Early childhood teachers' beliefs and practices related to peer learning: a mixed methods study

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Abstract

This study investigated New Zealand early childhood teachers' beliefs and practices related to peer learning, as little is known about how teachers support peer learning in play based settings. A mixed methods exploratory sequential research design was used. The first phase of the study consisted of case studies, which comprised interviews and observations of teachers in three early childhood centres. Filmed observations of teachers' practices as they supported opportunities for peer learning were undertaken. Stimulated recall interviews were then completed to gain a deeper understanding of teachers' intentions about this aspect of their practice. Constant comparative analysis was used to analyse the case studies, including the use of the NVivo programme for content analysis. The second phase of the study was a nationwide survey sent to early childhood teachers. The questions for the survey were derived from analyses of the case studies and extant literature. Survey data was interpreted using descriptive statistics and coding of open ended questions. Findings from both phases were used to answer the research questions.

The study revealed teachers' beliefs about peer learning recognised the social, participatory nature of learning, alongside provision of opportunities for individual exploration and discovery. Balancing these beliefs created a tension for teachers and at times they struggled to express their role in supporting peer learning. The need for teachers to better articulate and deepen their understanding of their role in this type of learning is implicated in these findings. This study found the early childhood setting played a critical role in mediating teachers' practices and beliefs about peer learning. Therefore children had varied experiences of peer learning as teachers supported children's agency amongst their peers in different ways. This finding was of concern, as teachers who work in settings that do not actively promote peer learning may not effectively support children's potential as teachers of their peers.

Participants espoused beliefs about child-led learning, however observations revealed teachers' intentional support of peer learning. This finding highlighted a major contradiction between teachers' beliefs and practices whilst revealing teachers' inability to take ownership of their intentional teaching practices. Teachers used the curriculum guidelines from *Te Whāriki* related to wellbeing and a sense of belonging to support peer learning; the role of children as knowledge constructors was less closely aligned with teachers' beliefs and practices. This finding draws into question teachers' understandings of how to implement peer learning across the curriculum

strands whilst implying the need for further investigation about how young children's learning is assessed.

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Chapter One: Introduction

1.1 Explanation of the research topic and rationale for the study

It is well established that peer interactions play a critical role in young children's learning and development (Palinscar, 1998; Rogoff, 1984; Tudge, 2000). Essentially, "peers can have a profound impact on children's cognitive development" (Tudge & Rogoff, 1989, p. 34). However little is known about early childhood teachers' beliefs in relation to peer learning and how these beliefs relate to their practice (Han, 2012; Kemple, Hysmith & David, 1996; Kim & Han, 2015). To gain insight into this aspect of teachers' practice, this study was designed to explore early childhood teachers' beliefs, understandings and practices related to peer learning in New Zealand early childhood education settings. In writing about the importance of research in this area, Tudge and Rogoff (1989, p. 33) drew attention to the need to investigate "situations where children meet naturalistically and problem solving occurs under their management, to examine how peers serve as cognitive facilitators". Exploration of teachers' understandings of their role in supporting peer learning is an important aspect of such investigations. It is vital teachers understand and know how to support peer learning in order to maximise children's potential role as teachers amongst their peers.

There is strong theoretical support for peer learning within constructivist theories of cognition. In spite of this, the presence of theory is not sufficient as Flavell, Miller and Miller (2002) note that theorising has so far outstripped the research in the area of children's cognitive development. Earlier writing by Bruner (1986, p. 124) stated that what is lacking is "a reasoned theory of how the negotiation of meaning as socially arrived is to be interpreted as a pedagogical axiom, though there has been a beginning in the work of Vygotsky". How teachers can nurture and support peer learning needs to be better understood within the context of the sociocultural curriculum *Te Whāriki* (Ministry of Education, 1996, 2017). This need for a deeper understanding of how to enact sociocultural theory in practice has been emphasised in more recent local research and writing (Anning, Cullen & Fleer, 2009; Nuttall & Edwards, 2004; Stephenson, 2009).

In her investigation of the enactment of curriculum in a New Zealand early childhood centre, Stephenson (2009, p. 15) stated that more than a decade after the introduction of *Te Whāriki*, "some teachers are still grappling with the implications of the sociocultural approach and the concept of curriculum contained in *Te Whāriki*". Policy makers have recognised the importance

of teachers' understandings of theory with the New Zealand Early Childhood Education taskforce report (Ministry of Education, 2011) emphasising the need for teachers to be well qualified in order to implement the sociocultural curriculum document *Te Whāriki* effectively. The recently released report of the Early Years Advisory Group (Ministry of Education, 2015) recommended revision of *Te Whāriki* including professional development for teachers to assist them in implementing the curriculum document. Clearly the interpretive nature of *Te Whāriki* provides challenges for teachers. My own investigation of peer learning in early childhood centres (Smith, 2010) identified that the teachers interviewed found it difficult to articulate how *Te Whāriki* guided their role in children's learning. A key objective of this study was to explore how teachers promoted peer learning within a sociocultural curriculum.

Teachers' beliefs have been termed a messy construct (Pajares, 1992). The area of teachers' beliefs in early childhood education has had some investigation (Genishi, 1992; Horsley & Bauer, 2010; Isikoglu, 2008; Kemple, Hysmith & David, 1996; Lee, 2006; McLachlan-Smith, 1996; Saracho & Spodek, 2007) and research has identified the need to examine the interplay between early childhood teachers' beliefs and practice (Rivalland, 2007; Sakellariou & Rentzou, 2012; Wen, Elicker & McMullen, 2011). Wen et al. (2011) state there have been few investigations of both early childhood teachers' beliefs and the contextual nature of their practices and that such investigations are needed, as the current empirical evidence does not provide support for a strong relationship between teachers' beliefs and practices. Sakellariou and Rentzou (2012) concur, as their own study of pre-service kindergarten teachers found teachers' beliefs did not correlate with their intentions. My previous study (Smith, 2010) identified conflict between teachers' understandings about peer learning and what actually happens in practice. This study will therefore help to shed light on the complex relationship between teachers' beliefs and practice in the early childhood sector.

In sum, the significance of this research is three-fold. First, the findings will identify examples of early childhood teachers supporting children to learn from each other, which may be useful to other teachers. Second, at a policy level, the insights gained from this study will contribute to furthering our knowledge of how teachers assess young children's learning; an important contribution when the government has revised the early childhood curriculum *Te Whāriki* and has included more specific learning outcomes for teachers to assess (Ministry of Education, 2017). Finally, this research will contribute to the international literature by providing evidence

of how New Zealand teachers were working with the early childhood curriculum *Te Whāriki* (Ministry of Education, 1996) in relation to supporting peer learning, prior to the recent revision. Dalli (2011, p. 229) terms early childhood professional practice in New Zealand as a "curriculum of open possibilities". This research seeks to uncover how teachers interpret and enact these possibilities, which will be of interest to researchers and teachers in other countries who are interested in issues associated with implementing sociocultural curricula.

1.2 My own experiences as a teacher and researcher

I have worked in the early childhood sector for the past thirty years and I have a strong belief in the difference that quality early childhood education can have on the lives of children and families. I spent ten years teaching in kindergartens and the last twenty teaching in the tertiary sector, primarily in initial teacher education. I first became interested in peer learning when I undertook a small research project for a postgraduate paper in cognition. The focus of the project was two buddy classes (junior and senior classes) who met together weekly in a New Zealand primary school so the children could work together. Findings from this project revealed that young children can play a vital role in their peers' learning (Smith, 2008). My master's thesis built on the findings from this project as it investigated the role of peers in children's learning in early childhood settings (Smith, 2010). The findings from this research resulted in further questions about the topic, particularly in relation to teachers' beliefs and practices about promoting and supporting peer learning. I have undertaken this thesis to answer these questions and to grow my own capacity to conduct research.

1.3 Defining key terms

The following definitions explain the major terms relevant to the research topic. More detailed explanations and additional terms are defined in chapter two, the literature review.

Peer learning

Peer learning refers to "the acquisition of knowledge and skill through active helping and supporting among status equals or matched companions" (Topping, 2005, p. 631). The term encompasses the idea of children learning from each other and acquiring knowledge through the process of working together. Peers have equality of status in the learning relationship as opposed to adults and children. Children have different experiences than adults and multiple perspectives are more likely to emerge when children are playing together rather than when they are on their own (Williams, 2007). The notion of active involvement through problem-solving has commonly been associated with peer learning and the type of "free verbal

interchange" that is influential in bringing about a change in perspectives has been found to be more likely in peer interactions (Tudge & Rogoff, 1989, p. 35).

Teachers' beliefs

There are many definitions of teachers' beliefs in the literature and in this study the following definition was adopted: "beliefs are seen roughly as referring to personal values, attitudes, and ideologies, and knowledge to a teacher's more factual propositions" (Meijer, Verloop & Beijaard, 2001 p. 172). There is little evidence of a strong relationship between teachers' beliefs and practices and there is a need to explore how early childhood teachers' beliefs and practices interact (Rivalland, 2007; Sakellariou & Rentzou, 2012; Wen, Elicker & McMullen, 2011). Beliefs, values and attitudes make up an individual's belief system (Spodek, 1987).

Early childhood

In New Zealand, children can take part in early childhood education from birth to school entry age and school is compulsory from the age of six (Ministry of Education, 2017). Dahlberg, Moss and Pence (2006) problematise the notion of early childhood, deeming childhood to be a social construction in which children are social actors who contribute to learning. They assert learning is a co-operative activity in which children construct knowledge with adults and equally important with other children. This thesis explores the role of early childhood teachers in fostering children's peer interactions as these social relationships contain valuable learning opportunities.

Early Childhood Education Centre

In this study, the term early childhood education centre is used in New Zealand to identify the settings attended by children aged from birth to school entry, typically at five years. An early childhood education centre is defined as providing sessional, all day or flexible hour programmes for children from birth to school age. They may be privately owned, non-profit making, or operated as an adjunct to a business or organisation (Bushouse, 2008). In this study, the interviews and observations of teachers' practice occurred in early childhood education centres.

1.4 The context for this study in New Zealand

The early childhood education sector in New Zealand came into being in 1985 when the administration of child care centres was transferred from the Department of Social Welfare to the Department of Education (May, 2009). Advocates for early childhood provision regarded quality childcare and education as the right of all children and the status of work in early

childhood as equal to that of the other sectors in education (May, 2009). An important reform took place in 1988, when the Labour government formed a working party that was charged with providing a "short restatement of the purpose, place, form and function of early childhood care and education" (Department of Education, 1988, p. iv). Chaired by Dr Anne Meade, the results of the working party were published in August 1988 in the form of a report termed *Education to be More: Report of the Early Childhood Care and Education Working Group* (Department of Education, 1988).

Since the release of *Education to be More*, the early childhood sector has continued to be influenced by government policy and intervention. A *Statement of Desirable Objectives and Practices* (Ministry of Education, 1990) was released by the government in 1990 and this document set out quality standards for learning and development of children, communication and consultation and processes of administration. Around the same time, the Ministry of Education invited interested persons or organisations to apply to develop curriculum guidelines for early childhood education (Te One, 2013). Helen May and Margaret Carr from the University of Waikato successfully tendered a proposal to develop curriculum guidelines. Although widespread consultation within the sector took place, the development of the curriculum document was a political process (Te One, 2013).

Te Whāriki was developed during a time of major reforms as New Zealand's political landscape shifted into market liberalisation and with this came the need to be competitive and autonomous. The political nature of *Te Whāriki's* development resulted in a long and complex process from drafts to the final document (Haggerty, 2003). The final version was not without its difficulties, as involvement by the Ministry of Education ensured that the political and economic agenda of the time was adhered to. The result was an advisory group set up by the Minister of Education at the time to work on the final draft. A major change in this final draft saw the inclusion of *learning outcomes* as opposed to *learning opportunities*. This change was part of a move to ensure a closer ideological fit between the school and early childhood curriculums (Haggerty, 2003). *Te Whāriki* (Ministry of Education, 1996) in its final form was released in 1996. It was the first national, bicultural curriculum for early childhood education in New Zealand. *Te Whāriki* embraces a diverse range of early childhood services and cultural perspectives, articulating a philosophy of quality early childhood practice. At the time of writing this thesis, the curriculum document had been reviewed and a new version had just been

released (Ministry of Education, 2017). The original version (Ministry of Education, 1996) is the version referred to throughout this thesis as that is the version teachers were working with at the time of data collection.

Te Whāriki positions children as confident and competent learners who know they make a valued contribution to society (Ministry of Education, 1996). There is guidance for supporting peer learning under the contribution strand where there is an emphasis on co-operative play and children understanding their peers' points of view. However the guidance given to teachers about how to foster peer learning is non-prescriptive and mostly left to interpretation. This thesis explores teachers' perspectives about *Te Whāriki* in relation to how it assists teachers to create opportunities for children to learn from each other during play. The teacher's role in children's play has been written about extensively (McLachlan, Fleer & Edwards, 2013; Fleer, 2010; Rose & Rogers, 2012; Wood & Attfield, 2005), yet little has been said about teachers' support of peer learning within a sociocultural curriculum. Furthermore there is confusion about the extent and nature of teachers' intervention in child-initiated play (Rose & Rogers, 2012). This study investigates the teachers' role in child-initiated learning with peers within the context of *Te Whāriki* (Ministry of Education, 1996).

When defining the teacher's role in supporting children to play, Rose and Rogers (2012) write about the plural practitioner whose role includes setting up the environment for children to discover and explore through to actively scaffolding children's learning to extend their thinking. Wood and Attfield (2005) claim the role of the teacher is vital for supporting children's learning through providing rich and stimulating experiences, planning a high quality learning environment and involving children in planning and initiating their own activities. The work of theorists such as Vygotsky (1978) and Bruner (1986) supports an active role for teachers as they extend children's learning and knowledge construction, as opposed to Piaget (1952) who by implication positioned teachers as facilitating children's exploration and discovery of the environment (Rose & Rogers, 2012). Indeed, Fleer (2010) draws attention to recognition of the mediating role of the teacher as a vital factor for quality early childhood experiences for children. This thesis investigates early childhood teachers' beliefs and practices related to peer learning, providing insight into this aspect of the teacher's role.

1.5 Study aims and overview of the thesis

The purpose of this thesis is to explore early childhood teachers' beliefs and understandings of peer learning and to discover how these beliefs and understandings are connected to their practice. The study has four key objectives:

- to identify New Zealand early childhood teachers' commonly held beliefs about peer learning;
- to investigate how teachers form their beliefs about children's cognitive development;
- to investigate how teachers' beliefs about peer learning are enacted in their practice and
- to discover how teachers promote peer learning within a sociocultural curriculum.

This chapter has introduced the thesis topic and outlined the rationale for this study. A description of my own experiences as a teacher and researcher has been included. Key terms pertinent to this research were defined and an overview of the context for this New Zealand study was provided. Finally the aims of the study were identified and the organisation of the thesis was presented.

Chapter Two presents a critical review of the peer learning literature, including research related to teachers' beliefs about peer learning. Historical constructions of childhood are critiqued in relation to this topic and key theories of cognition are evaluated. Finally the review outlines the context New Zealand early childhood teachers work in with a critical focus on the national early childhood curriculum *Te Whāriki* (Ministry of Education, 1996) in relation to peer learning. Chapter Three provides an overview of the methodological considerations for this study. The adoption of a mixed methods approach is explained and the chapter outlines and justifies the methods used to gather data. The chapter then describes the case study settings, analysis procedures and the ethical considerations related to the study.

Chapters Four, Five and Six report the results of each phase of data collection. Chapters Four and Five report the findings from phase one of the exploratory sequential design. Chapter Four reports the results of the initial interviews with teachers related to their beliefs about peer learning. Chapter Five presents the results from the stimulated recall interviews. These particular interviews gave teachers an opportunity to review the filmed observations and

describe their teaching practices related to promoting and supporting opportunities for peer learning. The data in both of these chapters is organised and presented around the main themes that emerged from data analyses. Chapter Six reports the survey findings from the second phase of the study. The survey was constructed around the themes and patterns emerging from analyses of the case studies as well as significant themes in the literature.

Chapter Seven synthesises the main themes from the case studies and survey, comparing and contrasting the results of this study with the extant literature. The chapter is organised around the research questions which the thesis sought to answer. Chapter Eight concludes the thesis by reflecting on the methodology adopted in terms of its strengths and limitations. Implications for policy, curriculum design, teachers' practice and further research are included, along with concluding comments.

Chapter Two: Literature review

2.1 Introduction

An exploration of early childhood teachers' beliefs and practices in relation to peer learning necessitates consideration of five key areas of literature. These include: constructions of childhood, theories of cognition, peer learning, teachers' beliefs and practices and the relationship between peer learning and the early childhood curriculum *Te Whāriki* (Ministry of Education, 1996). The review is organised around these five broad areas. To begin, notions of childhood are explained and related to a philosophy of learning through play. The theories of cognition most relevant to peer learning are then evaluated, including a more in depth critique of constructivist theorising. Following this, the extant research related to peer learning is synthesised and critiqued. The role of the teacher in supporting peer learning is examined within this section and the relationship between peer learning and *Te Whāriki* is evaluated. The review then investigates research into teachers' beliefs and practices including teachers' beliefs about peer learning. The review concludes by outlining the research questions for the current study.

The purpose of this review was to evaluate and critique what has been written about teachers' beliefs and practices related to peer learning. Most importantly, the review seeks to identify the questions researchers have not yet answered and the aspects of this area of inquiry that are still to be examined. The first two sections of this review critique the significant ideas and theories that have influenced research into how children learn. Constructivist theories are of particular relevance to the present study as they provide a theoretical explanation for peer learning. The next two sections focus on empirical research about peer learning and teachers' beliefs and practices in order to establish what has already been investigated and what is still unknown in this area. Finally the relationship between peer learning and *Te Whāriki* (Ministry of Education, 1996) is examined. The curriculum document refers to children learning through active engagement with peers and recognises the role teachers have to support children to collaborate with and learn from their peers.

The databases used to search for literature associated with teachers' beliefs and practices about peer learning included the ERIC online database, A+ Education, Academic Search Elite and Index New Zealand. The New Zealand Council for Education Research website was accessed to locate relevant theses. The Ministry of Education database was used to search for relevant policy

documents. The search terms used were peer tutoring, peer collaboration, peer learning, social emotional competence, teachers' beliefs and practices, cognitive conflict, cognitive constructivism and social constructivism. These terms were paired with the descriptors early childhood, early years, child care, kindergarten and young children. The search was limited to studies within the last ten years with the exception of some earlier studies that make a useful contribution to the review. Earlier seminal works by key authors were also included. The Massey University library was used to search for books, particularly those that covered theories of cognition. The resulting literature draws upon empirical studies, reviews of research and theoretical articles and books. As this study was conducted in early childhood centres, the literature reviewed here focuses on research that was carried out with young children. Much of the literature on peer learning is based in primary classroom settings and so this has been included where appropriate.

2.2 Constructions of childhood

Historically, childhood has attracted the interest of several philosophers and their ideas have provided a foundation for how this period of the lifespan is seen today. This section introduces some of the key writers who first considered childhood in its own right. These writers include Aries, Locke, Rousseau, Pestalozzi, Froebel, Dewey, Issacs, and Freud. An examination of these historical figures is vital as their beliefs about the nature of the child and childhood itself, have influenced teachers' beliefs and understandings about children's learning. Furthermore, it is important to establish how these philosophers have viewed the role of peers in children's learning.

2.2.1 Historical perspectives

The place of children in families and in society in the 16th and 17th centuries was first written about by the historian Philippe Ariès in his seminal text, *Centuries of childhood* (Ariès, 1962). He examined the place of children in French society from the late Middle Ages to the 18th century and concluded that in the late Middle Ages, childhood simply did not exist; children were seen as miniature versions of adults (Cleverley & Phillips, 1986). However, toys and medieval manuscripts discovered in archaeological digs suggested that children in medieval England played together and participated in a range of activities from board games to physical sports such as wrestling and running (Catalano, 2015; Orme, 2001). Nonetheless, Ariès proposed that

there was little separation between adults and children (Cleverley & Phillips, 1986). This claim has been supported by Saracho and Spodek (1995) who agree that in medieval times adults made little distinction between their own activities and those of children. Ariès argued that during the renaissance period which followed the Middle Ages, children came to be seen not as smaller versions of adults, but as individuals within a distinctive life stage; promoting an awareness of childhood as a distinct part of the lifespan (Cleverley & Phillips, 1986). Ariès's contribution has resulted in the acknowledgement of children's perspectives and voices by a growing number of writers and researchers (Corsaro, 2011).

Philosophers such as Locke, Rousseau, Pestalozzi, Froebel and Dewey also explored the idea of childhood being a distinct stage of life in its own right. The English philosopher John Locke (1632-1704) wrote about his views on childhood and education in *Some thoughts concerning education*, which consisted of a series of letters that were published in 1693 (Krogh & Slentz, 2001). He viewed infants as having potential for learning and saw their minds as blank slates, whilst emphasising the need to be aware of individual differences. He wrote about play and freedom and he highlighted the importance of the environment for educating children through their senses (Krogh & Slentz, 2001). Although he wrote about play, he emphasised the environment rather than peers as an important factor for learning.

The philosopher Jean Jacques Rousseau was born in Switzerland (1712-1778), not long after Locke died. Writers have discussed Rousseau's well-known assertion that the child was born innocent and inherently good (Bjartveit & Panayotidis, 2014; Cleverley & Phillips, 1986), in contrast to those who argued that children were born with original sin. Rousseau argued children need an education based on wholeness and harmony to develop their natural tendency towards goodness (Boyd, 1956). In his book *Emile* (written in 1762) Rousseau wrote about a fictional child who was to be kept apart from the harmful influences of society, allowed to live in the country with his mother (May, 2000) and not experience formal schooling until adolescence. Rousseau deemed this to be a free and unconstrained childhood. There is evidence to suggest that Rousseau's ideas continue to influence current thinking about child centred curriculum and connecting with nature though materials that stimulate their senses (Bjartveit & Panayotidis, 2014). The notion of children following a curriculum founded on their interests is common practice in early childhood settings today (McLachlan, Fleer & Edwards, 2013; Stacey,

2009a). Despite his contribution to theorising about early childhood curriculum, Rousseau did not account for the role of peers in children's play experiences.

