responding to children's theories can be complex and challenging, it is an essential part of the process of building new theories. It is suggested that educators must develop strategies for responding, such as using more open questions to gently probe into the heart of an issue, allowing more time for classroom conversations that have proved to be such a rich source of working theories in this study, using resources and role-play intentionally as a way to disrupt theories and using documentation to share interpretations with colleagues and parents in order to gain new perspectives about children and their working theories.

## Reflection

In reflecting on the main findings, it is proposed that the observation, interpretation and documentation of young children's working theories offer a way for educators to see more clearly how children experience and engage with issues and concerns that are important to them as they participate within their peer cultures. Taking a global perspective, working theories offer a potential pedagogical alternative to policy frameworks shaped around nationally-directed goals and outcomes, affording a more responsive curriculum in which children's goals and interests can be carefully considered and responded to by those who work closely with them – a more 'local' curriculum where a dual approach to planning is taken. This study shows that identifying and responding to children's working theories, which may be about fundamental life issues, is highly complex. However, it highlights the potential that an exploration and understanding by educators of children's peer cultures may have for supporting a more reflective and intentional response to children's interests and the development of children's working theories.

In conclusion, the working theories expressed and documented within this study offer new insights into children's interactions, interests and ways of making meaning as they participate in a play-based classroom. The role of children's peer cultures in the production and development of their working theories appears to be particularly significant. It is proposed that through a sensitive and responsive approach to children's working theories about the world and their place in it, adults can engage

more deeply with children about the fundamental life issues that are of concern or interest to them.

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## Appendices

- Appendix 1: Ethical approval confirmation
- Appendix 2: Family ethical information pack
- Appendix 3: Parental consent form
- Appendix 4: Children's assent form
- Appendix 5: Example of transcript
- Appendix 6: Example of field notes

## APPENDIX 1: Ethical Approval

Michelle Hill  
Early Childhood Education

**HEAD OF SCHOOL**  
**PROFESSOR CATHY NUTBROWN**

**SCHOOL OF EDUCATION**  
**388 GLOSSOP ROAD**  
**SHEFFIELD**  
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26 November 2012

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Dear Michelle

### ETHICAL APPROVAL LETTER

#### Young Children as Theory Builders: Documenting Working Theories in A play-based Classroom

Thank you for submitting your ethics application. I am writing to confirm that your application has now been approved.

We recommend you refer to the reviewers' additional comments (please see attached). You should discuss how you are going to respond to these comments with your supervisor BEFORE you proceed with your research.

This letter is evidence that your application has been approved and should be included as an Appendix in your final submission.

Good luck with your research.

Yours sincerely



Dr Dan Goodley  
Chair of the School of Education Ethics Review  
Panel

cc Prof E Wood  
Enc Ethical Review Feedback Sheet(s)

## APPENDIX 2: Parent Information Pack

### Research Project Information

#### **Project Title**

Children as Theory Builders: Documenting Working Theories in a Play-Based Classroom

#### **Purpose of the Project**

The project is the basis for a 50,000 word thesis to be submitted for the Doctorate of Education (Early Childhood Education) at the University of Sheffield in the UK.

The aim of the project is to present and analyse the theories (initial ideas and understandings) that young children build and use during their time in the classroom.

The objectives are to identify and document the children's theories, to understand more about the ways in which the children develop their theories and to see how those theories change.

The research question is:

***How do young children build and use working theories in a play-based environment?***

The project stems from my interest in play in the classroom environment, and my experiences of and research into the pre-schools of Reggio Emilia, which I visited as part of the development of the Early Childhood programme at ISZL. The idea of children developing 'working theories' is also present in the Early Childhood curriculum in New Zealand and there are some published and on-going studies in this area (Peters and Davis 2011, Hedges, 2011).

The project will take place between February 2013 and June 2013 and has the full support and co-operation of the school administration.

#### **Why has my child been chosen?**

All 20 children in your child's class (PreKHi) have been invited to participate. As you know, at this point the children have already been in the class since August 2012 and I believe that close and trusting relationships I have developed with the children before data collection begins is important to the study. I am hopeful that with 20 children as potential participants that many of them will be involved resulting in a large enough sample size for the study.