Swiss born Johann Pestalozzi (1746-1827) worked with young Swiss war orphans in the 18th century and was influenced by Rousseau's ideas of goodness and natural development. He took Rousseau's ideas about natural education, freedom and sensory learning and put them into practice (Krogh & Slentz, 2001). Pestalozzi believed that children learn through direct experiences with objects in their natural environment. He promoted the idea of a child centred curriculum in which children examined plants, minerals and animals in the natural environment. He gave children manipulative materials so they could experience form, language and number, a major innovation for the time (Krogh & Slentz, 2001). These experiences are still available to children in early childhood today and are described as developmentally appropriate (Krogh & Slentz, 2001).

Pestalozzi's ideas spread to other countries, after he was visited by Robert Owen and Friedrich Froebel who later established early childhood programmes. Robert Owen (1771-1858) was influenced by Pestalozzi and established the first infant school at the New Lanark Mill in Scotland for the children of his employees. He was regarded as the founder of infant education in Britain and believed in education for the poor (Prochner, May & Kaur, 2009). Owen believed in the importance of children being part of a community and he valued group play. He developed a curriculum where children played co-operative games and experienced the natural outdoor environment (May, 2000). Owen's ideas were adopted by Samuel Wilderspin who established infant schools in London, forming the Infant school society in 1824 (May, 2000). Owen's influence can be traced to the establishment of the first infant school in New Zealand in Thorndon, Wellington in 1840 (May, 2005). An early founder of infant schools, Owen was one of the first pioneers to recognise the value of children working together.

The German educator Friedrich Froebel (1782-1852) was a pupil of Pestalozzi and through observing him at work, developed an activity based approach to learning which became known as 'kindergarten' (Stover, 2011). The creation of the kindergarten encompassed Froebel's key tenets concerning nature, the community and children's self-directed activity (Hoskins & Smedley, 2016). In addition, the kindergarten became a training ground for teachers and Froebel

proposed women to be particularly suitable due to their maternal instincts (Stover, 2011). Together, the ideas of Rousseau and Froebel have been identified as important as they led to the understanding that childhood had its own character and was therefore worthy of study (Morris, 1983). The legacy of theorists Locke, Rousseau, Pestalozzi, and Froebel can be seen in New Zealand early childhood centre programmes today (May, 2005). Importantly, Robert Owen was one of the first early childhood founders to promote co-operative play and the idea of children learning from each other.

2.2.2 The beginnings of a philosophy of play

Froebel placed great importance on play, which he used as a medium for self-directed education (Saracho & Spodek, 1995). His child-led approach required adults to have an understanding of how children learn through play. He viewed play as having transformative potential, acknowledging children's ideas by shifting them away from rote learning. He focused on the whole child learning through symbolic activities such as music, language, arts and dance (Hoskins & Smedley, 2016). His kindergarten curriculum comprised of the manipulation of objects such as wooden blocks and balls and included songs, games and craft activities such as paper folding (Saracho & Spodek, 1995). Children sang songs and played games focused on social harmony and these activities drew attention to the idea of children learning from group play (Krogh & Slentz, 2001).

Froebel remains one of the first pioneers to draw attention to the value of children learning from each other whilst initiating and directing their own play activities. He saw peers as important for social interaction so that children could learn to play together, to "negotiate, lead, follow, and learn about the results of quarrels" (Bruce, 2011, p. 30). Froebel viewed the role of the adult as entering play that was initiated by the child (Bruce, 2011). Froebel's notion of self-directed activity was the basis for the kindergarten programme and was the beginning of an articulated philosophy of play during early childhood years (May, 2000). Acknowledgement of the child's autonomy and the transformative potential of play have been described as important aspects of Froebel's contribution as an early pioneer of early education (Hoskins & Smedley, 2016). In addition, Froebel's recognition of children's agency in their play and the learning potential within peer interactions is of particular relevance to the present study.

Critique of Froebel's work emerged during the progressive movement of the 1900s. The philosopher John Dewey (1859-1952) was a major educational thinker who produced an educational work entitled *Democracy and Education* in 1916 (Cleverley & Phillips, 1986; Dewey, 1916). Dewey viewed children as active participants in their own learning and decreed that learning should take place in a social environment that promotes free play and co-operative activities; beliefs which teachers still hold today (Krogh & Slentz, 2001). Dewey viewed dramatic play as important, as it was a co-operative activity that allowed children to test their understandings of the world around them against the understandings of their peers (Saracho & Spodek, 1995). He was influenced by the American philosopher George Herbert Mead who believed that play was established in a child's social environment (Mead, 1925). Dewey advocated for mixed age groups of children to best develop their social skills (Krogh & Slentz, 2001). Dewey's ideas have been important for giving credence to the idea of 'free play' and the meaningful learning that happens when children engage in freely chosen co-operative activities with peers in a social environment. In addition, Spodek and Saracho (2003) highlight the influence of Dewey on current curriculum, drawing attention to the *Project Method* and the *Reggio Emilia approach* which they claim both have roots in the progressive movement.

Dewey's use of the term 'free play' influenced British child psychologist Susan Issacs, who established the progressive Malting House school in England so she could observe the development of children's understanding (Willan, 2009). Issacs studied Froebel and viewed play as a child's work, drawing attention to children's scientific inquiry during play. Her ideas reached New Zealand in 1937 when she was invited to visit as part of the delegation bound for the New Education Fellowship conference in Australia. Drummond (2000) claims that Issacs' insights into children's imaginative play with others and its significance for children's learning is one of Issacs's greatest contributions to education. Furthermore, Issacs was a major source of inspiration for the playcentre movement in New Zealand and peer learning is an integral part of the playcentre curriculum (Stover, 2011).

Sigmund Freud, Anna Freud and Melanie Klein were important influences for Issacs who applied her understandings of psychoanalysis to the education of young children (Drummond, 2000). Austrian physician Sigmund Freud was closely associated with the development of the psychoanalysis method, which was premised on the notion that a person's development can be determined by childhood experiences; conflicts between the conscious and unconscious are said

to appear in the form of mental disturbances (Moran, 2010). Freud viewed children's active participation in play as helpful for their understanding of painful experiences. According to Freud (1938), play allowed children to act out adult roles and gain a sense of mastery over their thoughts and actions. Through play with peers, children can resolve inner conflicts as they explore their feelings during pretend play. Interaction with peers provides valuable opportunities for children to re-enact situations and master overwhelming experiences (Bromfield, 2010). Psychoanalytic theory is still used as an explanation today for providing materials that encourage children to work through their emotions (Saracho & Spodek, 1995).

The inception of a philosophy of learning through play with others can be traced back to these early philosophers and thinkers. In New Zealand, the Froebelian-inspired kindergarten was the first early childhood service to be established in this country at the end of the 19th century (White, O'Malley, Toso, Rockel, Stover, & Ellis, 2007). The playcentre movement, a parent co-operative, also promoted play based learning with other children throughout New Zealand in the years following World War 2 (May, 2009). The kohanga reo movement that was designed to revitalise the Māori language began in the 1980s and promoted the language through co-operative, play-based experiences (White et al., 2007). More recently, childcare services have grown in abundance as the government has provided support for women to re-enter the workforce (Ministry of Education, 2017). Childcare in New Zealand has a history of play-based learning and play is a key premise within the current and revised New Zealand early childhood curriculum *Te Whāriki* (Ministry of Education, 1996; 2017). In sum, play is a long-standing ideological tradition in early childhood education across the world (Sherwood & Reifel, 2010; Wood & Bennett, 2000).

Despite recognition of the central place of play in early childhood education, some researchers claim that in early childhood programmes, play is disappearing and is instead being replaced with academic activities (Frost, 2010; Miller & Almon, 2009). Stover's (2011) doctoral investigation of the history of 'free play' provides evidence to support these claims. Stover investigated experiences of play by interviewing 23 New Zealand historic leaders of early childhood education. Participants indicated that children still continue to play together, however they noted a shift away from 'free play', as more emphasis was placed on the teacher's role and responsibilities. Participants observed "that children in early childhood settings were playing less and being instructed more" (Stover, 2011, p. 303). Despite the continued presence

of play, participants expressed "how practical knowledge of play based learning as well as play theory had become less evident in (and perhaps even absent from) teacher education" (Stover, 2011, p. 272).

Stover (2011) questions whether the increased emphasis on accountability and delivery in addition to the corporatisation of the sector has led to the diminishing knowledge base to support play. The idea that children's experiences of playing with others as conceived by Dewey is possibly being eroded has implications for children's experiences of peer learning in early childhood education. Equally important are questions about the nature of the teachers' role in play. The amount of teacher involvement and the role of teachers in children's play with others are issues that have been identified as in need of further study (Aras, 2016; McInnes, Howard, Miles & Crowley, 2011). Walsh et al., (2006) and Siraj-Blatchford, Sylva, Mattock, Gilden and Bell (2002) have identified the importance of a balance between child-initiated and adult-led learning, emphasising the importance of pedagogy in play. Similarly, Fleer (2011) has identified the need for teachers to focus more explicitly on cognition within play based programmes. Fleer's theorising brings together imagination and cognition to provide teachers with a more active teaching role focused on cognitive benefits for children. These issues are relevant to one of the objectives of the present study, which is to explore the teachers' role in supporting peer learning in play based environments.

2.2.3 Summary

This section has provided an overview of the early philosophers who have inspired an understanding of childhood as a stage in its own right, despite differences in their principles and practices (Wood & Attfield, 2005). Their work has created awareness of play as a vehicle for children's learning; a central idea within the present study. It is evident that the notion of children learning from their peers can be traced back to Froebel who valued social interaction and negotiation with peers through self-directed activity (Bruce, 2011; May, 2009). Similarly, Dewey and Mead viewed co-operative play as offering important opportunities for children to negotiate decisions together (Krogh & Slentz, 2001). The idea that children influence each other's learning has its roots in early thinking about how children develop. Furthermore, these early thinkers have highlighted the teachers' role in providing opportunities for co-operative activities and an environment that supports children's interests. Despite these ideas, this section

of the review has revealed that the nature of the teachers' role in children's play with their peers needs investigation. The next section builds on these important ideas about children learning from each other during play by examining some of the theorists who have explained learning and researched children's thinking.

2.3 Explanations of learning and thinking

The current study explores peer learning in early childhood settings with a focus on teachers' beliefs and practices. This section of the review evaluates explanations for learning and children's thinking. In particular, those theories most relevant to peer learning are critiqued. This review is by no means exhaustive, but identifies the body of research evidence that the present study is embedded within. Initially, key terms are defined, followed by an explanation of two of the major approaches to learning: behaviourism and constructivism. Following this, those cognitive theories most relevant to the present study and the associated empirical research are critiqued.

2.3.1 Key definitions

Learning

Learning is defined as "relatively permanent changes in the capacity to perform certain behaviours that result from experience" (Hoffnung, Hoffnung, Seifert, Burton Smith & Hine, 2010, p. 42). Learning is about acquiring information, knowledge, skills, habits, attitudes and beliefs. Most importantly, it always involves change; primarily brought about by the learner's experiences. Evidence of learning can be found not only in actual but also in potential changes in behaviour because not all changes in learning are obvious and able to be observed (LeFrancois, 2000).

Cognitive theories

There are many views on the nature of cognition and its development and the concept of cognition has been described as complex and having multiple meanings (Flavell, Miller & Miller, 2002). Bjorkland (2012, p. 3) defines cognition as follows: "The processes or faculties by which knowledge is acquired and manipulated. Cognition is usually thought of as being mental. That is cognition is a reflection of the mind. It is not directly observable". Jean Piaget (1952), Jerome Bruner (1986) and Lev Vygotsky (1978) are theorists whose work in cognition is of relevance to

peer learning and aspects of their different explanations for children's learning are examined in this review. Cognition involves all types of mental activities and researchers have sought to provide explanations for how children acquire knowledge and develop their thinking. Development is defined as "changes in structures or function over time" (Bjorkland, 2012, p. 3). Bjorkland (2012) emphasises the role of the social environment in cognitive development, noting that different experiences account for individual differences in children's thinking. Cognitive approaches to learning are discussed further in section 2.3.3.

2.3.2 Behaviourism

Behaviourism is a term that covers a group of theories primarily concerned with observable components of behaviour. Behaviourists are mainly concerned with conditions (called stimuli) that affect organisms and that may lead to behaviours (responses) (LeFrancois, 2000). Behaviourists believe development is the result of learned behaviours and can change according to environmental experiences (Bjorkland, 2012). This belief stems from the writings of John Locke, who proposed children's learning to be like the filling of a tabula rasa or blank slate (Cleverley & Phillips, 1986). Locke highlighted the importance of the environment and the role of experiences in children's development as discussed previously (section 2.2.1). In behaviourism, the environment is central to explanations of how children learn as it is viewed as shaping behaviour. Albert Bandura is a behaviourist whose ideas are directly relevant to peer learning. Bandura (1977) believed that peers are influential to learning because children observe and then imitate each other's behaviour.

Bandura (1977) proposed a behaviourist learning theory, which he called 'social learning theory' in an attempt to recognise and understand the place of cognition in the science of behaviour but without discarding the concept of operant conditioning (LeFrancois, 2000). Bandura proposed that development occurs through two forms of observational learning; imitation and modelling. In imitation, children are reinforced for repeating or copying the actions of others such as peers. In modelling, children learn by observing and then modelling their own behaviour on that of others (Bandura, 1977). Bandura believed that learning takes place as a result of the interaction between behaviour, cognitive factors and the environment. Children internalise the behaviour of others, including their peers and then can sometimes adopt this behaviour

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themselves (Bandura, 1977). When children are together, this is one way they can learn from each other.

Research suggests that young children learn from their peers through close observation and imitation of them (De Haan & Singer, 2001; Di Santo, 2000; Fagan, 2009; Gauvain, 2001; Odegaard, 2006; Papalia, Olds & Feldman, 2001; Papandreou, 2014; Rayna, 2001; Young, 2008). One observational case study (Fagan, 2009) of observed peer play amongst mixed ages (children aged between three and six) in a New Zealand Playcentre found evidence of the use of observation and imitation in peer play. Three focus children were selected and observed over three sessions of play (each session was two and a half hours long). The results showed the older children took on leadership roles and were role models for the younger children. Observation and imitation were strategies used by the younger child, who showed a preference for playing with older children. The oldest focus child adjusted her approach when engaging with different children. Evidence was found of younger children imitating the older child although in some play episodes the successful learning was delayed. In one example the younger child watched and then attempted to replicate the actions of an older peer but was unsuccessful in her attempts to use the scissors (Fagan, 2009). Although Fagan found evidence of observation and imitation of peers, a lack of content analysis made it difficult to ascertain how many instances occurred of this type of learning compared to other types.

Bandura emphasised self-efficacy as important for being successful in learning. Self-efficacy is defined as the beliefs held about one's capabilities to learn or perform behaviours (Bandura, 1997). To appraise their self-efficacy learners obtain information from their performances and the experiences they share with others such as their peers (Bandura, 1997; Schunk, 1995). Bandura believed self-efficacy to be an important aspect of children's development that teachers need to support. He outlined important factors for consideration including: provision of a stimulating environment that encourages children's agency over their learning; opportunities to develop self-regulation; and competent peers as models for self-efficacy (Bandura, 1997). Bandura's belief in peers influencing whether children feel confident to attempt new experiences is an important idea in relation to this study. Social learning theory provides a theoretical explanation for the role of observation, imitation, self-efficacy and peer modelling in children's learning. These concepts are relevant to the present study as they contribute to our understanding of how peers influence learning.

2.3.3 Constructivism

There are many versions of constructivism (Palinscar, 1998; Phillips, 1995). DeVries, Edmiaston, Zan and Hildebrandt (2002) claim that constructivist education takes its name from Piaget's research into how children actively interpret their experiences and thus construct knowledge. Piaget (1952) was a constructivist theorist who stressed that children actively construct knowledge as individuals. However the earlier work of Dewey emphasised the social aspect of knowledge construction with co-operative learning a focus for his ideas about learning environments (Phillips, 1995). Evers (1998) concurs, arguing that what is now labelled constructivism was then (and still is) called progressive education. Constructivist approaches to teaching and learning view the learner as an active participant in the process, learners discover and construct knowledge for themselves and peers can play a role in this process. The constructivist theories of Jean Piaget and Lev Vygotsky are relevant to the present study and they are evaluated in the next section of this review, as they provide theoretical explanations for how children learn from their peers.

2.3.3.1 Jean Piaget

Jean Piaget (1896-1980) had an enormous influence on ideas about children's cognitive development. He was concerned with uncovering the ontogenetic changes in cognitive functioning from birth through to adolescence (Wadsworth, 1996). Piaget (1977) declared that intelligence derives from action and he saw children as actively constructing their own knowledge through their interactions with the environment. Piaget's theory focused on the internal aspects of the individual learner as they develop their own understanding of the world around them. He believed thinking develops in a series of increasingly complex stages, each incorporating the achievements of the previous stage.

Piaget (1952) termed the first two years of life the sensorimotor period, in which the infant is born with sensorimotor reflexes such as sucking, grasping and crying. During this stage, infants construct an understanding of their world by co-ordinating sensory experiences with physical actions. Early in this stage, infants begin to internally represent objects and events in a process called symbolisation (LeFrancois, 2000). Piaget (1967, p. 11) described the relationship between language and thought by stating that "intelligence actually appears well before language". He

identified imitation (internal representation) as one of the most important means by which infants develop understanding and acquire language. Young children learn social behaviours such as sharing by imitating their peers and fostering opportunities for co-operative social interactions between young children is an important implication of Piaget's theory (LeFrancois, 2000).

Piaget uses the term schema to describe the cognitive structures by which individuals adapt to and organise the environment (Piaget, 1977). Schema are described as the mental counterparts of biological means of adapting and they constantly change, becoming more refined as children develop (Nutbrown, 1987; Wadsworth, 1996). Piaget (1977) proposes that the processes responsible for the changes in these internal structures are assimilation and accommodation. Assimilation occurs when the individual integrates new objects or perceptual matter into existing schema or patterns of behaviour (Wadsworth, 1996). According to Piaget (1977), peer interactions become important when children are able to assimilate the viewpoints of their peers when they are different from their own.

However, sometimes a new stimulus cannot be assimilated because there are no associated schema. Therefore, the child must accommodate their existing thinking by either creating a new schema or modifying an existing schema so that the stimulus will fit into it (Piaget, 1977; Wadsworth, 1996). Assimilation and accommodation are vital for cognitive growth, but there needs to be a balance between these two processes. Piaget termed the process of maintaining this balance equilibration (Piaget, 1977). An imbalance between assimilation and accommodation can occur when the expectations or predictions that the child has are not confirmed by the experience (Wadsworth, 1996). The resulting disequilibrium, or cognitive conflict, occurs when an individual's current understandings are challenged by contradictory views (Flavell, 1977). Peer collaboration provides a context for disequilibrium and Meadows (2006) identified conflict with peers as one of the few social aspects of cognition that Piaget focused on. The role of peer interactions from a Piagetian perspective can offer an opportunity for the disequilibration of thought, leading to a transformation of ideas that result in new understanding or development (Tudge, 2000).

Peers bring different perspectives to their play and these provide opportunities for children to learn from each other. Children challenge each other by offering alternative viewpoints which lead to the trying out of new ideas; a resolution of the conflict caused by contradictory views results in re-equilibration and new understanding. This is an important process and Flavell states that "according to Piaget, states of cognitive conflict and disequilibrium impel the child to make cognitive progress" because this conflict creates further opportunities for assimilation and accommodation (Flavell, 1977, p. 242). However, the role of social interactions in this process is only effective if the child is in a state of 'readiness' (Wood, 1998, p. 16), which has been found to be a problematic concept in his theory (Bjorkland, 2012; Matusov & Hayes, 2000; Tudge, 2000).

The equality of status that exists amongst children is an important factor that promotes peer learning. Peer interactions are more likely to bring about cognitive development than teacher-child interactions as children have equal status and shared perspectives (Palinscar, 1998; Tudge, 2000). Peers of equal status provide each other with unique opportunities to develop and practice cognitive concepts and skills (Piaget, 1977). Peers of equal ability problem solve together and this requires them to understand each other's perspective in order to reach a solution. From a Piagetian perspective peer interactions are important as these types of interactions offer opportunities for assimilating and accommodating alternative viewpoints resulting in the construction of new knowledge (Wadsworth, 1996).

Peers openly exchange thoughts, words and feelings through direct reciprocity and this process is termed 'mutual engagement' (Piaget, 1965, p. 88). Piaget proposed that peers agree on the system by which they should interact and that this system, unlike the one that children believe adults already know, has no definite endpoint. Children quickly discover that they are free to contribute to interactions in similar ways to those of their peers and that they can use direct reciprocity to achieve order; discussion, debate, negotiation and compromise are all strategies peers adopt during the process of 'mutual engagement' (Youniss, 1980). Discussion between peers is more valuable than discussion between adults and children because peer interactions are not limited by the power imbalances present in adult-child relationships (Piaget, 1965).

Experiences with peers provide opportunities for children to direct their learning, however Issacs (1930) argued that Piaget had underestimated the nature of children's thinking and their ability to have agency in their play after reflecting on her observations of children at the nursery school she had established. Issacs reviewed Piaget's early work and offered critique which Piaget extended on in his later work (Willan, 2009). Other researchers have questioned the social meaning of the test situations that Piaget used (Meadows & Cashdan, 1988). Donaldson was one such critic who used the term 'human sense' to describe the importance of introducing tasks to children in such a way that children are able to grasp the nature of the problem. She suggested that if teachers or researchers want to assess children's competence then it is necessary to look at how children attempt tasks that they have set themselves in an environment that is meaningful to them, rather than making assessments based on their responses to tasks which psychologists have set them (Donaldson, 1978). Donaldson's critique focused attention on the importance of assessing children's thinking as they engage in play that they have agency over. Peer play can offer opportunities for children to direct their own learning and to problem solve various situations themselves. This critique highlights the importance of observing peer play in meaningful environments that offer opportunities for children to collaborate together.

Piaget's ideas still have important implications for teachers' practice in relation to peer learning, despite critique of his theory (Bjorkland, 2012; Hoffnung et al., 2010; Le Francois, 2000; Thornton, 2002). Children experience opportunities to collaborate through play and Piaget (1967) believed children could learn from collaborations, particularly where one child has a different strategy for dealing with a problem. Piaget (1961) contended that social interaction was an important factor in making thought more objective. He argued that the egocentric view of the young child is essentially one that does not recognise other viewpoints and therefore it is through interactions with others such as peers that children become aware of other perspectives which they then accommodate and ultimately construct new knowledge. Piaget (1961) maintained that development depends on maturation, equilibration, active experience and social interaction as previously discussed. Opportunities for active experiences and social interaction are of particular relevance to this study.

2.3.3.2 The neo-Piagetians and Information processing theories

Neo-Piagetian theories emerged in the late 1970s and early 1980s and theorists such as Doise (1978), Perret-Clermont (1980) and Fischer (1980) extended Piaget's ideas to further emphasise

the role of peers in children's development. The neo-Piagetians highlighted the importance of cognitive conflict between peers of equal status in promoting learning (Perret-Clermont, 1980). An example of the importance of cognitive conflict in bringing about new knowledge can be seen in an in-depth investigation of children's collaborative interactions. For example, Fawcett and Garton's (2005) study of 106 seven year olds, who were paired to complete a block sorting task, found that the active exchange of ideas, rather than merely working together, was a critical factor if there was to be cognitive change. As the children sorted the blocks, they were required to explore and clarify inconsistencies or misunderstandings in their explanations, elaborate ideas and evaluate the success of the task by giving appropriate feedback. The complexity of this process promoted opportunities for cognitive conflict where the children were given the opportunity to explore their partner's perspective and to restructure their own knowledge and thinking. Other studies of peer learning have identified the importance of cognitive conflict as providing opportunities for children to engage in negotiation and problem solving in order to challenge their thinking (Cannella, 1993; Hyun & Davis, 2005; Johnson-Pyn & Nisbet, 2002).

Information-processing theories also arose in response to critical evaluation of Piaget's theory and work. Like Piagetian theory, information processing theories focused on cognitive change, but more specifically on the mechanisms for change, such as memory, inhibition and executive functions, rather than developmental progression. Case (1991) highlighted the need for new ideas which would do justice to the more general aspects of children's cognition that Piaget had written about, while also drawing attention to the more specific and contextual features of the research emerging at the time. Case attempted to reconcile the variable nature of children's development with the fixed, stage like progression of Piaget's theory. Case (1991) asserted that children's intellectual development varies according to the social groups children are part of and the role models within those groups. The idea that children's intellectual development is influenced by those who are part of their social setting draws attention to peers as possible role models.

2.3.3.3 Lev Vygotsky

Like Piaget, Russian Lev Vygotsky (1896–1934) also believed that children actively construct their knowledge (Bjorkland, 2012). But Vygotsky (1978) countered Piaget's view that thinking was largely an individual endeavour and that other people's influence is of lesser importance. Instead, Vygotsky proposed a participation model of learning in which the internalisation of

knowledge is derived through social interaction. Vygotsky's ideas were heavily influenced by Karl Marx, whose critique of the capitalist economic system ('Das Kapital') was published in 1867. Marx's theory of society takes the view that historical and societal changes produce changes in human nature (Cole & Scribner, 1978). Vygotsky related this proposition to concrete psychological questions, drawing on Engels' (1883) concept of human labour and tool use as a means by which man changes nature and transforms himself (Cole & Scribner, 1978).

The concepts of access and mediation are central to Vygotsky's theory, as he claims that human action on both the individual and social planes is mediated by tools and signs (Wertsch, 1991). Vygotsky proposed that all higher mental functions have social origins, that is, they first appear in interactions between people before they are then internalised. Vygotsky termed the process by which the social becomes the psychological 'internalisation', proposing that higher cognitive processes are formed in structures that are transmitted by others in processes such as co-operative activities, social interaction and speech (Tharp & Gallimore, 1988, p. 29). Vygotsky's explanation for how knowledge is internalised suggests peers contribute to this process as co-operative play amongst young children provides opportunities for children to communicate ideas and problem solve with each other.

Vygotsky's concept of mediation is key to understanding how mental activity is connected to cultural, historical and institutional settings. Such settings are produced and reproduced through human action (Wertsch, 1994). The psychological tools and signs that mediate human action include language, writing, and systems for counting, diagrams and maps (Vygotsky, 1981). The child gradually internalises the sociohistorical knowledge, beliefs and psychological tools of their community over time (Edwards, 2005). Therefore the social interaction between peers cannot be understood without consideration of the historical, cultural context within which the interaction takes place. In social and cultural settings, the use of psychological tools mediates the development of children's higher mental functions such as thinking, problem-solving and reasoning (Tudge & Winterhoff, 1999). Active participation in social and cultural contexts results in the development of individuals' cognitive abilities and learning is socially constructed during activity with others. Peers mediate each other's learning as they internalise knowledge and skills from each other (King, 1999). Bodrova and Leong (2007) emphasised the importance of cultural and social settings and the role of mediation in knowledge construction, by asserting that a child's actions on objects are beneficial for development, only as long as they are included in a social context and mediated by others.

Vygotsky emphasised the centrality of culture and gave a primary role to external social forces in development, by way of the social plane. He claimed that cognitive development must be understood in terms of the particular social, cultural and historical processes of people's experiences (Vygotsky, 1978). Therefore individuals from different societies and cultures are likely to display differences in how they think and solve problems (Hoffnung et al., 2010). Vygotsky (1978) theorised that children learn culturally relevant concepts and ways of thinking as they observe and participate in the everyday lives of their families, peer group and communities. Vygotsky (1962) believed that the development of memory, reasoning and attention came about from learning the language, mathematical systems and memory strategies which society has invented.

Language plays an important role in peer learning as children use language to share ideas and problem solve together. Vygotsky (1962) believed language shapes thought and that young children use language to not only communicate with others but to guide their thinking and plan and monitor or regulate their behaviour. He proposed that initially language and thought develop independently of each other and children must use language to communicate with others before they can focus on their own thoughts (Vygotsky, 1962). Vygotsky (1962) described a transition period between the ages of three and seven in which children internalise their social or external speech and this becomes their thoughts. The process of moving from external to internal speech is described as having three distinct phrases: social speech, egocentric speech and inner speech (LeFrancois, 2000). Vygotsky (1986) indicated that the decline and then disappearance of egocentric speech reflected the internalisation of mental tools, making higher mental functioning possible. Peer interactions in early childhood settings assist this transition from external to internal speech.

The zone of proximal development is a key concept within Vygotsky's theory and it highlights the potential for children to share their expertise for the benefit of each other. Vygotsky (1978, p. 86) defined it as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers". The zone of

proximal development does not exist independently of the process of joint activity. Rather it is created through the course of social interaction and children learn from others more competent in the use of culturally appropriate tools ((Tudge & Winterhoff, 1999). For example, a child who comes from a cultural setting where cooking is part of everyday life, might teach another child how to prepare and cook food. The zone of proximal development recognises the potential for learning rather than defining a child's capability by what they have achieved developmentally at a particular point in time. Tutoring by a more competent peer can be an effective aid in assisting learning in the zone of proximal development (Vygotsky, 1978). What the child can achieve with help such as the support of others and the environment is termed 'assisted performance' (Tharp & Gallimore, 1988, p. 30). Tharp and Gallimore (1988, p. 31) proposed a definition of teaching that recognises the critical role of assisted performance: "teaching consists in assisting performance through the ZPD. Teaching can be said to occur when assistance is offered at points in the ZPD at which performance requires assistance". More capable peers are recognised by Tharp and Gallimore as able to offer assisted performance across a range of problem-solving activities.

'Scaffolding' is a term coined by Wood, Bruner and Ross (1976), based on Vygotsky's theorising, to describe the support given by adults or more capable peers within the zone of proximal development, thus ensuring success in the child's attempts to learn. Scaffolding involves supporting children's efforts by breaking down aspects of a task and focusing a child's attention towards a goal (Wood, Bruner & Ross, 1976). This support can be provided by more capable peers and Vygotsky (1978) emphasised the importance of mixed-age grouping of children as this means they can access more knowledgeable peers and in doing so, the more capable child can act as a resource for others. An important part of scaffolding is the idea of contingency management, and this occurs when the level of support is adjusted by the more capable child, so that their peer achieves success (Tharp & Gallimore, 1991).

A range of research has found evidence of the benefits of peer learning, for both younger and older children, when children are grouped in mixed age settings (Chung & Walsh, 2006; Fair et al, 2005; Gray, 2011; Haworth et al., 2006; Hyun & Davis, 2005; Jones, 2007; Maynard, 2002; Park & Lee, 2015). Maynard (2002) filmed, then analysed the behaviours of pairs of siblings in 36 different Mayan households in a Mexican village. The focus was on dyads where the younger

child was around two years old and the older child was anywhere between three and 11. Children were filmed as they played naturally at everyday activities such as caring for baby dolls, playing soccer and pretend cooking. Maynard found that within the dyads the older children increased the complexity and sociability of the two year old's play by the older children guiding their younger siblings to acquire physical skills and knowledge about appropriate cultural practices. The older children gave verbal explanations of how to play particular roles, provided their younger siblings with appropriate props and modified their own activities to ensure the two year olds could be successful in their play (Maynard, 2002). The younger children benefited from these interactions as their older siblings scaffolded their play within their zone of proximal development.

2.3.3.4 Neo-Vygotskian research and theorising

Those who have followed and elaborated on the work of Vygotsky have become an important influence in the field of cognitive development. Vygotsky began a collaboration with Alexander Luria and Alexei Leont'ev and after Vygotsky's death, Luria and Leont'ev built on his work (Bodrova & Leong, 2007). For example, Leont'ev (1978) took Vygotsky's notion of play being the leading source of children's activity in the preschool years and developed activity theory. Activity theory emphasises the role of children's activity in their development, integrating the cognitive, social and motivational aspects of children's development while including the role of mediation as an important factor in determining development. This extension of Vygotsky's work has elaborated on the role of mediation and children's motivation. Adults and peers mediate children's motivation, resulting in children's engagement in a new leading activity.

Unfortunately, Vygotsky died at a relatively young age and consequently some of his ideas are not fully explained or elaborated on. Schaffer (1996) identifies a lack of attention given to the processes by which individuals both contribute to and internalise socially constructed meanings. For example, although Vygotsky explained the role of speech in cognitive development, Bodrova and Leong (2007) argue that he did not adequately explore how other types of symbolic representations can contribute to higher mental functions. However, the later work by Zaporozhets (1977) demonstrated that nonverbal tools can promote the development of thinking in young children. For example, drawing and building with blocks creates opportunities for children to model real relationships between people or objects by creating their own external representations. Another criticism of Vygotsky's theory was that he over emphasised the role

others played in shared activities and did not put enough emphasis on what the child must do to be an active participant. Leont'ev's (1978) activity theory was developed partly in response to this criticism, as it stressed the child's active participation in shared activity. Despite these criticisms of Vygotsky's work, his view that children's cognitive development is embedded in the context of social relationships has been vital for shifting thinking away from previous perspectives that focused on the individual.

Rogoff researched children's collective endeavours with their peers and in doing so, further developed the work of Vygotsky (Rogoff, 1990; Corsaro, 2011). Her cross-cultural research has examined assisted performance in informal contexts, including mother-toddler interactions and interactions between weaving teachers and apprentices in Mexico. Assisted performance occurs when the expert breaks down, or structures, tasks into different levels. These tasks are refined further as the zone of proximal development is explored in the interactions between expert and novice (Rogoff, 1990). Rogoff emphasised the importance of the collaborative aspect of cognition, as leading to a level of understanding which children working by themselves are unable to achieve. As children move towards this new level of understanding, they are involved in a process which Rogoff (1998, p. 695) terms a 'transformation of participation', in which individuals develop through involvement in shared endeavours. As they participate in learning experiences with their peers, their knowledge is transformed.

In a 'community of learners' model, learning is a result of ongoing involvement in sociocultural activities (Rogoff, 1998, p. 175; Brown, 1994). Children learn in an apprenticeship process as less experienced children are guided and supported by more capable peers. Intersubjectivity occurs when children are given opportunities to share their expertise and play develops a sense of purpose (Rogoff, 1990). This shared focus comes about between children and their more skilled peers, ultimately resulting in a problem solving approach to thinking and learning. Rogoff (1990, p. 10) viewed thinking as an active process, involving "emotion, social relations and social structure". More capable peers are important partners in this active process and teachers have an important role in ensuring that children have opportunities to take on expert roles amongst their peers.

Rogoff's (1990) developed the concept of 'guided participation', which suggests that both guidance and participation in culturally valued activities are essential to children's

apprenticeship in thinking. Guided participation involves adults or children challenging and supporting children in the process of posing and solving problems, providing appropriate learning materials and through interpersonal communication with children observing and participating at a comfortable but slightly challenging level. Rogoff further identified the importance of peers in sociocultural activity because they serve as resources who support, challenge and guide novices within an apprenticeship model. In an apprenticeship model, knowledge passes from expert to novice in quite a prescribed way and the roles of knowledgeable expert and learner are defined (Paradise & Rogoff, 2009).

Similarly, Lave and Wenger (1991, p. 29) created the term 'Legitimate peripheral participation' to describe the process by which learners begin to participate in a community of learners and gradually become full participants in socio-cultural practices. Children play a role in assisting each other to learn about how to actively participate in a new learning community. Peers assist new children to join in play and develop a sense of belonging as they transition into an early childhood setting. In contrast with learning as internalisation, Lave and Wenger (1991) proposed learning comprising increasing participation in the activities of the community of practice. Within this model of learning, older and more experienced peers are able to guide their younger peers as they engage in shared endeavours.

Observation is one of the ways that children learn from their peers. Rogoff, Paradise, Arauz, Correa-Chavez and Angelillo (2003, p. 175) called the process of children learning through observation and direct participation in their shared social and cultural worlds 'intent participation'. The concept of 'intent participation' has been extended and is now referred to as 'Learning by Observing and Pitching In' (LOPI) (Paradise & Rogoff, 2009; Rogoff, 2014). Active verbs such as 'observing' and 'pitching in' were adopted to convey a purposefulness of participation beyond simply being present (Paradise & Rogoff, 2009, p. 104). LOPI is similar to Bandura's (1977) social learning theory which highlights imitation and modelling as means by which children learn from their peers. However LOPI extends the idea of imitation and modelling to children actively contributing and initiating collaborative play. Rogoff and colleagues (Coppens et al., 2014) researched how children learn by observing and pitching in and found it to be common amongst many indigenous communities of the Americas and in varying forms according to generations.

There are seven facets that define 'Learning by Observing and Pitching In' (LOPI) and a common theme is children's initiative in contributing responsibly to ongoing activities of their families and communities, together with other people's support for children's initiative through collaborative guidance (Rogoff, 2014). Rogoff (2014, p. 79) identifies the benefits of this approach to "children's initiative, alertness and skills in collaboration, perspective-taking, self-regulation and planning, in addition to their gaining of information and skills". In terms of peer learning, it recognises that children are active contributors to their own learning and that learning involves collaborative engagement with others.

Another key concept that researchers working within a Vygotskian framework have focused on is the notion of co-construction of solutions (Tudge & Rogoff, 1989). Children work together to come up with solutions to problems and through this process, they reach new understandings. The idea of children co-constructing new understandings was first described by Verdonik (1988). More recently, Cullen (2001, p. 54) has described co-construction as combining "the two views of active constructive learner and the expert 'tutor' to explain how learning occurs collaboratively in the context of shared events and interests". Jordan (2004) asserts that the term co-construction positions the child as a powerful player in the learning process. In this way, learning occurs through processes of negotiation and collaboration between peers. The term co-construction illustrates how children can be repositioned as having agency and expertise within the learning process. Co-construction is a central idea within peer interactions.

Research supporting the idea of co-construction includes studies of peer tutoring in bilingual settings that use language learning as a lens through which to examine the role of peer talk (Angelova, Gunawardena & Volk, 2006; Barnard, 2002; Wang & Hyun, 2009). These peer tutoring studies in bilingual settings provide evidence of how assisting performance within the zone of proximal development can allow children to extend their peers' understanding and act as experts who are seen by their peers as a source of knowledge (Gallimore & Tharp, 1990). For example, Barnard (2002) observed a class of year seven children in an intermediate school in New Zealand over one year. The observations focused on peer tutoring between children who spoke English as their first language and those for whom English was their second language.

Constant comparative analysis revealed a strong pattern of peer scaffolding by explanation, exemplification, demonstration and modelling to successfully complete various tasks. The data provided many examples of children co-constructing understanding by sharing each other's ideas and working with the language. Barnard (2002) found that the less capable children viewed their more capable peers as a source of knowledge and consistently sought their assistance. Barnard's (2002) findings are of significance for the present study, emphasising that the presence of the zone of proximal development is an important factor which partly determines the success of the support provided by the expert child.

2.3.3.5 Piagetian and Vygotskian perspectives of peer learning

The work of Piaget (1926) and Vygotsky (1978) has informed understandings of peer learning despite different underlying premises. Piaget posited that individuals develop conceptually when current understandings are challenged by different viewpoints (Piaget, 1926). From a Piagetian perspective, peer collaboration can contribute to cognitive growth as when children work together they provide alternative viewpoints which challenge existing understandings and promote the development of new knowledge within the individual child. Contrastingly, Vygotsky (1978) highlighted the appropriation of knowledge through shared activity and emphasised the role of more capable peers as important for bringing about cognitive growth through the zone of proximal development. In social interaction in the zone of proximal development with peers, children are able to problem solve and practice skills which they then internalise. This participation occurs at a more advanced level than what children are capable of independently. The discussion that follows examines the different explanations these theorists propose for peer learning.

There are many comparisons of Piagetian and Vygotskian perspectives on peer learning (e.g., Bodrova & Leong, 2007; De Lisi & Golbeck, 1999; Hogan & Tudge, 1999; Rogoff, 1990; Rogoff, 1998; Santrock, 2000; Tudge, 2000; Tudge & Rogoff, 1989; Van Meter & Stevens, 2000). Although both theorists contribute to our understanding of the potential role peers can play in learning, they view the process differently. Differences in their conceptions of how children learn from their peers stem from their views about how children construct knowledge. Piaget claims children construct knowledge by transforming, organising and reorganising previous knowledge; whereas Vygotsky argues children construct knowledge through social interaction

with others (Hogan & Tudge, 1999). Rogoff (1998) described the difference as a conceptual shift from the individual to social interaction and collaboration.

Vygotsky contributes to understandings of the role of peers in children's learning by focusing on the zone of proximal development as a crucial context for cognitive development. Children engage in shared problem solving in their zone of proximal development with more experienced peers (Rogoff, 1990). Vygotsky's emphasis on more skilled partners is vital to his theory as it is this type of interaction which allows children to become enculturated into the intellectual tools of their society (Tudge & Rogoff, 1989). Previous studies provide evidence of more capable peers as experts who scaffold the understandings of their less experienced peers (Fawcett & Garton, 2005; Hagan, 2007; Williams, 2001; Williams, 2007). Furthermore, the metaphor of apprenticeship is central to this explanation of peer learning as apprenticeship models emphasise children's active role in learning about their culture through guided participation with more skilled companions (Rogoff, 1990). There are strengths and weaknesses to Vygotsky's explanation for peer learning which need to be acknowledged. A strength of his theory is that it highlights the broader social and cultural context which peer collaboration occurs in. Despite this, there is a lack of attention to the processes by which individuals contribute to and internalise socially constructed meanings (Van Meter & Stevens, 1999).

Alternatively, Piaget emphasised the role of cognitive conflict between same-status peers as they engage in co-operative activity. Piaget focused on the internal aspects of the learner in the process of knowledge construction. He viewed the individual's conceptual development as occurring when understandings are challenged by contradictory views (Piaget, 1926). Cognitive conflict brings about a state of disequilibrium and re-equilibration occurs when conflict is resolved. De Lisi and Golbeck (1999, p. 33) characterise cognitive conflict as an indicator of a "search for logical coherence". Piaget (1926) argued that peers of similar status are important for social interaction, if there is to be a change of perspective, as the unequal interactions with adults (due to them having more power in the relationship) disrupts the reciprocity required for achieving equilibrium. In sum, children are more likely to enter into negotiation with partners who are not seen as holding positions of power (Hogan & Tudge, 1999; Tudge & Rogoff, 1989).

Comparing the explanations for peer learning provided by Piaget and Vygotsky reveals how these theories contribute to our understanding of the potential for peers to play an active role in learning. Consideration of the two theoretical explanations together makes it possible to understand peer learning in relation to both the cognitive changes that occur within the individual learner and the contribution that the social context makes to this type of learning. Cullen (2001) draws attention to the increasing interface of the cognitive constructivist and social constructivist theories in research on children's learning. These theories recognise that peer learning provides opportunities for cognitive conflict between individuals of equal status whilst supporting children to learn together and from their more expert peers.

2.3.4 Summary

The major theories evaluated in this section contribute to our understanding of the development of children's thinking, including the role of peer interactions in this process. Bandura's (1977) theory of observational learning is of particular relevance to the present study as it explains the processes of imitation and modelling which are important strategies that children adopt as they learn from each other. Although there is empirical evidence of children learning from their peers by imitation and modelling (Fagan, 2009; Gauvain, 2001; Odegaard, 2006; Papalia, Olds & Feldman, 2001), a review of the literature found little evidence of teachers' beliefs about observational learning, suggesting that this is an area that needs to be investigated.