#### **Does my child have to take part?**

It is up to you to decide whether or not your child takes part. If you do decide to allow your child to take part you will be given this information sheet to keep and be asked to sign a consent form. You can still withdraw your child from the

project at any time. You do not have to give a reason. Even if you say yes, your child may decide not to take part.

**What will happen to my child if he/she does take part?**

The research will take part in the normal classroom during normal school hours between March and June.

I intend to make 9 half-hour video- recordings of the children as they go about their normal daily classroom activities. During these times I will be in my usual teacher role. The video camera will be in fixed positions.

The recordings will take place in 3 different areas of the classroom-the 'construction' area, the 'role-play' area and the 'art' area. The relevant parts of the videos will be identified and then transcribed and analysed by me.

The edited videos will also be shared with the children involved and their comments will be included as part of the data.

I will also be using observations, field-notes, photographs and audio recordings. Details of conversations between the children and I will also be noted and/or audio recorded. This type of observation and recording is part of my usual, day-to-day work with the children, but from March to June the observations may also contribute to my research data. This data will be shared with the children involved and again their comments will be noted and form part of the data.

Artefacts produced as part of the children's experiences such as drawings, paintings and writing may also form part of the data.

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

As stated above I intend to make 9 half-hour video- recordings of the children in 3 different areas of the classroom. Photographs and audio recording will also be used.

The recorded media and photographs will be:

- stored on my personal computer which is password protected.
- stored on an external hard drive kept at my home as a back-up.
- deleted from the recording device immediately after being downloaded.
- transcribed by me, using pseudonyms for the children.
- Used for analysis and illustration in my doctoral thesis and subsequent written research reports, and for illustration in conference presentations and lectures.

Any other use will require your written permission.

No-one outside the project will be allowed access to or use of the original recordings. None of the images or recordings will be posted on the internet or mailed electronically.

Once the project is complete and written up you may have copies of photos and recordings featuring your own child. The originals and back-up copies will then be permanently deleted.

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

There are no special restrictions or instructions for your child to take part in the project. I will talk to them about the project and explain that they do not have to take part if they do not wish to.

In the classroom I will explain the project to the children using appropriate terminology. The key points will be that:

- I am trying to learn more about how children learn.
- Sometimes, as well as the usual classroom camera, there will be a video or audio recorder in the classroom recording what we all do or say (*I will show them the devices to be used*)
- I will tell them when the devices are there and when they are recording.
- They and their parents can see the video/audio recordings or photographs at any time.
- They can take parts of the video/audio out or delete them altogether if they don't like them.
- They can delete photographs they do not want used.
- I would like to share the videos/photographs with people I trust, who are also interested in how children learn.
- They can change their mind at any time.

Please talk about the project with your child in your Mother-Tongue if necessary.

I will use the attached 'child consent form' to give your child the opportunity to say yes or no at the beginning of the project. I am aware that your child may change their mind at any point in the project (eg. they may not like hearing themselves on an audio recording). If your child indicates they are not happy in any way all data will be removed.

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

It is possible that your child may be uncomfortable seeing themselves on video or hearing their voice on an audio recording. They may tell you and I would ask that you let me know so that I can remove any material from the data immediately.

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

Whilst there are no immediate benefits for the children taking part, I am hopeful that this research will contribute to contemporary understandings of the ways children think and learn, and thus influence teachers' work in the classroom.

### **What happens if the research study stops earlier than expected?**

I will let you know why the research is being stopped.