Constructivist explanations have been influential in explaining the processes by which children construct knowledge as they engage in collaborative endeavour with their peers. Importantly, it is the work of major constructivist theorists Piaget and Vygotsky which provide contrasting accounts for how children learn from their peers. Empirical evidence of the role of cognitive conflict in peer interactions has been reviewed (Cannella, 1993; Hyun & Davis, 2005; Johnson-Pyn & Nisbet, 2002) and these studies reveal strong support for Piaget's theorising of the processes by which children learn from their peers.

In contrast with Piagetian explanations of peer learning are Vygotskian explanations (1978) in which peer learning occurs when more capable or expert children tutor their peers in their zone of proximal development. Studies in early childhood settings support the idea that more capable children can effectively tutor their peers by offering a framework of support and assistance (Fair et al 2005; Gray, 2011; Haworth et al., 2006; Jones, 2007; Maynard, 2002). Rogoff (1990)

proposes the metaphor of apprenticeship to represent the collaborative nature of the interactions that occur between more and less experienced learners within a community of learners model. More recently Paradise and Rogoff (2009) have posited children learn by 'Observing and Pitching in' (LOPI) and again this concept is of direct relevance to the present study. Having examined the theories most pertinent to peer learning, the next major section critiques the extant literature related to peer learning.

2.4 Peer learning

The relationships children have with their peers greatly benefit their social and cognitive development and research has demonstrated peer interactions influence children's self-esteem, their acquisition of effective communication and role-taking skills and their critical thinking skills. This section reviews the body of research, which examines peer learning, beginning with definitions of key terms. Peer learning is described using a number of different terms and those relevant to the present study are defined. Peer learning has been studied in both classroom and early childhood settings and studies examining peer learning in both contexts are evaluated in this section of the review.

2.4.1 Key definitions

Peer learning

Peer learning is defined as "the acquisition of knowledge and skill through active helping and supporting among status equals or matched companions" (Topping, 2005, p. 631). This definition has been adopted in the current study as it recognises the equality of status that exists amongst young children. Hogan and Tudge (1999) describe peer learning as involving collaborative problem solving between peers and the idea of collaboration is referred to in several of the studies that are reviewed in this section. Peers are defined as "individuals who are of approximately the same age and developmental level and share common attitudes and interests" (Hoffnung et al., 2010, p. 5). The main types of peer learning are peer tutoring, peer collaboration and/or co-operative learning. Each type embodies equality and mutuality of engagement with peer by definition meaning equal (Damon & Phelps, 1989).

Peer tutoring

Peer tutoring "involves an experienced peer assisting an inexperienced peer in completing a task" (Johnson-Pyn & Nisbet, 2002, p. 241). This concept aligns with Vygotsky's social constructivist theory as he emphasised the impact of interaction with a skilled partner such as a more capable peer to bring about cognitive growth (Vygotsky, 1978). The zone of proximal development focuses on "problem–solving under adult guidance or in collaboration with more capable peers" (Vygotsky, 1978, p. 86). A section of this review focuses on studies which examine peer learning from the perspective of a more capable child assisting an inexperienced peer. However, Bodrova and Leong (2015) caution researchers about overuse of the concept of the zone of proximal development, as it can limit its application to one-on-one situations of teaching. Instead they hypothesise that the addition of play as a means of assistance expands the practical application of the ZPD to include "assistance provided by a group of peers" (Bodrova & Leong, 2015, p. 376). Therefore studies which investigate how groups of children tutor each other during play have been included in the review.

Peer collaboration

The terms peer collaboration and co-operative learning are used interchangeably in the literature, describing the notion of children working together towards a common goal (Siegler & Alibali, 2005). A review of relevant studies found that researchers often use the term co-operative play to mean when children are collaborating together. Piaget (1977) emphasised co-operation as the ideal form of social interaction for promoting development, stating that peer interactions provide the rich contexts for children to revise their cognitive systems. It was difficult to find research about peer collaboration in natural settings in early childhood environments. However there are some studies which examine how children negotiate play with their peers and these have been evaluated.

2.4.2 Empirical studies of peer learning

The importance of peer learning in education settings has been recognised in two international meta-analyses of peer assisted learning (Leung, Marsh & Craven, 2005; Rohrbeck, Ginsburg-Block, Fantuzzo & Miller, 2003) and a New Zealand literature review conducted for the Ministry of Education (Wilkinson et al., 2000). These meta-analyses build on an earlier meta-analytic review by Cohen, Kulik and Kulik (1982) which used studies of the effect of peer tutoring that were published prior to 1980. The more recent meta-analytic review conducted by Australian

researchers (Leung et al., 2005) was designed to evaluate the effect of peer tutoring programmes on academic achievement and self-concept. Quantitative studies conducted in 2003 or before from kindergartens to university students were reviewed. Sixty eight articles were coded and the analysis showed that peer tutoring programmes impact positively on academic achievement regardless of the subject content and range of participants. In addition, unlike the previous meta-analysis (e.g. Cohen, Kulik & Kulik, 1982), there was a high impact of peer tutoring on self-concept.

A meta-analytic review of peer-assisted learning interventions with elementary school students also linked increases in achievement to the use of peer assisted learning strategies in the classroom (Rohrbeck et al., 2003). A sample of 90 quantitative studies from 1966 through to December 2000 were analysed. The use of self-management procedures, individualised evaluation and group reward contingencies were the most effective strategies in enhancing the benefits of peer assisted learning interventions. The authors suggested researchers develop interventions in collaboration with practitioners to ensure effective outcomes (Rohrbeck et al., 2003). The meta-analyses described here found significant positive relationships between peer learning and student achievement (Leung, Marsh & Craven, 2005; Rohrbeck et al., 2003). Previously, the New Zealand literature review also emphasised the positive influence of peer effects on learning outcomes (Wilkinson et al., 2000).

Wilkinson and colleagues' review of the peer tutoring research conducted for the Ministry of Education in New Zealand focused on the importance of peer effects on learning outcomes (Wilkinson et al., 2000). The review emphasised the importance of peer learning while acknowledging the complexity of the process and the elements within it. The review comprised of studies at all levels of school organisation and surveyed national and international literature related to peer effects from a range of disciplines. Researchers working in New Zealand and at the University of Bath in England worked together to search for literature, synthesise findings and develop a conceptual model of peer influences on learning. The proposed multi-layer model identified the presence of peer effects at school, class and group levels. The report also pinpointed the instructional approaches that utilised peer resources to maximise learning. Of relevance to the present study was the identification of the importance of the teacher's role along with task instructions, student preparation and student roles as key characteristics which affect the promotion of joint understandings and the joint construction of knowledge when

students work together collaboratively. Within the peer tutoring process, Wilkinson et al. (2000) identified observation, monitoring of interactions and outcomes, and direct intervention to scaffold learning or to participate in the co-construction of knowledge as important roles for teachers.

The literature review conducted by Wilkinson et al. (2000) highlighted the importance of the learning environment in the classroom and attending to the nature and quality of the instruction taking place. The review provides guidance for teachers who wish to maximise peer tutoring and peer collaboration in the learning process. Wilkinson et al.'s (2000) review provides evidence that the teacher has an important role in maximising opportunities for peer learning. However this evidence comes from classroom settings and the role of the teacher in supporting peer learning in early childhood settings was not identified in this review.

2.4.2.1 Peer tutoring

Within the international and New Zealand literature there is a large body of research that has investigated the effectiveness of peer tutoring, mainly in primary classroom settings, although there are some studies of younger children. The children in these studies in primary classrooms are typically paired together and the environment is configured to specifically support opportunities for children to tutor each other (e.g. Barnard, 2002; Belsham, 2000; Brown, 2006; Chung & Walsh, 2006; Fair, Vandermaas-Peeler, Beaudry & Dew, 2005; Garton & Pratt, 2001; Johnson-Pyn & Nisbet, 2007; Park & Lee, 2015; Rowe, 2002; Wang & Hyun, 2009; Wilson, 2007 & Wood & Frid, 2005). These studies in primary classrooms provide strong support for peer tutoring amongst young children within specific contexts. They also reveal the strategies that peers use to tutor each other and consequently some of these studies are included and evaluated.

Garton and Pratt (2001) and Johnson-Pynn and Nisbet (2002) investigated children's peer tutoring strategies as they worked together using blocks. Johnson-Pynn and Nisbet (2002) asked twenty-eight pairs of three-to-five-year-old children to construct a house out of blocks so they could examine how peers supported each other. The frequency of both the verbal and nonverbal aid provided by the expert (those with task experience) to the novice (those children without task experience) was scored. They found that children as young as three assisted their peers

spontaneously, making statements that indicated their willingness to 'teach' their peers. The expert children provided a variety of forms of assistance to the novices, including strategies to approach the task and statements to motivate the novice.

Although Johnson-Pynn and Nisbet (2002) identified peer tutoring strategies in young children, the quantitative methodology used did not allow an examination of the underlying processes that result in the less capable child being able to complete the task. In pairing the children and giving them a specific task, accompanied by instructions, the study identified the children's actions and verbal strategies; further analysis of other processes (such as dealing with cognitive conflict and working successfully within their partner's zone of proximal development) was not possible. The study by Garton and Pratt (2001) examined how pairs of four-to-seven year old children communicated as they sorted blocks according to their use in dolls' houses. Despite finding evidence that pairing children assisted those less capable to successfully sort the blocks, there was a lack of differentiation of ability by age in terms of the amount and type of talk. This study revealed similar difficulties in research design to that of Jonhson-Pyn and Nisbet's study (2002) and Garton and Pratt (2001) acknowledged that their use of an experimental paradigm was restrictive. Garton and Pratt (2001) suggest that further studies need to examine the nature of children's interactions to ascertain how children select their peers on the basis that they are a source of knowledge, expertise and skill.

Case study methodology allowed a more in-depth explanation of peer tutoring in the studies by Fair, Vandermaas-Peeler, Beaudry and Dew (2005) and Wood and Frid (2005). Wood and Frid (2005) conducted a case study in a classroom with children between the ages of five and seven. The children were engaged in numeracy activities and the researchers used running records, reflection notes and video recordings to gather data on the interactions between the children as they tutored each other; teacher practices were also a focus. Data analysis revealed that the more capable children took on leadership roles and guided their less knowledgeable peers through scaffolding. The study highlighted the presence of cognitive conflict as a critical factor that enabled the children to reach a new, joint understanding with their peers. The study also emphasised the importance of specific teacher practices such as fostering a problem-solving approach to support numeracy learning and establishing a social environment based on peer sharing and tutoring. Despite being unable to generalise from the findings, the use of case study

methods identified implications for teaching practice and Wood and Frid (2005) acknowledge the use of qualitative methods as providing insights into actual processes in a classroom.

The study by Fair et al. (2005) used similar methods and paired eight and nine year olds with four year olds to undertake craft activities. They found that the older children scaffolded their younger buddies through the use of contingency management when working with their buddies; this involved the older children gauging the ability of the younger child and then adjusting the support they provided accordingly. Intersubjectivity was achieved through a mutual interest in the activities and also in the relationships that were formed between the experts and the novices. The researchers noted that the findings were limited by the small sample size of twenty four children, however they emphasised that their use of observations, journals and interviews provided rich data which highlighted the scaffolding process which was so successfully used in this social context. Although the methods used in these case studies have explored peer tutoring strategies in-depth, the use of quantitative methods would allow generalisations to be drawn across a wider sample.

The role of peers in children's learning has also been investigated in relation to children who have special educational needs in both preschool children and school age children (Jones, 2007; Hughett, Kohler & Raschke, 2013; Parry, 2014; Scrafton & Whitington, 2015). Hughett et al. (2013) used an intervention to measure the impact of a buddy skills package on pre-schoolers with developmental delays as they participated in sociodramatic play activities with their peers. The intervention consisted of teacher feedback, praise and picture cards to support children's social interactions in three play groups. Video was used to record the sessions and significant increases in co-operative play were recorded post intervention. For example, solitary play was the highest percentage of play for each group of children at baseline and this shifted to children engaging in co-operative play for 70 to 80% of intervals after seven to eight intervention sessions. Changes were also observed in children's talk with the frequency of children's verbal comments increasing, with children learning to describe their own play and to observe and comment on the actions of their peers. This study provides evidence that buddy skill interventions are an effective way to support children who have challenges engaging with their peers.

2.4.2.2 Peer collaboration and negotiation

Earlier studies of young children's peer interactions provide evidence that from the age of three, co-operative play is more frequent and intersubjectivity is increasingly established in play (Cannella, 1993; Farver, 1992; Goncu, 1993). Despite this evidence, recent research that explores peer collaboration in natural environments in early childhood settings has been quite difficult to locate. There are studies, however, which examine how children negotiate play with their peers in early childhood settings, focused on the different communication strategies children use to interact with and collaborate with their peers (Alcock, 2005; Flewitt, 2005; Ghafouri & Wien, 2005; Mawson, 2011; Mortlock, 2015; Sullivan & Wilson, 2015; Young, 2008). Alcock (2007) and Mortlock (2015) both explored how young children make meaning with their peers in early childhood centres. Alcock's (2005) doctoral study used qualitative methods including participant observations to explore how young children experience humour and playfulness in three New Zealand early childhood centres. Children were observed imitating each other through chanting, singing rhyme and using their bodies. Findings revealed that children's use of language was a powerful means of expressing their participation and collaboration in a community.

Mortlock's (2015) study of four toddlers and their teachers in a community based New Zealand childcare centre is commensurate with Alcock's (2005) findings. The study used video observations to investigate children's peer interactions and the influence of these on the structural aspects of mealtimes. The observations of toddlers' peer interactions were then shared with teachers to gain their perspective. Mortlock found examples of children taking leadership roles, imitating each other, co-ordinating their actions, having agency of their play and engaging in rituals that created a sense of togetherness. Toddlers playfully co-operated with each other, making meaning from the symbolic gestures made by their peers. These studies provide evidence that young children negotiate play with their peers and in doing so, create a sense of togetherness. There needs to be more studies in early childhood settings which investigate the relationship between children's friendships and peer learning. The importance of understanding how children's friendships can provide opportunities for children to learn from their peers is recognised by Alcock (2005) and Mortlock (2015) who identify the need for further research about the connections between peer relations and peer learning in early childhood settings.

The role of non-verbal communication in children's collaborative play was a strong theme in qualitative studies by Flewitt (2005), Kultti (2015) and Young (2008). These studies found evidence of children using gestures, eye contact, facial expressions and body movement to collaborate with their peers. Despite these findings, Flewitt (2005, p. 209) asserts that the different ways young children make meaning in collaborative play are "undervalued and under-researched". Flewitt (2005) suggests that the focus on talk in early childhood may mean that teachers do not recognise the different ways that children make meaning during peer play. Flewitt used ethnographic case studies of four children attending a playgroup to explore children's strategies for successfully collaborating with peers. Videotaped observations revealed children negotiating access to play and then engaging in co-operative activity through observation and imitation of their peers (Flewitt, 2005). Despite this evidence, teachers prioritised children's talk and children's silent expressions of meaning were not recognised or valued.

A recent study of two toddlers for whom English is their second language in an Australian early childhood centre also highlighted the vital role of non-verbal communication in collaborative play (Kultti, 2015). Videotaped observations over six weeks recorded the crucial role of non-verbal participation in peer play. Toddlers observed their peers and played in close proximity to them using gestures to indicate their interest and role in the play. The findings from Flewitt (2005) and Kultti's research (2015) support those of Alcock (2005) and Mortlock (2015), as all four studies demonstrate that children use a range of verbal and non-verbal strategies to engage in collaborative play with their peers. Despite this evidence, further investigation in early childhood settings is needed to understand how peer learning comes about during peer interactions in play.

In addition to non-verbal communication being an important means of children collaborating, studies have highlighted observation as a strategy children adopt. The role of observation as an important means of children learning from each other has been a consistent theme in research investigating how infants and toddlers communicate and collaborate with their peers (Hay, 2006; Kultti, 2015; McGaha, Cummings, Lippard & Dallas, 2011; Rayna, 2001; Shin, 2012; Williams, Ontai & Mastergeorge, 2010). How children under the age of two participate in reciprocal interactions with their peers was investigated in two American studies (McGaha et al., 2011; Shin, 2012). A qualitative study used observation of an infant room over a 13 week

period to gather data about infants' communication through joint attention and social understanding during daily interactions (Shin, 2012). Five infants aged between nine and 23 months who attended a University affiliated childcare centre in New York were the focus of the study. Infants used eye contact, gaze following, joint attention and pointing to engage in social play. Observation followed by imitation was a consistent theme and this involved imitation of their peer's actions and manipulation of objects. Pointing was intentional and used to request objects from peers and to communicate intentions (Shin, 2012).

An action research project in a University laboratory programme also identified the role of observation as an important means of establishing relationships with peers that then lead to opportunities for peer learning (McGaha et al., 2011). Researchers wanted to find out what happens when infants are given opportunities to interact with older children such as toddlers and two year olds. Three infants and nine two year old children were enrolled in the research programme. Using an action research approach, regular observations were conducted, changes were made to the environment, and new experiences were introduced and documented.

Initially, the children spent time observing each other, exchanging smiles, laughs and touches and sharing toys. As relationships between younger and older children developed, the older children began to adjust their level of play to the developmental level of the infants, for example crawling to play games of chase with the infants. Teachers began to deliberately create opportunities for children of different ages to be together in small groups as the research progressed and having observed the teachers, some of the older children sought out opportunities to be involved in the caregiving routines of the younger children. Teachers let go of their original conceptions about how toddlers interact with infants and instead began to view toddlers as competent and capable and able to be role models for younger children (McGaha, et al., 2011). This study highlights the important role of observation and imitation in children's collaborative endeavour. In addition, the use of action research methodology in this study drew attention to the vital role of teachers in children's peer play. By documenting children's peer interactions and reflecting on these, teachers became aware of the importance of their role as empowering children of different ages to learn from each other. These findings are relevant to the present study which explores the teacher's role in supporting peer learning.

2.4.3 Summary

The studies reviewed in this section provide evidence of the ability of young children to tutor their peers and to work collaboratively, leading to extending their own learning and that of their peers (Alcock, 2005; Fair et al., 2005; Flewitt, 2005; Kultti, 2015; Mortlock, 2015; Shin, 2012; Wood & Frid, 2005; Young, 2008). The review found that how children's peer play in early childhood settings can result in peer learning needs further investigation. The evidence has emphasised the vital role of teachers in empowering and enabling children to teach each other and learn collaboratively (McGaha et al., 2011; Wilkinson et al, 2000). However many of these studies were mainly conducted in classroom settings rather than play based environments. Furthermore, they do not reveal how teachers could empower and enable children to collaborate and tutor each other. The present study aims to investigate how teachers assist children to take on teaching roles in early childhood settings. The role of the teacher in enabling children to share their expertise and work collaboratively is of importance to the present study. The next section explores the role of the teacher in promoting and supporting peer endeavour.

2.5 The role of the teacher in peer learning

There is a dearth of literature which investigates the teacher's role in peer learning within play based environments (Smith, 2010) and little research of children's peer groups in New Zealand early childhood settings (Alcock, 2005). Despite this, relationships with peers are considered vital for children's growth and development (Barblett & Maloney, 2010). Stephenson (2009) emphasises understanding the complexities children face in building relationships with their peers and establishing their identities within early childhood communities, as important factors for teachers to consider. The lack of research investigating the teacher's role in supporting peer learning in early childhood means that some studies discussed in this section were carried out in classroom settings, but studies in early childhood settings have been included where possible. Research indicated establishing empowering and collaborative learning environments, promoting children's agency and being responsive as key considerations for the teacher's role in peer learning. Finally, research about the intentional nature of teacher's practice in relation to supporting peer learning is critiqued.

2.5.1 Collaborative environments

Studies on peer learning (Brown, 2006; Burnard et al., 2006; Fawcett & Garton, 2005; Pantaleo, 2007; Pohio, 2006; Wood & Frid, 2005; Young & Morgan, 2015) have emphasised the need for a supportive environment to promote collective activity amongst children. The role of the teacher in creating learning environments that empower children to have influence over their learning was a key theme in a number of these studies (Burnard et al., 2006; Pohio, 2006; Young & Morgan, 2015).

Burnard et al. (2006, p. 255) worked with early years teachers in the United Kingdom to develop a framework for 'possibility thinking', which they identified as an aspect of creativity. The study was conducted over a one-year period in three early years settings, involving five teachers and three university based researchers. Naturalistic collaborative enquiry using participant and non-participant observations, event sampling and video stimulated review of classroom interactions was used to gather data. These particular methods were chosen in order to best capture the complexities between teaching and learning (Burnard et al., 2006). Interview data found evidence of the importance of shared control of learning being vital to promote the idea of a safe learning environment where creativity is emphasised. Providing rich resources and choice, and fostering children's curiosity through co-operative engagement with peers, were expectations held by teachers (Burnard et al., 2006). Observations revealed that the children (aged between four and seven years), were viewed as active participants in the learning process by teachers, and were actively encouraged to take on mentoring roles with their peers. Teachers described seeing children collaborating with each other in order to generate ideas and possibilities and inspire other children who may be less confident. Teachers enabled children by giving them considerable autonomy and agency to try out ideas, pose questions to each other and talk to generate collective thinking. Children learnt from each other by taking risks and generating solutions to problems collaboratively.

Pohio (2006) found that the environment plays an important role in influencing the nature of children's peer interactions in a small-scale study focused on the use of the visual arts as a medium for promoting peer collaboration. Observations of children aged four and a half to five years in a New Zealand kindergarten took place over five mornings. The visual arts area in the kindergarten where the observations took place was intentionally set up to encourage co-

operative endeavour. Children were able to self-select from a range of flexible, accessible and open-ended materials which actively supported the children's enquiry in meaningful ways. The equipment was arranged to encourage the co-operative use of resources and to foster the growth of collective knowledge. Children were actively encouraged to work together to share ideas, problem solve and explore the different properties of the media. Children were observed sharing their knowledge of different media (for example clay) with each other and using the skills and knowledge of their peers to extend their own understandings of the art materials they were using. Evidence from both studies (Burnard et al., 2006; Pohio, 2006) suggests that environments which enable opportunities for peer learning in young children do not just happen, but need to be intentionally set up if they are to foster and enhance collaborative endeavour and opportunities for knowledge sharing.

The daily routines that operate in early childhood settings influence children's peer interactions and opportunities for them to collaborate together. Pohio's (2006) study emphasises the need for routines that do not dominate or restrict the exploration of young children. Claxton and Carr (2004) similarly advocate a learning environment that promotes a dynamic approach to learning dispositions. Claxton and Carr (2004, p. 91) assert that learning environments can be "prohibiting, affording, inviting or potentiating". Prohibitive environments are described as those in which children move from one routine to the next, they are not engaged over any length of time, and collaboration can be prohibited because play can be interrupted. In contrast, potentiating environments involve unlimited shared activity where children as well as adults take responsibility for directing those activities. This promotes a sharing of power amongst teachers and learners whereby children are encouraged to assist each other. In potentiating environments, children view each other as sources of knowledge, rather than just seeing teachers as knowing everything. Claxton and Carr (2004) argue that teachers need to consider whether the learning environment they have created gives children agency in their play and encourages participation resulting in collaborative, complex learning for children. The idea of children having agency in their peer interactions was a key factor explored in the group of studies reviewed in the next section.

2.5.2 Promoting agency within peer learning

Several studies have examined the role of the teacher in promoting children's autonomy within peer interactions (Izumi-Taylor, 2008; Lee, 2006; Majorano, Corsano, & Triffoni, 2015; Mashford-Scott & Church, 2011; Parry, 2014; Tzuo, 2007). Lee (2006) interviewed teachers in the United States about their beliefs around appropriate pedagogy. Lee (2006) interviewed 18 preschool teachers from six preschools about their teaching goals and quality practices for four year old children. Videos of actual classroom practices were evaluated by teachers as a means of eliciting their beliefs and it was this use of qualitative methods that ensured teachers could consider their beliefs in relation to the context in which they were enacted (Lee, 2006). In Lee's study, providing choices so children could develop agency emerged as a strong theme in the teachers' responses.

The majority of teachers (83%) expressed the belief that children need to be given freedom to choose and there was strong support for children learning through self-directed exploration with teachers saying they liked the way teachers were involved in children's play without directing their learning (Lee, 2006). Lee (2006) identified the limitations of the survey method for gathering data on teachers' beliefs, as it requires teachers to consider aspects of their practice in a decontextualised way. Although the sample size was small, the use of video to draw out teachers' beliefs was an effective method for revealing teachers' beliefs about curriculum experiences and the role of the teacher in promoting agency amongst children.

Izumi-Taylor (2008) investigated how teachers in a Japanese kindergarten promoted autonomy in play by drawing on the concept of 'sunao' or cooperation. Interviews with Japanese early childhood educators revealed teachers' delegation of authority to children as part of classroom management. Teachers promoted children's autonomy by encouraging them to share and discuss their points of view with their peers. Teachers also identified children modelling different skills for each other, and the appreciation of their peer's different views and ideas as an important means of building 'sunao'. The exchange of different viewpoints is an important part of peer learning as it promotes the idea of cognitive conflict (Piaget, 1977). Sharing different views can lead to children experimenting with new ideas and this often results in new understandings.

There has been some investigation of how teachers promote children's agency in the resolution of their peer disputes (de Waal, 2000; Majorano, Corsano & Triffoni, 2015; Mashford-Scott & Church, 2011). Majorano et al. (2015) investigated teachers' interventions in peer conflicts between pre-schoolers under the age of three years in Italian nurseries. The study involved 99 children and 10 nursery classes across seven nurseries in the north of Italy. Sixteen teachers participated in the study, with videotaped observations focused on educator-peer group interactions during free play, mealtimes and semi-structured activities. The study showed that in 80% of the conflicts, educators intervened directly and this disrupted children's efforts to resolve conflict, therefore limiting opportunities for children to acquire social competence (Majorano et al., 2015). This finding was of concern to the researchers who stated that direct intervention could result in children becoming dependent on adult intervention, rather than using conflict as an opportunity for children to problem solve and deal with different perspectives. The study revealed the importance of teachers building social competence and resilience so that children can be tutors for other children, and motivate each other to learn together.

In another study, Mashford-Scott and Church (2011) explored how Australian early childhood teachers in two different settings promoted children's agency in the resolution of peer disputes, including the importance of key teaching strategies and purposeful teacher involvement. Video-recorded observations of teachers over a two-week period focused on teachers' language and behaviour when responding to disputes. In one instance of peer play, in which children were attempting to resolve a dispute over sharing marbles, various strategies were utilised. These included using physical gestures and props to support understanding, creating opportunities for children to discover possible solutions themselves; presenting each child's suggestions as valid, and prompting children to respond to each other's contributions or suggestions. In another episode of conflict, the teacher provided guidance to the child about how to communicate his perspective and how to create the opportunity to resume co-operative play (Mashford-Scott & Church, 2011).

Mashford-Scott and Church's (2011) study provides evidence of the opportunities which exist for teachers to enable children to understand each other's perspectives in peer disputes. Although the studies just described provide contrasting evidence about the nature of teachers' involvement in peer disputes, both identify the importance of opportunities for children to

explore different perspectives shared by their peers (Majorano et al., 2015; Mashford-Scott & Church, 2011). The provision of such opportunities is of relevance to the present study, as it highlights the need for teachers to promote the types of peer interactions which enable children to exchange different viewpoints and potentially construct new understandings together.

Other studies have shown that children value their peers, viewing them as sources of knowledge (Briggs & Nichols, 2001; Haworth, et al., 2006; Howard, Jenvey & Hill, 2006; Williams, 2001). The Māori concept of tuakana-teina acknowledges that more experienced children have knowledge which they share with those less experienced. "The tuakana-teina relationship, an integral part of traditional Māori society, provides a model for buddy systems. An older or more expert tuakana (brother, sister or cousin) helps and guides a younger or less experienced teina (originally a younger sibling or cousin of the same gender)" (Pere, 1982, p. 74).

Haworth et al.'s (2006) collaborative action research project on a community of learners in a New Zealand kindergarten found evidence of a collective culture in which the tuakana scaffolded the teina's learning. The Ministry of Education funded this three year research project in which experienced researchers worked alongside the kindergarten teachers with a focus on enhancing the community of learners operating within the kindergarten. Initially children were observed as they interacted with their friends. Working theories were then generated as to how best support children's learning (Haworth et al., 2006). Teachers observed and recorded many incidents of older children working with younger children over several action research cycles. Twenty videotaped observations found examples of children providing active teaching of skills and knowledge. In one example, an older child modelled the actions of a song for a newer, younger child so he could join in at group time. Teachers expressed the belief that the tuakana-teina relationship provided opportunities for both children to develop cognitively; as the tuakana takes on a teaching role they affirm and express their knowledge and skills (Haworth et al., 2006). The need for teachers to actively promote peer learning was an important teaching strategy identified by the study (Haworth et al., 2006).

The studies reviewed in this section have identified the provision of agency in peer learning as an important factor. Research suggests teachers need to consciously provide opportunities for children to express and share different perspectives (Majorano et al., 2015; Mashford-Scott &

Church, 2011) and to role model skills and share knowledge (Haworth et al., 2006). The next section examines the research into specific teaching strategies for effective peer learning.

2.5.3 Teaching practices which support peer learning

Current research has emphasised the role teachers have in supporting young children to engage effectively with their peers (Bulotsky-Shearer, Bell, Carter & Dietrich, 2014; Petty, 2009). Responsive practice and close involvement by teachers in children's collaborative play have been highlighted as important practices in several studies (Gomez, et al., 2013; Kultti, 2015; Singer, Nederend, Pennix, Tajik & Boom, 2014; Stanton-Chapman & Hadden, 2011). Close involvement in children's learning involves a range of teaching practices and those most relevant to supporting peer learning are discussed next.

The physical proximity of the teacher has been found to be an important factor in children's engagement with peers (Ahnert, Pinquart & Lamb, 2006; Gosselin & Forman, 2012; Singer et al., 2014). Singer et al.'s (2014) mixed methods study explored the relationship between teacher behaviour and the level of play engagement with 116 two and three year old children in 24 Dutch childcare centres. Results showed that the continuous physical proximity of the teacher had the greatest impact on the level of play engagement and more so than the quality of the interaction. When the teacher was nearby, the likelihood of children engaging well with each other was three times more likely than when the teacher moved in or out or was not near the child. Despite this, teachers were observed mostly walking around and supervising children and the teacher was found to be continuously nearby in only 9.9% of the four minute intervals they were observed in (Singer et al., 2014). The authors suggested that teachers sit on the floor with children, trusting that children will come to them and to develop communication strategies that promote group dynamics which support peer play. The teachers in this study were found to be mostly supervising the children, rather than engaging with them over sustained periods of time (Singer et al., 2014).

In addition to the importance of teachers' physical proximity for collaborative play, the ability of children to successfully enter play, has been the focus of several studies (Beilinson & Olswang, 2003; Ely, 2014; Howes, Sanders, & Lee, 2008; Mawson, 2011; Petty, 2009). Mawson (2011) examined children's participation strategies in a New Zealand early childhood education setting,

using video to record children's collaborative play, on one morning a week over a period of nine months. A key finding was that a number of children found entering play difficult, particularly if they did not have close friendships and shared experiences with their peers. This finding suggests that teachers need to support and empower children to enter play by teaching them strategies to integrate themselves into collaborative play. In Mawson's (2011) study, children seldom sought teachers' assistance to enter play, suggesting that exclusion from group play could be far more common than teachers realise.

Teachers need to not only support children to enter play, but to actively assist them to maintain effective peer interactions through listening to children, observing and interpreting their play and promoting opportunities for peer learning (Kultti, 2015; Robson & Hargreaves, 2005; Rose & Rogers, 2012; Stanton-Chapman & Hadden, 2011; Williams, Sheridan & Sandberg, 2014). An example of teachers actively interpreting and responding to children's peer play is reported in Kultti's (2015) study of toddlers and teachers in an Australian early childhood centre. Kultti videotaped toddlers and teachers over a period of six weeks to discover how children participated in play with other children when English was not their first language; pedagogical approaches were also reported on and are relevant here. Despite the very small sample size (two children and one early childhood centre), in-depth analyses of the video recordings demonstrated the use of nonverbal communication amongst the toddlers and teachers' involvement in supporting children's efforts to engage with their peers. Results found "teachers' involvement and engagement through listening, interpreting and encountering children's actions are crucial" for creating multiple ways for children to engage with their peers and become part of the learning community (Kultti, 2015, p. 219). This small study presents an important focus for further investigation, as the study highlights specific teaching strategies for successful peer play.

Language is also an important tool for teachers to use to support peer collaboration (Brown, 2006; Naerland, 2011; Pantaleo, 2007; Rose & Rogers, 2012; Stanton-Chapman & Hadden, 2011; Williams, Sheridan & Sandberg, 2014). Stanton-Chapman and Hadden (2011) researched the role of the teacher in supporting children in preschool settings to enter and maintain play with peers and they identified 'teacher talk' as an effective strategy for language learning and communicating with peers. Using prompts such as 'I think your friend is talking to you' and questions to develop joint attention between children were identified as important strategies. In addition, Stanton-Chapman and Hadden (2011) emphasised the importance of observation in

order for teachers to become aware of who children preferred to play with and the patterns in their communication styles. The idea of observing, interpreting and responding to children's play equates with Drummond's (1993) notion of 'notice, recognise and respond' as listed in *Kei Tua o te Pae: Assessment for Learning: Early Childhood Exemplars* (Ministry of Education, 2004). Teachers have adopted this idea of noticing, recognising and responding to children's learning in New Zealand early childhood settings. Furthermore, Rose and Rogers (2012) agree that when teachers closely communicate with children, they can assist the child to share their perspective with their peers and jointly construct shared understandings.

Studies by Brown (2006) and Pantaleo (2007) revealed the crucial role of the teacher in using language to encourage collective thinking amongst groups of children. Both small-scale qualitative studies used observations to examine classroom reading activities with six to eight year old children. In Brown's (2006) study, the teacher assigned children a partner for reading and supported the children to collaboratively construct knowledge by scaffolding their partner at points of difficulty. Mini lessons where children could make connections, share questions and figure out unknown words were commonly used strategies to promote peer talk. Similarly, Pantaleo (2007) found that encouraging children to talk over the topic and think aloud resulted in children building on one another's thoughts and being able to use language as a tool for thinking together. Both studies called for further research into the types of curriculum experiences and teaching strategies that encourage children to use talk for thinking collectively.

Evidence of the importance of children's language competence in peer collaboration can be found in studies by Williams, Sheridan and Sandberg (2014) and Naerland (2011). Videotaped observations of 64 young children in a Norwegian kindergarten, across nine different outdoor and indoor curriculum areas, resulted in rich data about children's language competence in their peer play (Naerland, 2011). Recording was repeated until researchers had twenty minutes of recording for every child; play situations initiated and structured by adults were excluded. Quantitative measures were used to categorise the verbal utterances. Results indicated that children preferred to communicate with their peers, who scored highly on the dialogue score and were sociable. Pragmatic rather than formal language skills were found to be most important to attract peers and those children that were able to clarify and explain situations, were able to sustain ongoing peer interaction.

In contrast to the child's perspective, research by Williams et al. (2014) explored the role of language in peer learning from the teacher's perspective. Williams et al. (2014) interviewed 30 Swedish preschool teachers from 15 preschools. The semi-structured interviews focused on children's learning and development. Qualitative analyses revealed several key themes within teacher's responses. Social and cognitive knowledge and the relationships between these two aspects of children's development emerged as two key themes. Teachers identified peer collaboration as a fundamentally important aspect of children's social knowledge. Peer collaboration was described as being vital for children to learn empathy, understanding other's points of view and for self-expression. Teachers viewed their role as guiding children to learn rich language skills by being involved in children's activities and using a varied vocabulary. The teachers' role was vital in supporting peer learning by ensuring children gained the language skills needed to engage with their peers.

Teachers gave many examples of peer learning where they believed effective language skills were vital. Teachers believed that peer collaboration contributed to the different ways children asked, explained and explored the knowledge they themselves had collectively developed. Teachers described their role as being to formulate questions to draw attention to children's different ideas and ways of thinking (Williams et al., 2014). However, despite teachers' awareness of their own role in supporting children's language competence, they did not view their role as actively and intentionally constructing situations for collaboration to occur; instead teachers' responses suggested peer collaboration often happened "by itself in encounters between children" (Williams et al., 2014, p. 236). Teachers expected peer collaboration to occur simply because children were together at preschool. Findings from these studies (Naerland, 2011; Williams et al., 2014) provide evidence that language competence is vital for effective peer learning whilst also raising questions about the intentional nature of the teacher's role in supporting effective language use in peer collaboration. These questions about intentionality are relevant to the present study.

There has been some recent work both internationally and in New Zealand that has implications for the teacher's role in supporting peer learning and is relevant to the present study. A research project to explore teacher's work in different early childhood contexts (Meade, et al., 2012),

Carr's (2011) 'Learning wisdom project', Hedge's (2007) doctoral research into children's working theories and Hedges and Cooper's (2017) study of children's thinking about friendships are examples of New Zealand studies whose findings highlight the importance of pedagogical acts which stretch children's thinking and which identify peer interactions as important opportunities for extending thinking. In addition, Fleer's (2011) work on conceptual play and the British "Effective provision of pre-school education" longitudinal study (Sylva, Melhuish, Sammons, Siraj-Blatchford & Taggart, 2010) emphasise the importance of high quality interactions for children's learning, both between adults and children and between peers.

The quality of interactions between adults and children and between children and their peers was a focus of the case studies from 12 'effective' pre-schools drawn from the 141 settings involved in the "Effective provision of pre-school education" (EPPE) longitudinal study (Sylva, at al., 2010). Analysis of the case studies identified examples of sustained shared thinking amongst peers, which can be represented in a continuum as they progress from solitary to collaborative play. The concept of 'sustained shared thinking' is defined as "an effective pedagogic interaction, where two or more individuals work together in an intellectual way to solve a problem, clarify a concept, evaluate activities, or extend a narrative" (Siraj-Blatchford, 2009, p. 78). Sustained shared thinking involves the significant exchange of gestures, progressing to pretend role-play with partners and then collaborative involvement in improvised play with partners that becomes increasingly complex.

Peers have an important teaching role, beginning with reciprocity in sharing peer relations and increasingly acknowledging other's perspectives to reciprocally negotiating roles. Peers scaffold and role model, with play being extended by more capable peers. Collaboration is important for reaching shared understandings that could not be reached if children were working on their own (Siraj-Blatchford, 2009). Importantly, "co-operation and collaboration provides scaffolding in the development of meta-cognition and learning-to-learn" and the adult's role is to provide increasingly more challenging forms of sustained shared thinking by providing more sophisticated and abstract scaffolding props (Siraj-Blatchford, 2009, p. 84). These findings reveal the potential role children can play in extending each other's ideas and assisting each other to persist by negotiating, problem solving and sharing their knowledge with each other. The teachers' role is to support and scaffold children in such a way that they develop effective problem solving and negotiating skills. This study provides an insight into the potential for peer

learning when teachers are skilled at recognising opportunities for sustained shared thinking and understand the teaching strategies required to support these types of peer collaborations.

Similarly, recent research offers insights into the teacher's role in supporting children's thinking whilst highlighting the need to recognise children's ability to develop ideas together and to give each other feedback on their learning (Carr, 2011; Hedges, Cullen & Jordan, 2011). Hedges et al.'s (2011) 12 month case study in two New Zealand kindergartens provided evidence of the ways in which children's interests were enacted with their peers. Through observations of children's play, Hedges and colleagues discovered that children's friendships enabled them to extend each other's thinking and interests by drawing on each other's experiences; child-initiated peer tutoring was common in both settings. For older children, friendships provided opportunities to test expectations about sharing, turn-taking and leadership. Despite this evidence, teachers' engagement with children's interests and experiences did not always occur and many learning and teaching interactions were found to be spontaneous rather than planned. This finding implies the need for teachers to intentionally promote and support peer learning as an aspect of their pedagogical practice.

The ability of children to reflect on their learning and to give peers feedback has been illustrated in a two year action research project in nine New Zealand early childhood centres (Carr, 2011). The 'Learning wisdom project' was designed to explore the opportunities young children have to reflect on their learning. The process of reflecting on being a learner recognises the value of articulating one's ideas and is part of the pedagogic strategy 'sustained shared thinking' identified in the previously discussed 'EPPE' project (Sylva et al., 2010). Researchers audiotaped teachers' conversations with children and these were shared with teachers over the course of the study so they could reflect on their conversational strategies. The nine early childhood centres documented conversations with at least one case study child over a year and this led to teachers being more alert to opportunities for conversations about learning over the duration of the action research project.

Learning stories were readily available to children and their families and children often reviewed them with their teachers and their peers. Group discussions were identified as an important conversation strategy for revisiting learning throughout the project. Children were encouraged

to use the learning stories in their portfolios as a tool for revisiting learning together and group conversations provided opportunities for children to share their point of view, adopt their peers' perspective and create shared meanings (Carr, 2011). An important implication of this finding is that teachers recognise the potential for children to give each other feedback about their learning and deliberately create opportunities for children to do so. The intentional nature of the teacher's role in supporting peer learning is examined in the next section.

2.5.4 The role of intentionality in supporting peer learning

Intentional teaching involves teachers being deliberate and purposeful in their decisions and actions. Intentional teaching has a strong presence in the Australian national early childhood curriculum framework and the intentional nature of the teacher's role has attracted the interest of researchers more recently, particularly those working in Australia (Davis & Degotardi, 2015; Kilderry, 2015; Leggett & Ford, 2013; Nuttall, 2003; Stephen, 2010; Thomas, Warren, de Vries, 2011). In the United States, Epstein (2014) is well known for her work at the High/Scope Educational Research Foundation in Michigan which has focused on the use of purposeful teaching objectives in early childhood settings. Epstein (2014) has identified the need for a balance between child-initiated and teacher directed activities and that rather than being passive, good teachers support children's learning in both types of activities. "The High/Scope Preschool Curriculum features a plan-do-review sequence in which children plan what they want to do, carry out their ideas, and review their experiences with their teacher and peers" (Epstein, 2008, p. 40). Providing opportunities for children to plan and reflect, to elaborate on ideas, to wonder and to solve problems are all effective intentional teaching strategies (Epstein, 2008). When teachers support children's learning by setting purposeful teaching objectives, they are engaging in intentional teaching.

The use of intentional teaching practices in early childhood settings has been explored in a number of studies which focus on the teacher's role, including promotion and support of peer learning (Bulotsky-Shearer, Bell, Carte & Dietrich, 2014; Cohrssen, Church & Tayler, 2014; Cross & Conn-Powers, 2014; Dennis & Stockall, 2015; Fleer & Hoban, 2012; Howe, Porta, Recchia, Funamoto & Ross, 2015; Kilderry, 2015; Leggett & Ford, 2013; Thomas, Warren & de Vries, 2011). An investigation of peer play interactions in 53 preschool classrooms found that the benefits of these interactions to learning were most likely to be positive in classrooms where

teachers were actively scaffolding children's peer interactions (Bulotsky-Shearer et al., 2014). Observations of peer interactions of 304 children were assessed in relation to academic outcomes. Disrupted peer play was found to be associated with lower literacy and language skills, whereas interactive peer play, which had high instructional support and planned group activities, was associated with higher mathematics outcomes at end of year assessments. These findings emphasise the importance of intentional planning for group activities, and active scaffolding to enhance children's social skills and emotional wellbeing.