**What if something goes wrong?**

The school (ISZL) acts as a 'gatekeeper' for the research and should you have any concerns or complaints while the research is taking place, you should contact:

Meryl Siggs (Campus Head)

ISZL Zug Campus

Walterswil

6340 Baar,

Switzerland

**Tel:** (+41) 41 768 1188

**Email:** [office.zug@iszl.ch](mailto:office.zug@iszl.ch)

*You may also contact my supervisor:*

Professor Elizabeth Wood

**Tel:** (+44) (0)114 222 7048

**Fax:** (+44) (0)114 222 8105

**Email:** [e.a.wood@sheffield.ac.uk](mailto:e.a.wood@sheffield.ac.uk)

*If you feel that your complaint has not been handled to your satisfaction you may also contact the University Registrar:*

Office of the Registrar and Secretary

Firth Court

Western Bank

Sheffield

S10 2TN

**Tel:** (+44) (0)114 222 1100

**Fax:** (+44) (0)114 222 1103

**Email:** [registrar@sheffield.ac.uk](mailto:registrar@sheffield.ac.uk)

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

All the information collected about your child during the course of the research will be kept strictly confidential. Your child will not be identified in any reports or publications.

All children will be given pseudonyms to be used in the transcription stage and in the research report. I also intend to use a pseudonym for the school.

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

I hope to submit the final written research report (thesis) in September 2014. Following a successful outcome from the examiners, the thesis will be published and a copy held in the University Library. The data used in the final research report may also be used for shorter articles for publication in peer-reviewed journals. In all cases your child and the school will not be identified by name.

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

The project is self-funded and organised through the University of Sheffield in the UK.

**Who has ethically reviewed the project?**

The University of Sheffield Education Department has reviewed this project in accordance with their ethics review procedure.

The research project has also been approved by the school (ISZL).

**Contact for further information**

*You can contact me about this project at any time:*

Michelle Hill

**Tel:** 043 888 9234

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*or my supervisor:*

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**Fax:** (+44) (0)114 222 8105

**Email:** [e.a.wood@sheffield.ac.uk](mailto:e.a.wood@sheffield.ac.uk)

**Should you and your child decide to participate you will be given a copy of this information sheet and a signed consent form to keep.**

Thank you for taking the time to consider being involved in this research project,

Kind regards,



Michelle Hill

## APPENDIX 3: Parent Consent Form

### Parent Consent Form

**Title of Project: "Young children as theory builders: Documenting working theories in a play-based classroom"**

**Name of Researcher: Michelle Hill**

**Please initial box**

1. I confirm that I have read and understand the information sheet and letter dated 4<sup>th</sup> February 2013 for the above project and have had the opportunity to ask questions or ask for clarification.
2. I understand that participation by my child is voluntary and that I am free to withdraw my child at any time without giving any reason.
3. I understand that my child's responses will be anonymised before analysis. I give permission for members of the research team to have access to my child's anonymised responses.
4. I agree to allow my child to take part in the above research project.

\_\_\_\_\_  
Name of Participant (child)

\_\_\_\_\_  
Name of Parent giving Consent

\_\_\_\_\_  
Date & Signature

\_\_\_\_\_  
Lead Researcher

\_\_\_\_\_  
Date & Signature

*To be signed and dated in presence of the participant*

Copies:

*Once this has been signed by all parties the participant should receive a copy of the signed and dated participant consent form, the letter and information sheet and any other written information provided to the participants. A copy of the signed and dated consent form should be placed in the project's main record which must be kept in a secure location.*

## APPENDIX 4: Children's Assent Form

Is it OK if I take photographs of you while you play in the classroom and look at them later?

Yes



No



Is it OK if I record your voice while you play in the classroom or talk to me so I can listen to it later?

Yes



No



Is it OK if I make a movie of you while you play in the classroom or talk to me so I can watch it again later?

Yes



No



Thank you,

Mrs Hill

## APPENDIX 5: Example of multimodal transcript

### Shark Attack

March 8<sup>th</sup> 2013

11.44am in the classroom

Participants: Adam (5yrs 6mths), Chloe (5yrs 5mths), Lily (4yrs 7mths)

There is a large carpet area with a mattress and cushions at one end. Around the carpet are a range of sizes and shapes of wooden blocks as well as a set of brown, foam building bricks of uniform size and shape. Earlier in the day a group of children had created a 'swimming pool' made from the brown blocks and in this vignette 3 children are playing next to the 'swimming pool'.

The camera is placed on a low cupboard and focussed on the carpet area. I am in my teacher role but am checking the camera from time to time. As this vignette begins I am checking the camera is recording.