In New Zealand, a recent report released by the Education Review Office consistently emphasised the importance of teacher's intentional practices in relation to children becoming confident and capable mathematical learners in the early years (Education Review Office, 2016). The aim of the report was to provide teachers with pedagogical strategies for teaching mathematics to young children. The report identified the need to balance spontaneous learning opportunities with deliberate teaching, which requires teachers to scaffold children's mathematical thinking, whilst ensuring a range of appropriate resources and purposeful and challenging activities are available (Education Review Office, 2016). The report criticised the notion of a child centred curriculum, describing it as a prevailing teaching culture that does not support teachers' deliberate involvement in children's play (Education Review Office, 2016). Despite acknowledgement of the importance of children being empowered to make choices in their play, the role of peers as agents in children's mathematical learning was not recognised anywhere in the report. It was surprising that the potential for children to be teachers was not highlighted when the report acknowledged the importance of children having agency in their learning. Instead, the report identified the purposeful nature of the teachers' role as fundamental for ensuring children are successful with mathematics.

Despite recognition of the need for teachers to be deliberate in their support of peer interactions, evidence suggests teachers find it difficult to acknowledge the need to be intentional about their practice (Davis & Degotardi, 2015; Kilderry, 2015). An Australian qualitative study by Davis and Degotardi (2015) explored three early childhood teachers' understandings of their role in relation to infant peer relationships in early childhood settings. Results from semi-structured interviews and videotaped observations found that teachers believed strongly in purposeful extension of children's social play. However teachers did not show evidence of having planned for social interactions and there was a focus on spontaneous

experiences. Teachers expressed strong views about the importance of play, although their responses lacked reference to intentional teaching (Davis & Degotardi, 2015). These findings demonstrate that despite teachers' belief in purposeful fostering of children's social skills, teachers relied on spontaneous opportunities to support this aspect of children's learning. Teachers' intentional support of peer learning will be an important focus for the current study.

Similar results came from Kilderry's (2012) doctoral examination of how dominant discourses position early childhood teachers' decision making. The qualitative study included semi-structured interviews with three early childhood teachers working in Victorian preschool settings and an examination of policy documents. Critical discourse analysis identified developmentally appropriate practice as a dominating discourse and results revealed teachers' struggle with embracing and articulating intentional pedagogies. Instead, the dominance of the discourse of developmentally appropriate practice was evident (Kilderry, 2012). Although the data was collected in 2004 before the introduction of a national curriculum, other Australian studies conducted after the inception of the Australian early childhood curriculum framework (Leggett & Ford, 2013; Thomas, Warren & de Vries, 2011) resonated with these findings, drawing attention to tensions between a discourse of free play, developmentally appropriate practice and intentional teaching. This eclecticism has been found in a number of studies of teachers' beliefs (McLachlan-Smith, 1996; Nuttall, 2004).

2.5.5 Summary

This section of the review has synthesised and critiqued the research examining the teachers' role in promoting and supporting peer learning. Evidence suggests teachers need to pay attention to the environment and daily routines to ensure they support sustained opportunities for collaborative endeavour (Burnard et al., 2006; Carr & Claxton, 2004; Pohio, 2006). Provision of agency in peer interactions was found to be an important factor for peer learning as it creates opportunities for children to model skills, share different perspectives and it encourages children to view their peers as sources of knowledge (Fagan, 2009; Haworth et al., 2006; Izumi-Taylor, 2008; Majorano, Corsano, & Triffoni, 2015; Mashford-Scott & Church, 2011; Parry, 2014).

Despite this evidence, research identifying the specific teaching strategies, which promote peer learning was difficult to locate as the majority of studies focus on strategies teachers adopt to

assist children to engage with their peers rather than actually learning from them. Although research has identified the importance of intentional practice in relation to supporting peer learning, the studies reviewed reveal teachers' reluctance to articulate intentional practices (Davis & Degotardi, 2015; Kilderry, 2015). Evidence suggests being deliberate about supporting peer learning has provided some dilemmas for teachers as they work in environments that promote spontaneous play. Nonetheless, as the studies examined in this section demonstrate, purposeful planning for peer learning is an important consideration for teachers. This contrast in findings is of major concern as it may mean that teachers are not deliberately fostering peer learning in early childhood settings. The next section of the review examines how peer learning is included in the national early childhood curriculum *Te Whāriki* (Ministry of Education, 1996). Research which explores the relationship between the curriculum and the teacher's role in children's learning is also reviewed.

2.6 *Te Whāriki* and peer learning

This section of the review provides a critical overview of recent research into *Te Whāriki* (Ministry of Education, 1996), the national curriculum for early childhood education in New Zealand. Peer learning is explicitly included in the document and a critique of the guidance provided to teachers to support peer learning is outlined. Although there is an updated curriculum document (Ministry of Education, 2017), it is not described and discussed as it was published after data collection in the present study.

The early childhood curriculum (Ministry of Education, 1996) is centred on four key principles: empowerment, holistic development, family and community, and relationships. The principle of relationships includes reference to providing opportunities for children to learn by trying out their ideas with each other. Within *Te Whāriki* are a set of curriculum guidelines which are particularly relevant to peer learning. These guidelines are explained as part of the 'contribution' strand and they describe the types of learning children should experience when they actively participate alongside their peers: children learn to take another's point of view, to empathise with others, to see themselves as a help for others and to discuss or explain their ideas to their peers. Within the contribution strand, the role of the adult is described as ensuring children experience active, interactive and equitable learning opportunities (Ministry of Education, 1996).

In addition, the 'exploration' strand is about children learning through active exploration of the environment as they interact with adults and their peers (Ministry of Education, 1996). The term working theories is included within this strand and working theories "are the result of cognitive inquiry, developed as children theorise about the world and their experiences" (Hedges & Jones, 2012, p. 36). Children share their working theories with their peers as they explore ideas and problem solve together.

2.6.1 *Te Whāriki* - theoretical underpinnings

There are many discussions and debates in the literature about the open and interpretive nature of *Te Whāriki* and the resulting diversity of pedagogical approaches (Clark, 2005; Dalli, 2011; Edwards & Nuttall, 2005; Haggerty, 2003; Loveridge & McLachlan, 2014; Nuttall, 2005; Stephenson, 2009). The presence of developmental theory within *Te Whāriki* is one challenge, which is acknowledged by researchers in the field (Cullen, 2001; Greenfield, 2002; Nuttall, 2003). Cullen (2001) highlights the tension for teachers of a document that retains a developmental philosophy with the focus on children learning through play, while at the same time "the role of socially and culturally mediated learning is espoused" (Cullen, 2001, p. 64). The resulting tension means that teachers can be uncertain about their role in children's learning (McLachlan, 2006).

The document emphasises relationships and the social context and the importance of children learning through collaboration with both adults and their peers. The document also emphasises learning through individual exploration of the surrounding environment, which is more strongly related to a Piagetian theoretical perspective. This reference to children learning through exploration is one aspect of the document illustrating a cognitive constructivist paradigm which sits alongside the strong social constructivist base underpinning *Te Whāriki* (Ministry of Education, 1996). Cullen (2001) has argued that the presence of both social constructivist and cognitive constructivist theories is not clearly explained and that this creates a contradiction for teachers as they seek to interpret and define their role in children's learning. The role of the teacher in supporting peer learning is left to interpretation although ensuring children experience equitable opportunities to work with their peers is clearly stated.

In addition to the implicit presence of constructivist theories, Bronfenbrenner's (1979) ecological systems theory is the only named theory in the curriculum document. Bronfenbrenner (1979) created a widely used model for thinking about the multiple influences on individuals termed ecological systems theory. His theory is comprised of five environmental systems which are the sets of people, settings, recurring events, cultural values and programmes that are related to one another and influence the individual over time (Bronfenbrenner & Morris, 2006). The systems interrelate and overlap each other and the peer group is found in the inner most system termed the 'microsystem' which is the system in which an individual lives (Bronfenbrenner, 1979). Most direct interactions occur within the microsystem including interactions with family, teachers and peers. Bronfenbrenner's (1979) perspective views the individual as someone who actively helps to construct the various settings rather than being a passive recipient. The inclusion of ecological systems theory within the curriculum document highlights the different environments that children learn in and the reciprocal influences on learning within and between the systems, but the theory does not explain the process of learning itself.

Te Whāriki has been defined as being a 'competence' orientated curriculum that is underpinned by a 'learner-centred' ideology and learning is seen to occur through the child's interaction with the environment (McLachlan, Fleer & Edwards, 2013, p. 17). A 'learner-centred' ideology supports diverse philosophies of teaching and learning and the needs of the individual child dominate (McLachlan et al., 2013). The presence of diverse teaching and learning philosophies within the sector reflects the interpretive nature of *Te Whāriki*. Clark (2005) agrees that *Te Whāriki* should be interpretive to allow each service to interpret the document in relation to the characteristics and needs of their own local community. However, teachers are required to interpret the curriculum guidelines for peer learning in relation to their own teaching philosophies resulting in a range of peer learning experiences for children. Exactly how children experience opportunities to teach each other and to have agency in their collaborative play is left to the interpretation of each early childhood service. Therefore there needs to be an investigation into the varied provision of opportunities for peer learning to ascertain whether *Te Whāriki* provides teachers with adequate guidance to promote and support peer learning.

2.6.2 Critique of *Te Whāriki*

Research about the implementation of *Te Whāriki* was examined for evidence of how the curriculum supports teachers to implement peer learning. The review found a growing body of research on how the curriculum document has been enacted in the early childhood sector in New Zealand. For instance, *Te Whāriki* has been identified as a tool to guide planning and teaching (e.g., Alvestad, Duncan & Berge, 2009; Dalli, 2011; White, 2011). Researchers have reported on how *Te Whāriki* is connected to the New Zealand school curriculum to support children's transition between the two sectors (e.g., Carr & Peters, 2005; Gibbons, 2013; Simpson & Williams, 2011; Waith-McDonnell, 2004). *Te Whāriki* has been compared with other curriculum documents (e.g., Alvestad & Duncan, 2006; Bennett, 2005; Soler & Miller, 2003) and the bicultural nature of the document has been discussed (e.g., Cederman, 2008; Duhn, 2006; Ritchie, 2005). Furthermore much has been written about how *Te Whāriki* is being used to assess children's learning and this critique has been both positive and negative (see Blaiklock, 2010; Cooper, Hedges & Dixon, 2014; Duncan, Eaton & Te One, 2013; Klopper & Dachs, 2008; Nyland & Alfayez, 2012; Westerveld, Gillon, van Bysterveldt & Boyd, 2015).

Critique of its effectiveness for promoting children's learning and teachers' understandings of its implementation has emerged more slowly. This is despite an Education Review Office report (1998) released two years after the inception of the curriculum that raised concerns about the lack of guidance for teachers in their role in contributing to children's learning. Nevertheless, there are now three major reports undertaken by the Ministry of Education and the Education Review Office, which evaluate the effectiveness of *Te Whāriki* in practice (Education Review Office, 2013; Ministry of Education, 2011; Ministry of Education, 2015). Peer learning is not explicitly mentioned in these reports although they identify the difficulties teachers have experienced implementing the curriculum and effectively assessing how well they are supporting children's learning.

The first review was commissioned by the Ministry of Education and '*An agenda for amazing children*' (Ministry of Education, 2011) provided an overview of the early childhood education sector in New Zealand, describing *Te Whāriki* as a model of best practice, nationally and internationally, but in need of a comprehensive review. In response to the taskforce report, the Education Review Office conducted a national evaluation investigating how effectively early

childhood services across New Zealand were "enacting and reviewing their curriculum priorities" (Education Review Office, 2013, p. 1). Findings were published in two reports and the first, entitled *Working with Te Whāriki* (Education Review Office, 2013), is relevant here.

Working with Te Whāriki (Education Review Office, 2013) identified that 80% of services evaluated were making some use of the curriculum framework and that this was most evident in their philosophy statement and planning and assessment processes. Of the other 20%, 10% were working with *Te Whāriki* in some depth by exploring the underpinning theories and were using it to evaluate their curriculum. The remaining 10% of services were making limited use of the document, it was not well understood by teachers, and was less visible in practice. The evaluation highlighted that most services were not using the document to evaluate or reflect on practice and that *Te Whāriki* "does not provide the sector with clear standards of practice for high quality curriculum implementation" (Education Review Office, 2013, p. 2). It summarised challenges for teachers working with the curriculum document; one being "the implications of having a non-prescriptive curriculum that is reliant on the professional knowledge of those who implement it" (Education Review Office, 2013, p. 2). This report revealed the need for teachers to have support to deepen their understandings and grow their professional practice. As discussed earlier (section 2.7.1), and highlighted in this report (Education Review Office, 2013) the interpretive nature of the curriculum means children's experiences of peer learning are dependent on teachers' knowledge and understandings of this type of learning.

In 2014, the Minister of Education appointed the Advisory Group on Early Learning (AGEL) to recommend improvements to implementing *Te Whāriki* and to recommend strategies for fostering continuity of learning from birth to eight years (Ministry of Education, 2015). The advisory group recommended an update of *Te Whāriki,* identifying the need to strengthen its implementation alongside the need to re-engage teachers with the curriculum document. The advisory group stated that they were "struck by the absence of robust evidence of outcomes from the implementation of *Te Whāriki"* and sought further advice; a commissioned literature review included in the report confirmed their concerns (Ministry of Education, 2015, p. 21). An updated version of the curriculum has since been released (Ministry of Education, 2017) and further research will be needed to see if the increased guidance on intentional teaching results in changes in teachers' practices.

Alongside the release of these national reports, critique has come in the form of a public conversation about the effectiveness of *Te Whāriki* between Dr Ken Blaiklock, tertiary lecturer and the late Emeritus Professor Anne Smith. Both academics released discussion papers in 2013, which were effective in stimulating discussion and debate within the sector. Blaiklock's (2013) critique identified a lack of pedagogical guidance alongside little requirement for teachers to teach or assess key areas of learning as key concerns. Smith (2013) wrote a paper in response to Blaiklock, in which she stated that the curriculum is not intended to be prescriptive and therefore it is vital that teachers know what effective implementation of *Te Whāriki* looks like. She noted that the quality of staff and professional development opportunities were two factors which contribute to high quality learning experiences for children. Smith called for robust research about the implementation of *Te Whāriki* so that teachers could be supported to improve their practices. The debate between these two researchers highlights the importance of teachers being skilled in their interpretation of a non-prescriptive document. Neither researchers specifically identified peer learning as an area for attention in relation to the implementation of *Te Whāriki,* therefore how teachers have interpreted their role in supporting peer learning is unknown and needs investigation.

2.6.3 Summary

This evaluation of *Te Whāriki* has revealed that the curriculum guidelines describe the types of experiences children should have with their peers. Despite this, no specific guidance is given to teachers about promoting and supporting peer learning, apart from ensuring children experience equitable opportunities to learn with and from their peers. Therefore there needs to be some investigation to determine how teachers are fostering this type of learning. Furthermore, there is an acknowledged tension between the developmental notion of learning through exploration and the importance of the collaborative, social nature of children's endeavour (Cullen, 2001; Greenfield, 2002; Nuttall, 2003). This tension could impact on the role teachers' adopt in supporting children's collaborative endeavour and it is important to understand how these different theoretical perspectives influence this aspect of teachers' practice.

The open ended nature of the document requires teachers to interpret their role and this has been recognised as challenging due to the identified lack of pedagogical guidance (Blaiklock, 2013; Education Review Office, 2013; McLachlan, 2006; Smith, 2013). This challenge needs investigation and a key purpose of this study is to explore how teachers are utilising *Te Whāriki* to interpret their role in promoting and supporting peer learning. Next, research around teachers' beliefs and practices, including beliefs about peer learning is explored.

2.7 Teachers' beliefs and practices

The complexities of teachers' beliefs have proved to be challenging for researchers working in this area. This section of the review presents an overview of how researchers have defined beliefs and knowledge and then explores how teachers form their beliefs about teaching and learning. The changing nature of beliefs is discussed and research that examines the relationships between beliefs and practices is evaluated. Research which explores the relationship between the context teachers are working in and the impact it has on teachers' beliefs and practices is critiqued. Finally, research about teachers' beliefs relating to peer learning is considered.

2.7.1 Defining beliefs and knowledge

This section of the review defines teachers' beliefs and knowledge and evaluates the theories and research that explains how teachers form their beliefs about children's learning. Beliefs are thought to be the best indicators of the decisions people make throughout their lives (Bandura, 1986). The current study examines the beliefs and knowledge of early childhood teachers about peer learning; therefore defining these concepts and the relationship between them is vital. In his seminal paper on teachers' beliefs, which he describes as a 'messy construct', Pajares (1992, p. 309) notes "distinguishing knowledge from belief is a daunting task". Other writers have made similar claims (Berthelsen & Brownlee, 2007; Howe, Jacobs, Vukelich & Recchia, 2012; Woolfolk Hoy, Davis & Pope, 2006), whilst Pajares (1992) suggests that the educational research community has been unable to adopt a specific working definition. For the present study, the following definition of teacher's beliefs and knowledge has been adopted: "Knowledge and beliefs are seen as inseparable, although beliefs are seen roughly as referring to personal values, attitudes, and ideologies, and knowledge to a teacher's more factual propositions" (Meijer, Verloop & Beijaard, 2001 p. 172).

Beliefs, values and attitudes comprise an individual's belief system and research needs to provide insight into the relationships between teachers' beliefs and their practices and outcomes for children if it is to be worthwhile (Pajares, 1992). Teachers' beliefs have been closely linked to teachers' practice and therefore the learning experiences children receive (Erdiller Akin, 2013; Saracho & Spodek, 2007). Despite an identified relationship between teachers' beliefs and their practices, studies identify contradictions between beliefs and practices (La Paro, Siepak & Scott-Little, 2009; Sherwood & Reifel, 2013; Spodek, 1987); with beliefs identified as resistant to change (Berthelsen & Brownlee, 2007; Howe, Jacobs, Vukelich & Recchia, 2012). These contradictions may explain Pajares's (1992, p. 307) claim that beliefs are a 'messy construct'. Exploring the relationship between teachers' beliefs about peer learning and their teaching practices to see if such contradictions are present is an objective of the present study. Teachers' beliefs have been described as 'filters' through which experiences are interpreted (Feimen-Nemser, 2001; Nespor, 1987; Zanting, Verloop & Vermunt, 2001) and combined with knowledge, they underlie teachers' intentions about their practice.

Knowledge and beliefs are intertwined in the minds of teachers, and knowledge is an inclusive concept which summarises a variety of cognitions, both conscious and unconscious (Verloop, Van Driel & Meijer, 2001). Fenstermacher (1994) differentiates between two types of teacher knowledge: formal knowledge (comes from research and theory and is knowledge for teachers); and practical knowledge (is developed by and used by teachers). The realisation that teachers' beliefs are based on practical knowledge, which is context related, has resulted in a shift in research towards studying how teachers gain practical knowledge about the craft of teaching (Lara-Cinisomo, Fuligni, Daugherty, Howes & Karoly, 2009; Schepens, Aelterman & Van Keer, 2007; Spodek, 1988). Equally important is identifying and understanding the influences on teachers' beliefs and knowledge about the act of teaching. Both issues are of importance to the present study.

Fein and Schwartz (1982) and Genishi (1992) provide a useful analysis of the way teachers develop their understandings about practice. Genishi (1992, p. 198) identifies "theories of practice" as the theories which underpin the decisions teachers make about curriculum and their role in children's learning. Theories of practice are prescriptive as they guide teachers when

planning learning environments and they recommend how teachers should view development (Genishi, 1992). In contrast, Fein and Schwartz (1982) identify theories of development as descriptive as they explain how development occurs from birth to adulthood. Theories of development do not address the teacher's role in children's learning, nor do they provide guidance on how to set up learning environments. Fein and Schwartz (1982) recommend a reciprocal relationship between theories of practice and theories of development. Despite this recommendation, there is some evidence which suggests a preoccupation with theories of practice amongst early childhood teachers (Genishi, 1992; McLachlan-Smith, 1996).

Harnett (2012) used an action research methodology to explore New Zealand classroom teachers' espoused theories and theories-in-use. Two primary teachers were interviewed and observed working with students and the researcher worked alongside teachers as they examined their own practices and participated in reflective professional development. The interviews uncovered that teachers had "little knowledge or understanding of formal learning theory", focusing instead on describing aspects of their practice such as scaffolding and providing feedback to students (Hartnett, 2012, p. 378). Results saw a shift in teachers' practice away from 'routinised behaviours' having explored their implicit beliefs about their teaching interactions (Hartnett, 2012). This study provides evidence that teachers may need to consciously reflect on their beliefs about practice if they are to consciously make connections between theory and practice.

Similarly, Argyris and Schön's (1974) seminal work on action theories recognises important irregularities between teachers' theorising and their pedagogical practices. Argyris and Schön (1974) classified action theories as espoused theories and theories-in-use. Espoused theories are the theories of action that teachers use to explain their practice to others, whereas theories-in-use are actually what their practices are based upon. Nuttall's (2004) doctoral investigation of curriculum decision-making in an early childhood setting is one example of a study that found the complexities of structural requirements meant teachers developed both theories-in-use and action theories. Nuttall (2004) used qualitative methods to investigate eight teachers' definitions and co-construction of the curriculum in a full-day childcare centre in New Zealand over a period of five months. Teachers drew from a range of theories of teaching and learning when articulating their understandings of curriculum however their decision making was an active process of "professional discrimination" influenced by the context that defined "their

daily reality as early childhood practitioners" (Nuttall & Edwards, 2004, p. 17). These findings suggest teachers' practice is influenced by the setting they work in.

The concepts and theories examined in this section suggest that a complex relationship exists between teachers' beliefs and their teaching practices. There is evidence of contradictions between what teachers believe and what they practice. The concepts of theories of development and theories of practice (Fein & Schwartz, 1982) and espoused theories and theories-in-use (Argyris and Schön, 1974) provide a useful explanation of the different ways teachers think about and articulate their practice. The present study aims to explore teachers' beliefs and theories about peer learning and how these beliefs and theories are enacted in practice in early childhood settings. The next section evaluates research about how teachers form their beliefs with a particular focus on beliefs about peer learning.

2.7.2 How teachers form beliefs

There are three types of experiences that influence beliefs and knowledge about teaching: personal experiences; schooling; and formal knowledge (Richardson, 1996). Research on pre-service teachers has found that they enter teacher education programmes with beliefs about teaching practices that are based on culture and values, childhood experiences and their own education experiences (Aldemir & Sezer, 2009; Borg, 2004; Caudle & Moran, 2012; Garvis, Fluckiger & Twigg, 2011; La Paro, Siepak & Scott-Little, 2009; Sherwood & Reifel, 2010). Preservice teachers' beliefs about teaching and learning are shaped during the many years spent in the classroom and such early experiences of education are powerful (Kagan, 1992; Vartuli, 2005) as they provide beliefs that are resistant to change (Pajares, 1992). This early formation of beliefs is an important factor to consider when seeking to understand the relationship between teachers' beliefs and their teaching practices.

There is some agreement between researchers that teachers' beliefs influence the decisions teachers make, their thought processes and their actions (Chang-Kredl, 2015: Spodek, 1987; Vartuli, 2005). New ideas encountered by teachers are filtered through their existing beliefs and these ideas are then discarded or put into practice (Kagan, 1992). In addition to beliefs about teaching and learning, teachers' beliefs about their own ability to teach impact on their

motivation and resilience when faced with difficult situations. Self-efficacy is built around teachers' perceptions of their own competence (Vartuli, 2005).

Researchers have studied self-efficacy as an important aspect of teachers' beliefs and professional practice (Bhatia, 2014; Chen, McCray, Adams & Leow, 2014; Epstein & Willhite, 2015; Nikolopoulou & Gialamas, 2015; Tschannen-Moran & Woolfolk Hoy, 2001). One example comes from Nikolopoulou and Gialamas (2015), who investigated kindergarten teachers' beliefs and confidence in relation to their use of information communications technology in play based learning. In this study, 190 kindergarten teachers working in Athens, Greece were surveyed and the results showed that teachers who had higher computer self-efficacy had more positive beliefs about the use of information technology. Positive correlations were found between confidence and years of computer experience. Nikolopoulou and Gialamas (2015) identified the need for professional development programmes to ensure teachers' confidence with technology developed. Other studies support this finding, highlighting the need for the provision of ongoing professional development so that teachers have opportunities to experience success and feel supported (Bhatia, 2014; Chen et al., 2014). The present study explores teachers' beliefs about peer learning and how teachers view their ability to enact these beliefs and the factors that support this to happen will be an important area to focus on. In the next section, research about the factors that can result in changes to teachers' belief systems is examined.

2.7.3 Can beliefs change?

Teachers' beliefs have been described as highly resistant to change, especially those that are acquired early on (Pajares, 1992). Despite this, there is evidence of the potential for change with belief systems described as dynamic and shifting in response to teachers' experiences (Sakellariou & Rentzou, 2012). Researchers have investigated the nature of teachers' beliefs over time to examine whether beliefs can change over time, and if so, what causes these changes (Caudle & Moran, 2012; File & Gullo, 2002; Isikoglu, 2008; La Paro, Siepak & Scott-Little, 2009; Vartuli & Rohs, 2009; Wood & Bennett, 2000; Zanting, Verloop & Vermunt, 2001). In addition, there are a group of studies which have examined early childhood teachers' beliefs and these studies suggest that interventions may play an important role in shifting teachers' beliefs (Hamre et al., 2012; McMullen et al., 2005; Pianta, et al., 2005; Spear-Swerling & Brucker, 2004).

For example, Hamre et al. (2012) invited 220 preschool teachers across the United States to take part in a fourteen-week course on effective teacher-child interactions. The delivery of the course teachers participated in was scored for effectiveness and those conducting the video observations underwent training. A control group was used to compare the outcome of the intervention. Teachers answered questionnaires and were videotaped working with children. Results revealed the intervention led to changes in teachers' beliefs, knowledge and practice. Changes in teachers' beliefs were evident in relation to teachers being more likely to report the importance of language and literacy skills for young children and they displayed greater knowledge of these skills. An example of changes in teachers' practice was their use of more effective strategies for facilitating children's higher order thinking skills and supporting children's language development (Hamre et al., 2012). This study illustrates that there is potential for teachers' beliefs to shift if challenged. Nonetheless, the relationship between beliefs and practice has been found to be convoluted and perplexing and the section that follows illustrates research in this area.

2.7.4 The relationship between beliefs and practice

Research has continued to identify inconsistencies and conflicts between what teachers believe and what they practice and these studies are discussed in this section. Recognition of the need to know more about the relationship between teachers' beliefs and practices was acknowledged by Fang (1996), in his seminal review of teacher education research on teachers' beliefs and practices. The review provided a synthesis of earlier research around teachers' beliefs and practices and in doing so highlighted an important theme that was identified as the 'two competing theses' of consistency and inconsistency between teachers' beliefs and practices (Fang, 1996, p. 47).

There is a growing body of research which has investigated the complex relationship between teachers' beliefs and their practices (Brown, 2004; Cheung, 2012; Errington, 2004; McLachlan-Smith, 1996; Nuttall, 2004; Pajares, 1992; Rivalland, 2007; Stephen, 2010; Varol, 2013; Wen, Elicker & McMullen, 2011). The common findings from these studies is the tension, or conflict, between teachers' beliefs and their practice. One example comes from Rivalland (2007), who investigated the relationship between teachers' beliefs and practices and how they articulated

their beliefs about learning and teaching. Rivalland used a qualitative case study involving three early childhood teachers working in a centre in Australia. The research was carried out over three months using document analysis, observations and teacher interviews, and found that aspects of the teachers' beliefs were aligned with centre documentation (e.g. philosophy statement and programme planning documents), and yet there were variations in interpretation. Some of these variations were found to indicate underlying tension between teachers' beliefs and their practice. Although teachers were found to adhere to the centre philosophy when articulating their practice, teachers' personal beliefs meant that the centre discourses were not always automatically evident in practice (Rivalland, 2007).

Despite there being a number of studies that examine the relationship between teachers' beliefs and practices, less attention has been paid to the relationship between beliefs and intentions (Sakellariou & Rentzou, 2012; Wilcox-Herzog & Ward, 2004). Intentions relate to a person's desire to engage in a particular behaviour and are said to mediate the relationship between beliefs and action (Ajzen, 1989). Whilst some studies investigating teachers' beliefs about teacher-child interactions found beliefs predict intentions (Sakellariou & Rentzou, 2012; Wilcox-Herzog & Ward, 2004), Blay and Ireson's (2009) research showed that beliefs and intentions were only sometimes aligned.

Blay and Ireson (2009) videoed four teachers in two nursery classrooms as they planned and carried out cooking activities with young children. The activities involved baking, making fruit salad and sandwich preparation. Teachers were subsequently interviewed and the analysis of the interviews revealed how the teachers' pedagogical beliefs and intentions informed the nature of the activities offered and the interactions that took place. Results found differences in teachers' stated and enacted beliefs in some, but not all, of the cooking activities. In the baking activities, teachers took on the role of experts and the children therefore became novices who relied on the teachers' expertise. During the sandwich making and fruit salad preparation, teachers were resources for the children and consequently the children were more autonomous and independent and only asked for assistance from the teachers when needed. Teachers perceived that the baking activities necessitated a higher level of adult control than the sandwich making and fruit salad preparation.

Contradictions arose however, as although teachers stated their preference for self-directed activities they recognised that their role in the baking activities did not reflect this belief and justified their practice in the interview. The teachers were uncomfortable when questioned about the amount of control they had in the baking activity and yet found ways to justify their role. Their justification was that there was a particular process that needed to be followed to produce the desired end result and teachers needed to control that process. Also they claimed that the baking activity exposed children to different ways of working and it complimented the more child-directed activities such as the fruit salad making. The findings highlighted the tensions between stated and enacted beliefs (Blay & Ireson, 2009). Although this study was small in scale, the methodology employed (observational study of naturally occurring activities amongst groups of children) has been recognised by the authors as allowing a richer understanding of the phenomenon rather than the more hypothetical tasks and dyadic interactions that have previously been reported (Blay & Ireson, 2009). Other studies have also identified the role of the setting teachers are working in as influencing their beliefs. This important factor is examined in the next section.

2.7.5 The teaching context and its influence on teachers' beliefs and practices

There is clear evidence in the existing research that teachers' beliefs and practices are influenced by the context teachers' work in (Corrales, 2012; Rivalland, 2007; Wood & Bennett, 2000). Teaching contexts have been described as "an important element in teacher learning, and a significant mediator between teachers' knowledge and practice" (Wood & Bennett, 2000, p. 636). Several researchers (Goodfellow & Sumison, 2003; Rivalland, 2007; Rogoff, 1998) have suggested beliefs and practices cannot be decontextualised, nor studied as separate entities. This view is reiterated by Woolfolk Hoy, Davis and Pape (2006), who organised their seminal review of teachers' knowledge and beliefs around Bronfenbrenners' (1979) ecological systems model, which defines individuals as embedded in different ecosystems. Teachers' knowledge, beliefs and practices were seen to be influenced by the teaching setting as the immediate context they work in and by the larger context of government policies and the surrounding context of cultural values and norms (Woolfolk Hoy et al., 2006).

Several studies that examined early childhood teachers' beliefs and practices have identified contextual factors as influencing their beliefs and practices in some way (Cheung, 2012;

Leaupepe, 2009; Little, Sandseter & Wyver, 2012; McClintic & Petty, 2015; Papadopoulou et al., 2014; Salamon & Harrison, 2015). Other studies identified structural factors such as the physical environment (McClintic & Petty, 2015), regulatory requirements (Little et al., 2012) and the philosophy of the early childhood centre (Salamon & Harrison, 2015) as impacting on teachers' ability to enact their beliefs about teaching practices. In one example, Papadopoulou et al. (2014) identified inadequate space, big group size and high teacher/child ratios with high staff turnover as factors that impacted on teachers' ability to effectively enact their beliefs around supporting children's socioemotional development. Papadopoulou et al. (2014) used focus groups with 34 educators working in childcare centres in Greece. Teachers identified the importance of children being able to form and maintain friendships and to co-operate with their peers, to share, take turns and regulate their emotions. However, analyses of teachers' self-reported practices in the focus groups revealed efforts to support children's socioemotional development were incidental and not part of a planned strategy. In addition to the structural factors identified above, teachers identified a lack of centre wide policies and practices to support teachers to promote social and emotional development.

There are other factors which influence the ability of teachers to practice their beliefs and there is evidence that suggests teachers' colleagues are an important source of influence (Nuttall, 2003; Wilcox-Herzog & Ward, 2004; Wood & Bennett, 2000). Wood and Bennett (2000) used qualitative methods with nine early childhood teachers in seven schools in the southwest of England to explore their theories and practices of play. The teachers taught in reception classes with children aged four to five years. Data collection included interviews, observations using video and stimulated recall interviews. Teachers reported that viewing their practice was confronting as they identified the inconsistencies between their intentions and their actions. Findings revealed the role of experience and ongoing professional learning in teachers' evolving understandings of their role in play. A key finding was that teachers either over or underestimated children's social and cognitive competencies and this lead to the realisation that teachers needed to reconsider their role in children's play. The teachers' role in play was discussed amongst the group and the more experienced teachers were able to assist the novice teachers by sharing their knowledge and experiences. Teachers learnt from each other and they benefited from the theoretical and practical knowledge that existed amongst their colleagues (Wood & Bennett, 2000). The findings emphasise the role of teaching colleagues in extending teachers' own knowledge and understandings of their practice.

Lave and Wenger's (1991) theories of the social nature of learning and the metaphor of 'apprenticeship' (Bruner, 1983; Rogoff, 1990) provide a theoretical explanation for these findings. In apprenticeship, newcomers take an active role as they learn to participate with others in a community "in which people engage in culturally organised activity" (Rogoff, 1995, p. 143). Lave and Wenger (1991) theorise that common understandings and shared ways of thinking are developed within 'communities of practice'. Wenger's (1998) term 'community of practice' describes learning as an active process of meaning-making and participation in the experiences and practices of knowledge communities. Participation can be a positive or negative experience for teachers if they do not adopt the shared understandings and practices of the community (Wenger, 1998). Because teachers in early childhood centres work together in teaching teams, they naturally form learning communities and new teachers are apprentices who learn from existing members. These ideas highlight an area of relevance to the present study in relation to whether teachers form their beliefs about peer learning as they participate in communities of practice. This study may provide evidence to answer this question.

One explanation for the influential role of early childhood communities of practice on teachers' beliefs is the presence of power relationships within educational settings and 'regimes of truth' (Foucault, 1980, p. 131). Foucault (1980) described regimes of truth as conventions that organise our everyday experience of the world and influence our thoughts and actions while putting boundaries around what is seen as the truth. However, they may also exclude alternative ways of understanding and interpreting the world. Dahlberg, Moss and Pence (2006) highlight the example of child development theory as providing concepts and categories that become the means by which teachers may construct a view of the child, which can exclude perception of social and cultural differences in children. The regimes of truth which operate in communities of practice can be both positive and negative influences in relation to how teachers enact their beliefs about children's learning (Wenger, 1998). The idea of regimes of truth as a source of influence on teachers' practices related to promoting and supporting peer learning is an area for investigation in the present study.

An example of the complexities which arise when various regimes of truth operate in an early childhood setting was found in Nuttall's (2004) doctoral study of curriculum negotiation. Nuttall attended staff and professional development meetings, analysed curriculum documentation and observed and interviewed teachers in a New Zealand childcare centre over a five-month

period. Teachers referenced a number of theories about how children learn during planning meetings. Some of the theories described by the teachers proposed contradictory ideas about the role of the teacher; for example, teachers drew from both developmental and sociocultural ideas when discussing curriculum approaches. These varied understandings influenced teachers' enactment of their role in a number of different ways. One example observed was the way teachers negotiated their different understandings of the centre rosters. Findings revealed tension between teachers' desire to actively support children's learning and the need to adhere to the centre routines which were clearly outlined in the duty rosters. Nuttall's (2004) research demonstrates that teachers' enactment of their role is influenced by the discourses that dominate the particular setting teachers work in. An objective of the present study is to investigate how teachers' beliefs about peer learning are enacted in their practice and therefore the role of existing discourses in influencing their practice is a factor for consideration.

2.7.6 Teachers' beliefs about peer learning

There is little research investigating early childhood teachers' beliefs about peer learning. Kemple, Hysmith and David (1996) were some of the first researchers to examine early childhood teachers' beliefs about promoting peer competence. They noted, "The dearth of empirical evidence concerning teachers' beliefs about facilitating social competence with peers represents a significant gap in the literature" (Kemple et al., 1996, p. 146). It was difficult to locate any recent studies which explored teachers' beliefs about peer learning, however there is a growing body of literature investigating teachers' beliefs about promoting socio-emotional development and these studies include peer interactions (Coplan, Bullock, Archbell & Bosacki, 2015; Lara-Cinisomo, et al., 2009; Papadopoulou et al., 2014; Rosenthal & Gatt, 2010). Teachers' beliefs about the role of peers in relation to children's socio-emotional development is partly examined within this area of research. The present study is timely, as little is known about early childhood teachers' beliefs and their use of strategies for promoting social competence (Han, 2012; Kim & Han, 2015).

Davis and Degotardi (2015) studied teachers' beliefs and pedagogical practices relating to infant peer relationships. Using case study design with interviews and filmed observations of three early childhood infant educators, they identified that teachers' in-depth beliefs about children's capacities did not translate into practice. Teachers believed that infants were inherently capable

of engaging in social interactions with peers and in forming relationships with them. Although teachers recognised the importance of their role in extending children's interactions and social play, they were 'passive' in the teaching role. Teachers believed in spontaneous play experiences and their responses "lacked any strong references to intentional teaching" (Davis & Degotardi, 2015, p. 73). This study is an example of inconsistencies between beliefs and practice and a lack of use of intentional teaching strategies to support peer play.

Studies exploring teachers' beliefs around social competence have revealed beliefs in the importance of social and emotional skills, but a lack of identification of planned practices that promote children's competence in this area (Kim & Han, 2015; Papadopoulou et al., 2014; Rosenthal & Gatt, 2010). Rosenthal and Gatt (2010) implemented a training programme for promoting social emotional competence with a group of 82 early childhood teachers across twelve early childhood centres in Israel. The programme gave teachers opportunities to explore their beliefs and practices about children's social and emotional development (Rosenthal & Gatt, 2010). The programme came about after recognition that teachers were poorly prepared for their role in supporting children's social and emotional competence (Rosenthal & Gatt, 2010). Following the programme, teachers were observed engaging in strategies that promoted group entry and conflict resolution skills, as well as offering more verbal and emotional support to children. The ability to enter groups successfully and negotiate play with peers were identified through observation as important skills for sustained and effective peer interactions (Rosenthal & Gatt, 2010). This study had identified the need for teachers to have support with this aspect of their practice. In sum, the studies examined in this section highlight that what is missing from the literature thus far is in-depth investigation of teachers' beliefs about peer learning.

2.7.7 Summary

Research examined in this section conveys a complex array of factors which impact on the beliefs teachers have. Teachers' beliefs do have the potential to shift (Sakellariou & Rentzou, 2012) and investigating the interactions between beliefs and practices within various contexts is an important role for the research. The concepts of theories of development and theories of practice (Fein & Schwartz, 1982) and espoused theories and theories-in-use (Argyris and Schön, 1974) are useful explanations for highlighting the differences between teachers' beliefs and their daily practices. These concepts could help to explain the enactment of the teachers' role

in supporting peer learning and this is an area that is missing from the literature thus far. The review has identified the context teachers work in as an important factor that can influence teachers' enactment of their beliefs about how children learn (Nuttall, 2004; Wilcox-Herzog & Ward, 2004).

The review has found little research into teachers' beliefs about peer learning, therefore it is an area in need of investigation. The research reviewed identified inconsistencies in teachers' practices and a lack of intentional practice in this area. This thesis will provide evidence of how teachers are supporting and promoting peer learning and will go some way to addressing this disparity. The last section of the review summarises the important ideas and research findings in the current body of literature about peer learning and identifies the areas that need investigation. The chapter concludes with the research questions for the current study.

2.8 Summary

This review has assessed historical ideas of child development and the theories which have contributed to our understanding of how children's thinking develops, particularly in relation to learning with others. Early philosophers identified play as a vehicle for learning, while the idea that children can learn from each other during play was found to have its origins in the work of Froebel, Dewey and Mead. These early thinkers identified the teacher's role in creating opportunities for co-operative play, but that the nature of the teachers' role in children's learning is a complex area.

The literature reviewed reveals strong theoretical support for peer learning; constructivist theories being of particular relevance to the present study. Piaget's and Vygotsky's theories were found to provide convincing, but contrasting explanations for peer learning. How these theories have influenced teachers' beliefs and practices related to supporting peer learning in New Zealand early childhood settings needs some investigation as this was found to be an understudied area. In addition, Bandura's (1977) theory of observational learning recognises the important processes of imitation and modelling, which are important means by which children learn from their peers. However little evidence was found of teachers' beliefs about observational learning, therefore this aspect of teachers' beliefs needs to be examined.

The review found that teachers' beliefs about children's learning are formed from their own early experiences of education and study and that these beliefs can shift over time. However once teachers are practising, the settings they are working in were found to become an important source of influence in relation to their beliefs about children's learning. Specifically, teachers' colleagues, the centre philosophy and the existing discourses in communities of practice were found to influence both beliefs and practices. Despite this evidence, what is missing from the literature thus far is what influences how early childhood teachers form their beliefs about peer learning. In sum, teachers' beliefs were identified as a complex area for researchers and the research evidence has found conflict between teachers' beliefs and practice. In addition, there is a dearth of inquiry into teachers' beliefs about peer learning in particular, making the current study timely and relevant.

The empirical research contained a large body of evidence of peer collaboration and peer tutoring amongst young children in a variety of settings. The literature emphasised the important role of adults to provide collaborative environments that promote children's agency in their peer interactions. Despite this, the literature highlighted conundrums related to the intentional nature of the teacher's role in peer learning. Teachers were found to be reluctant to express intentionality, despite evidence suggesting intentional teaching was important for children's learning to be maximised. There needs to be an investigation into whether teachers in early childhood settings are deliberately promoting and fostering peer learning and if so, how they are doing this.

The current body of evidence in early childhood settings about peer learning mainly identifies the strategies teachers use to support children to engage with rather than learn from their peers. How children's peer play can result in peer learning needs further investigation. Furthermore, the role of the teacher in relation to child initiated play and teacher directed learning was found to be complex and in need of better understanding. Therefore there needs to be an enquiry to determine the strategies teachers use to foster peer learning during play. Also how teachers support children to initiate peer learning and whether they direct this type of learning.

A critique of the research related to the curriculum document *Te Whāriki* (Ministry of Education, 1996) found evidence of the idea of children learning from their peers as active contributors in play based settings. Despite this, a lack of specific guidance for teachers to support this type of learning was identified. In addition, researchers have drawn attention to the theoretical challenges inherent within *Te Whāriki*. What is missing in the literature thus far, is evidence of how teachers are using *Te Whāriki* to guide their support and promotion of peer learning.