Timer on video 00:00 – 00:56

13. Chloe is lying on her back on the carpet with her head on a cushion. Her arms are by her sides with her hands flat on the floor, and her legs are slightly apart. She has a narrow strip of white paper wrapped around one leg and white paper tissues spread across her chest and her forehead. Lily is kneeling next to her and is wrapping a tissue around Chloe's right elbow. Adam can be heard off camera...
14. **Adam:** Mrs Hill, I've got something in the boot room in my coat, which is for breathing and also for diving and ...
15. ...like that.
16. **Me:** Something for breathing and diving?
17. **Adam:** Yes
18. **Me:** OK
19. **Lily:** Now you don't wake up
- There is the sound of 2 breaths being taken in and out noisily
- Lily takes another tissue and wraps it around Chloe's right knee. She reaches for another tissue from a pile near Chloe's head.
- Lily wraps the final tissue around Chloe's right ankle. Without changing her body position Chloe turns her head towards me (I am out shot behind the camera)

20. **Chloe:** I was dying and not wake up
21. **Me:** You were dying?
22. **Chloe:** Yes because a shark eat me
23. **Me:** Oh no!
24. **Chloe:** Here and inside of my tummy  
and here  
  
and here  
  
and here
25. **Lily:** And she's having a baby and we have  
to look after her...
26. and this is paper. We are using it.
27. **Me:** Oh, do you need more paper like  
that?
28. **Lily:** Yes.
29. **Me:** Oh, I can get you some.
30. **Lily:** And we need to cut it up to bits  
and pieces.
31. **Adam:** Can I use this?
32. **Chloe:** I was dying and not wake up and I  
was hurting me here, here...
33. **Adam:** This is my thing
- shaking her head slightly
- she lifts her left arm and makes a claw with  
her hand
- she lays her hand flat on her chest
- lays hand on her stomach
- lays her hand on her forehead
- points to right elbow
- points to left and right thighs  
kneeling and looking up at me
- she holds up a narrow strip of paper and  
then goes on wrapping Chloe's left knee with  
the paper
- getting up and coming towards me
- Chloe remains completely motionless on the  
carpet.  
Adam enters into shot. He has something  
small in his hand that he had earlier asked to  
get from the cloakroom. He walks towards  
Chloe.  
standing over Chloe's head looking down at  
her and flipping the small piece of rubber  
over in his hands  
Chloe moves her head slightly to look at  
Adam. He doesn't look directly at her
- she points to parts of her body  
Adam sees me return with the paper (out of  
shot) and he turns to me, holding up the  
piece of rubber between his finger and  
thumb.  
he puts it to his mouth and breathes hard in  
and out of it 3 or 4 times  
I put down the roll of paper. Chloe raises her  
head and then raises her arm to point to the  
paper.

34. **Chloe:** (calls loudly) Extra paper, extra paper!

35. **Lily :** OK, OK. You can have... I want green, you can have blue, OK?

36. **Adam:** yeah, but remember my breathing was very good, and my flying and my super powers was good... remember that

37. **Lily:** We need to make it into bits and pieces

38. **Adam:** Lily?. Now we stop doing, uhm, Chloe?

39. **Lily:** No

40. **Lily:** How about I die...too

41. **Lily:** OK?

42. **Adam:** And I've left you there because I had to practice doing Superguy.

43. **Lily:** Yeah, but I was quite dead and you noticed me.

44. **Adam:** Yes, because I could do diving and I spotted you.

returning with 2 pairs of scissors ,one green and one blue. She turns to Adam.

Lily stands next to Chloe who remains motionless.

Lily begins cutting a strip of paper into small pieces which fall to the floor. She kneels down and continues cutting. Adam comes back into shot with a small piece of paper, which he tries to place on Chloe's left toe and then on her left knee. He stands at her feet looking down on her and puts his fingertips together with the piece of rubber between. Again he breathes in and out deeply and forcefully. Lily remains seated on the floor cutting paper

Adam rolls the piece of rubber in his hands then steps carefully over Chloe he sits down beside Lily.

continuing cutting and not looking up Adam looks away distracted by a noise elsewhere in the classroom. Chloe remains motionless. Lily looks up at Adam.

Adam turns back to face her

Lily gets up quickly and runs out of shot

Adam gets up and puts the piece of rubber on a shelf

Chloe remains motionless. Adam goes just to the edge of shot and bends down. He takes Lily's wrists and walks backwards back into shot dragging Lily by the wrists. She is on her back, body limp, her head is back, eyes closed and her hair is dragging on the

45. **Adam:** Lily is dead and now there is only me left in my family and that's not fair for my life.

46. **Lily:** But you have to look after us too, right?

47. **Adam:** Yeah, but you're dead and I'll have to put you in the cross where the cross goes and you'll be dead in there.

48. **Chloe:** And I come back alive

49. **Lily:** And you guys noticed and you noticed that I was dead

50. **Adam:** No

51. **Lily:** No I mean Chloe.

52. **Adam:** No. Chloe didn't notice you were dead 'cos she was dead by the time you were dead.

53. **Adam:** Because you were underground

54. **Chloe:** (Out of shot) Look it's my baby

55. **Adam:** I wonder how my sister's doing? I hope she's OK. Luke Skywalker and Princess Leah is in Amidala's family.

56. **Chloe:** I had my baby

57. **Me:** Oh, you've had your baby

58. **Chloe:** It was in my tummy.

59. **Chloe:** I came back alive

60. **Me:** You came back alive and had your baby

61. **Lily:** And I'm dead. I'm dead Just for pretend

62. **Me:** So what are you going to do now?

63. **Chloe:** We are going to do like what Lily did to me

ground. Adam heaves her next to Chloe. He walks away

Lily stays lying down. She opens her eyes, moves her head slightly to look at Adam.

Chloe suddenly sits up.

grabbing Chloe's arm, she puts her arms out in a cross, puts her head back down and closes her eyes

lifts her head and points to Chloe, talking to Adam.

Chloe walks out of shot

Lily puts her hand flat down by her side and closes her eyes.

returns with a baby doll in her arms. Lily remains motionless, eyes closed.

Chloe turns and sees me and talks over Adam.

Pats her tummy

She comes to me and takes me by the hand bringing me into shot.

I kneel down next to Lily.

Raising her head and looking at me. She puts her head back down and closes her eyes.



64. **Me:** Ah, so you're going to wrap her. So will she come back alive?
65. **Chloe:** Yes (Adam, off camera, at the same time says no)

Chloe takes a strip of paper and lays it across Lily's forehead. Lily opens her eyes and says something to Chloe, indicating that she should wrap her arms not her head

66. **Me:** (to Chloe) Oh she will. (To Adam) You said no Adam. What makes you say that?
67. **Adam:** Because even if it's pretend she said she won't come back alive.....Maybe she's changed her mind.
68. **Me:** Can people come back alive?
69. **Adam:** No.
70. **Me:** No
71. **Adam:** They can come back alive but are ghosts and you can't see them

Timer on Video 05:20

Michelle Hill

## APPENDIX 6: Example of Field notes

13<sup>th</sup> March 2013

After Outdoor Learning at approx. 9.30am

Field-notes from a conversation

*The children begin each day playing outside in an area that includes access to a small garden with a pond. A group of children find a dead newt in the garden and as they come in three children, Lucia (4:11), Peter (5:6) and Adam (5:6) begin telling me about it at the same time, talking over each other excitedly. I stop them and ask how they know the newt was dead.*

12. Lucia: It had its eyes open and I don't think it was sleeping
13. Peter: People can die with their eyes open
14. Lucia: Sometimes they can die with their eyes closed or open
15. Adam: (indignantly) Or half open
16. Lucia: If they are dead they don't move
17. Adam: They go to heaven
18. Peter: People believe in it but that's where they stay alive, where the skeletons are.
19. Adam: They die on earth and then they go to heaven where they started.
20. Peter: I've got a book about digging up the past. The skeletons stay on earth and dirt goes on top
21. Me: So skeletons stay on earth?
22. Adam: (referring to conversation of the previous day) No. They go to heaven. And the person who is a football player died and came alive again-boom!