In response to these questions arising from the research literature, the proposed study aims to explore teachers' beliefs and practices related to peer learning, increasing our understanding of this aspect of children's knowledge. A number of questions have arisen from this review of the literature and these questions have formed the basis for this study. The research questions are as follows:

- What beliefs and knowledge do teachers have about peer learning?
- How do teachers form beliefs about how children learn?
- What do teachers understand is their role in peer learning?
- Do teachers promote opportunities for children to adopt expert roles with their peers and if so, how?
- How does *Te Whāriki* guide teachers' practice in relation to peer learning?

The next chapter outlines the methodological considerations relevant to the present study and describes the methods used to investigate teachers' beliefs and practices related to peer learning in early childhood settings.

Chapter Three: Methodology

3.1 Introduction

Conducting educational research highlights the presence of diverse, multiple perspectives on the world. Individuals interpret events differently according to the values and perspectives they hold. "Understanding these aspects of the connections between the knower and the known modifies the very way we approach knowledge, research design, research method and interpretation" (Kincheloe & Tobin, 2015, p. 7). This chapter describes the research design for this investigation into early childhood teachers' beliefs and practices related to peer learning. Initially, the epistemological and theoretical perspectives that underpinned the study are described, followed by a discussion of the mixed methods approach adopted for this research. The methods used to collect the data are then justified and discussed. The research procedures are outlined within this discussion, including sampling decisions and gaining consent from participants. Careful consideration was given to the selection of the research sites and the reasons for this are explained, including a description of the early childhood centres involved. Ten early childhood teachers participated in the study and they are introduced alongside the description of their centres. The chapter then defines and explains the procedures for data analysis including the mixing of the qualitative and quantitative data. Finally, the ethical considerations relevant to this study are explained.

3.2 Methodological approach

3.2.1 Epistemological perspective and theoretical framework

The epistemological position underpinning this study was that of constructionism which considers that meaning is not discovered, but constructed by engaging with the realities in our world (Crotty, 1998). This particular theory of knowledge determines that realities are constructed by individuals rather than being objectively observed (Springer, 2010). Constructionism was an appropriate foundation for this study as the work of early childhood teachers takes place within a social milieu, and the teachers' role is shaped by their interactions with others as they engage in their day-to-day practice. The philosophical stance of interpretivism was relevant to this study also, as it is concerned with understanding (verstehen) and explaining human reality (Crotty, 1998). In addition to investigating teachers' beliefs about how children learn from each other, this research sought to understand how these beliefs and knowledge were translated into their practice within early childhood settings.

Within the epistemological view of constructionism is a set of ideas called constructivist theories. Crotty (1998) explains that constructionism focuses on culture and the collective generation of meaning, whereas constructivism focuses on the meaning making within the individuals' mind. The view of children as active learners underpins the constructivist theories which formed the key theoretical framework for this study. The focus of the study was how teachers support young children to jointly construct knowledge and constructivist theories explain the process of knowledge construction. In particular, the theories of constructivists Piaget (1952) and Vygotsky (1978) are most relevant to this study as they viewed knowledge construction as an active process which occurs in a social context. This theoretical framework informed the methodology adopted, grounding the logic and criteria for this choice (Crotty, 1998).

3.2.2 Mixed methods

In designing the current study, a mixed methods approach was identified as being the most relevant for the particular questions this study posed. Creswell (2015, p. 2) states that it is an approach in which the researcher "gathers both quantitative (closed-ended) and qualitative (open-ended) data, integrates the two, and then draws interpretations based on the combined strengths of both sets of data to understand research problems". Using both quantitative and qualitative approaches provided a more comprehensive approach to answering the research questions than if either approach was used on its own (Creswell & Plano Clark, 2011; Springer, 2010). In addition, the use of quantitative research methods in early childhood in New Zealand is relatively recent in studies of this type; therefore the use of a mixed methods design will make a useful contribution to the types of research conducted and data collected in New Zealand early childhood settings.

Within the mixed methods approach, a QUAL/quan two-phase exploratory design was used (Creswell, 2015). The first phase of the research comprised of multiple case studies and phase two consisted of a nationwide survey. The sequential nature of this particular design allowed teachers' voices to be heard and their experiences to be understood; these perspectives and understandings were then tested in a wider population. Teachers' beliefs have been termed a 'messy construct' (Pajares, 1992, p. 307) and therefore the application of predominantly qualitative methods was a suitable means of exploring a complex phenomenon. The use of

mixed methods in this study helped create a 'synergistic' effect whereby the results collected from the use of qualitative methods informed the quantitative part of this study (Hesse-Biber, 2010, p. 39). An exploratory design was particularly relevant in this instance because there was no guiding framework for the survey and the possible variables were unknown (Creswell & Plano Clark, 2011).

There are some challenges for researchers using the exploratory sequential design, for example the time needed to implement a two phase design. In this study, the time to implement each phase of data collection was carefully planned for. The need for different sampling procedures to avoid questions of bias in the quantitative phase and decisions about which data to use from the qualitative phase to build the quantitative instrument were key considerations in this study. Decisions were made about the weighting of the quantitative and qualitative data strands and which had priority. As the study focus was teachers' beliefs and practices, qualitative methods were prioritised as they are the most appropriate for exploring multiple perspectives of a particular phenomenon. Finally, difficulties can arise with this particular design when building from the qualitative to the quantitative phase of the research, as qualitative findings need to be translated into items and scales to enable measurement (Creswell, 2015; Creswell & Plano Clark, 2011). Piloting the survey and consulting experienced researchers when designing the survey helped to address this concern.

The level of interaction between qualitative and quantitative methods is the most critical decision in a mixed methods study (Greene, 2007). In the current study, the mixing of the data occurred at the point of analysis of the case study results and subsequent survey design. The quantitative component of this study assisted in the interpretation of the qualitative findings, enabling the qualitative findings to be tested and generalised to a wider sample, thus providing a more complete picture of the questions being investigated (Hesse-Biber, 2010). Using both quantitative and qualitative data methods identified generalisations as well as in depth knowledge of participant's understandings and experiences. In addition, qualitative methods capture the voice of participants, whilst quantitative methods mean conclusions can be drawn in relation to large numbers of people (Creswell, 2015). The use of mixed methods for this study significantly strengthened the overall design and ensured a comprehensive response to the research questions.

3.2.3 Summary

This section has identified constructionism as the epistemological view that has informed the design of this study. Constructivist theories are a group of ideas within constructionism that provide an explanation for how children's thinking develops. Constructivist theories formed the theoretical framework adopted for this study and are relevant because they explain how individuals make meaning. Finally the use of a mixed methods approach was justified in relation to the research topic. The next two sections (3.3 and 3.4) introduce and justify the methods adopted for this study. Included is a description of the procedures for collecting the data for both the case studies and the survey.

3.3 Phase one - Case studies

3.3.1 Multiple case studies

Case study is defined by Yin (2014, p. 18) as "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 method was chosen for the current study because it allowed consideration of the context within which early childhood teachers enact their beliefs around peer learning. Understanding this relationship was important because the overall aim of the research was to explore teachers' beliefs about peer learning and to discover how these beliefs were connected to their practice. Case study investigates the complex, dynamic nature of relationships and events, providing a rich, detailed description of a particular setting or event (Denscombe, 2014). This detailed approach was particularly suitable for this study, as it provided opportunities to gain valuable insights into the complexities of teachers' beliefs and practices.

The current study involved the collection and analysis of data from ten teachers across three early childhood centres. The unit of analysis or case in this study was defined as the teacher and the phenomenon being studied was teachers' beliefs and practices related to peer learning. The research questions focused on the teachers' understandings about peer learning and their practices. This helped to define the teachers as the unit of analysis while also helping to define the relevant information to be collected about each teacher. The early childhood centre clearly defined the context for the case study. Cases are dynamic and progressively focused in that the organising concepts may alter as the study progresses (Stake, 2006). In this study, the role of the

centre philosophy in influencing teacher's beliefs and practices became evident, therefore understanding the centre's philosophy and comparing these for similarities and differences across the three early childhood centres helped to better illuminate the phenomenon being examined.

The validity of case studies is an important consideration and Yin (2014) identifies external validity as being a major barrier for researchers doing case studies. To address this issue in the current study, multiple cases were used to help establish the validity and stability of the findings and to ensure the study was robust (Merriam, 2009; Yin, 2014). In addition to ensuring robustness, interviewing and observing early childhood teachers in three different settings created opportunities to better understand the impact of the teaching environment on teachers' beliefs and practice. The role of the environment in influencing teacher's beliefs and practices was identified as an important factor when the literature was reviewed (Nuttall, 2003; Salamon & Harrison, 2015; Wood & Bennett, 2000). Each case study provided the opportunity to gather data from multiple sources and this was important for facilitating the validation of the data through triangulation (Denscombe, 2014; Stake, 2006).

In the current study, there was familiarity with the field and with the topic being researched. Knowledge of early childhood centres was advantageous to understanding how they operated and therefore the protocols of being in this particular setting were familiar ones. However, familiarity with the field can be disadvantageous as it has the potential to create bias. The question of whether qualitative researchers should be members of the population they are studying has been much debated (Dwyer & Buckle, 2009). There are advantages to being an 'insider' (member of the population being studied) as it can allow researchers more complete acceptance by their participants (Dwyer & Buckle, 2009). Also, it has been suggested that the choice of research paradigm is influenced by the values and beliefs of the researcher, challenging the notion of a value-free objectivity in educational research (Hartas, 2010). In an attempt to partly address this concern, the case studies were conducted in early childhood education centres, in which I haven't worked, so that my own experiences, beliefs and assumptions about kindergartens did not prejudice any aspect of the research. Another strategy to mitigate possible bias is to provide a reflexive account which identifies the researcher's identity, values and beliefs, and the likely impact on the research (Denscombe, 2014). In this study reflecting on

previous relationships with some of the teachers and being aware of how this might bias the research process required conscious thought and written reflection in the field notes.

The case study method has previously been utilised in research exploring teacher's beliefs and practices (Cheung, 2012; Davis & Degotardi, 2015; Harnett, 2012; McClintic & Petty, 2015; Rivalland, 2007; Wood & Bennett, 2000), although there is critique of its usefulness. The most prominent criticism of this method is the lack of generalisability due to small sample sizes (Denscombe, 2014); a limitation acknowledged by researchers (Cheung, 2012; Davis & Degotardi, 2015). However, Stake (2006) claims that a strength of case studies is that they discover and portray multiple perspectives, rather than generalise findings. He maintains that contradictions (differences) and similarities found in the data may in fact help understand a phenomenon (Stake, 2006). This study sought to explore differences and similarities in teachers' practices across three early childhood centres to better understanding the role of the centre milieu in shaping teachers' support of peer learning.

3.3.2 Selecting the cases and the research sites

The data for phase one was gathered from ten teachers across three different early childhood centres. Stake (2006) outlines three main criteria for case selection: is the case relevant to the phenomenon being studied; do the cases provide diversity across contexts; and do the cases provide an opportunity to learn about complexity and contexts? Careful attention was paid to these criteria when selecting the early childhood teachers and centres, to ensure not only relevance, but diversity in settings. Stake (2006) states that careful selection of cases means a diversity of experiences and contexts can be incorporated into the study. Therefore, purposeful sampling was utilised in the first phase of this study to ensure the collection of information rich data and to display a wide variety of instances to illuminate the research question (Denscombe, 2014; Onwuegbuzie & Collins, 2007).

The three early childhood centres approached were all local centres for ease of access during the data collection process. Reports from the Education Review Office were accessed to ensure the centres were situated in a range of socioeconomic communities and were centres that grouped children of mixed ages (from 2 to 5) together. Mixed ages have been found to be a factor in opportunities for peer learning (Prendergast, 2002). In addition, Education Review

Office reports were used as these provided information about the type and quality of programme operating within each early childhood centre. Centres needed to offer a curriculum based around sustained opportunities for child initiated play. This would allow the observations to be undertaken as the children played uninterrupted with their peers; this was important if teachers' sustained involvement and use of specific teaching strategies to support peer learning were to be recorded. Finally including early childhood centres who operated under different management structures was considered, as this increased the likelihood of the presence of different centre philosophies and ways of working (one centre was an incorporated society, one was a family owned, privately run centre, and the other was a community based, not for profit centre).

When selecting the case study centres, the initial approach involved sending a letter of invitation to each centre so that teachers did not feel pressured to participate in the same way they might if a phone call was the initial means of contact (see Appendix A). It was important to ensure teachers did not feel compelled to participate and providing written information ensured participants had detailed information about the study and could then make an informed decision about participation. Other researchers conducting doctoral research in New Zealand early childhood centres have made the initial approach to services in the same way (Aspden, 2014; Cherrington, 2011). The statement of ethical approval from the Massey University ethics committee was included in the letters inviting participation and the information sheets distributed to teachers and parents. One centre responded via email and the other two were followed up with phone calls. All three centres initially approached agreed to participate in the research.

Conversations with centre supervisors took place about which teachers might like to participate in the interviews and observations. These teachers were approached and more in depth discussion about the study occurred. Teachers then signed consent forms once their questions had been answered (see Appendix B). Equally important, teachers needed to commit their time to be interviewed and observed and needed to be willing to discuss their practice; they needed to display an interest in the research topic. These particular attributes formed the selection criteria for teachers participating in this study. Having a certain amount of teaching experience was not considered to be necessary, and consequently two of the ten teachers who participated in the study had very recently gained their teaching qualification.

3.3.3 Gaining consent and entering the centres

As the case studies involved young children, there were particular considerations that needed to be adhered to. As the children involved in the observations were under the age of five, parental permission was sought. Information letters and consent forms for parents were given to teachers at their request (see Appendix C). The supervisors in each centre shared the information letters and consent forms with parents. A few parents wrote good luck messages on their consent forms and they were welcoming during the time when observations were being carried out. No parents had questions and only one refused permission for her child to be filmed. When conducting the observations, ongoing assent from children was sought and any questions that the children had were fully answered. Harcourt and Conroy (2005) highlight the importance of respecting the child's right to participate or to decline. They also describe the dilemma that researchers can never really be sure that children have completely understood the request to participate in the research.

After agreeing to participate in the study, two of the centres requested attendance at their next staff meeting to present an overview of what the study was about. The other centre suggested an initial meeting with the head teachers in each of the two interlinked centres where data collection was going to occur. These meetings were valuable for meeting all of the staff and establishing a rapport with teachers. Once these initial meetings had occurred, familiarisation visits were organised. These consisted of two hours at each centre three times over the period of one week. Time was spent playing with the children and talking with the staff and any interested parents. These initial visits helped develop relationships with the teachers being interviewed and established a level of trust (Denscombe, 2014). It was possible to observe the daily rhythm and routine of each centre and to become familiar with the environment in relation to conducting the filmed observations. The visits also gave time for teachers to gain parental consent and to ensure teachers were familiar with the aims of the study.

3.3.4 Case study participants and research sites

3.3.4.1 Centre A

Centre A consisted of four interlinked centres that operate under one management system. Five teachers across two of the four centres expressed interest in participating in the study. Ariana

had been teaching for approximately 15 years and was a senior teacher in the section she was working in. A very active teacher, Ariana particularly enjoyed working outside with the children. Her colleagues Bernadette and Natasha also agreed to participate and they had between 5 and 10 years' teaching experience between them. Bernadette was keen to explore how she supported children to learn from each other and Natasha expressed a similar viewpoint. All three teachers had worked in a variety of settings in the early childhood sector and had worked together at the centre for a few years. In the other section, Daniel had recently completed a teaching qualification and had just begun the two-year teacher registration process required of all New Zealand teachers. As a new graduate who had studied research as part of his undergraduate degree, he was very keen to be involved in the research project. His colleague Caitlin was initially quite nervous about being observed, but was persuaded to participate by one of the centre managers. Caitlin had been teaching for around 5 years and was curious about the research topic. The two centres involved in the research were both licensed for 35 children over the age of two. All four centres operated as a self-described 'Community of Practice' working in close partnership with parents. The programme was based around a 'Community of Inquiry' approach that fosters children's learning dispositions and encourages collaboration amongst children and teachers.

The philosophy statement, which teachers proudly shared, described a community of researchers' programme which underpinned teachers' practice across these two centres. 'We provide holistic experiences, reflective of the principles of *Te Whāriki*, that foster skills and strategies for life-long learning. Interest, curiosity, confidence, creativity, exploration and collaboration are encouraged through reciprocal relationships, active listening, and reflective teaching, as well as through a rich, thought-provoking environment'. Central to the centre philosophy was the image of children as human beings, not human 'becomings'. Teachers adapted aspects of the Reggio Emilia philosophy to teaching and learning, fostering a rich, positive image of children who are seen as capable and competent.

Within Centre A, both centres involved in the research had given careful consideration to the physical environment. Each centre contained interesting spaces that were rich in the core curriculum experiences and encouraged children to become active researchers learning with and alongside each other throughout the day. Teachers had carefully arranged resources to provoke children's thinking and to encourage exploration and experimentation. Children played

uninterrupted as there were no set group times to interrupt the flow of the play. Unless they were rostered to be in the sleep room or to be changing children, teachers positioned themselves outside or inside depending on the particular investigation or project they were working on.

3.3.4.2 Centre B

Centre B was a privately owned early childhood centre that had five centres operating under one umbrella. The preschool where data collection occurred was licensed for up to 43 children over two years of age. Three teachers from the preschool expressed an interest in participating in the study. Tatiyana was an experienced head teacher of the preschool and was very keen to be involved in the study. She expressed the importance of constantly reflecting on practice and viewed the research as an opportunity to grow her teaching team, encouraging other teachers to be involved. Consequently both Paula and Anna agreed to be interviewed and observed. Paula had a keen interest in sustainability and gardening and had just attended her graduation ceremony earlier in the year. Anna had just gained a teaching qualification and was about to begin the two-year teacher registration process. She had recently secured a teaching position at the centre and was excited to be embarking on a career in the teaching profession. All three teachers worked together closely in the preschool section of the centre. The centre philosophy described teachers and children as unique individuals who are 'learners leading learning'. Families were invited to be active partners in the learning community and the environment was described as rich in resources and stories that celebrate diverse backgrounds, culture and developing identities. The philosophy statement described the curriculum as 'strongly influenced by schema learning theory along with *Te Whāriki*'. Respectful, responsive relationships were highlighted as creating a safe and secure platform where children are empowered to take risks in their learning and to explore and engage in new experiences. Resilience was actively promoted and the environment was rich with open-ended resources for children to explore their working theories alongside their peers.

Children experienced opportunities for sustained play throughout the day, as there were few scheduled group times where all children came together. Teachers actively supported children's interests through the provision of resources and opportunities for group play. Emphasis was placed on using resources to explore children's ideas over a period of time and children were taught to respect what their peers might be working on. During the data collection process

children were establishing a vegetable garden and this provided many opportunities for children to learn together and from each other. Teachers incorporated the language of schema learning theory into their conversations with children and children were encouraged to give their peers feedback on their learning using this language. A group time once a week for children over the age of four was a focus for providing fun group experiences for children to actively participate in together.

3.3.4.3 Centre C

Centre C operated as part of a community services trust and was licensed for up to 45 children including 20 under the age of 2. The trust had an overarching philosophy of empowering its community to identify its own needs, resources and solutions. The centre staff worked closely with community agencies to ensure particular needs of families were met. Two of the teaching staff indicated they wished to participate in the study. Heather had been teaching for over ten years and was regarded as a senior teacher in the centre. Her colleague Kathy had graduated with her teaching qualification two years ago and both teachers believed strongly in working closely with families, to support the aspirations they have for their children. Heather and Kathy expressed their interest in participating in the study during the staff meeting at which the research was initially presented. The central philosophy of this centre included the belief that parents are their child's first and most important educators. The centre was run by trained and qualified staff and parent educators who were specially selected for this role; some of these parent educators moved into teacher education. The philosophy statement referred to children and families discovering their own learning potential. In addition, the programme was founded on Christian principles and empowered teachers and families to embrace all that is Māori; *Te Whāriki* was used for planning purposes. At the time of data collection more than half the roll were Māori and some of the children came from Pasifika nations. The centre celebrated the rich cultural diversity present in the surrounding community and this was reflected in its inclusion of whānau (families) and use of te reo Māori (Māori language).

Children from families attended together and there was no segregation by age apart from some excursions and activities which were designed for three to five year olds. There were many opportunities for children to play together for uninterrupted periods of time. At the start of each day, everyone came together to begin the day in a way that was culturally appropriate for Māori: with karakia (prayer), mihimihi (introductions) and waiata (songs). Children experienced a

variety of activities and the environment was inclusive of all children. Older children were encouraged to support younger children in their learning and they took leadership roles during mihimihi (introductions) time and kapahaka (dance). Teachers worked closely with children and families to ensure their interests and strengths were catered for and extended.

3.3.5 Semi-structured interviews

3.3.5.1 Initial interviews

Semi-structured interviews were conducted with teachers in the three early childhood settings once the familiarisation visits were completed. Each teacher was interviewed twice. The first interviews explored beliefs and practices related to peer learning. Teachers were then observed supporting children to work with their peers. The second interviews used stimulated recall to discuss the observations of teachers' practice. Kvale and Brinkmann (2009, p. 2) describe research interviews as "an inter-change of views between two persons conversing about a theme of mutual interest". The teachers had valuable knowledge and experiences to share and in the first interviews, the interview questions were designed to enable them to explore and elaborate on their beliefs and practices related to how children learn from each other. Finding out what teachers knew about how children learn from each other was a key research question. Positioning the participants as having expertise to share concurred with Kvale and Brinkmann's (2009, p. 17) definition of interviewing as "an active process where interviewer and interviewee through their relationship produce knowledge". This view of knowledge construction as an active process which occurs in a social context is integral to social constructivism which was an important part of the theoretical framework for this study (Rogoff, 1990).

Semi-structured interviews were chosen for this study as they are designed around a series of key questions that are delivered in an open-ended manner, allowing flexibility for the participants to provide in-depth responses (Mutch, 2005). Basit (2010) identifies the flexibility to ask supplementary questions in order to achieve more elaborate and in depth responses as being a major advantage of semi-structured interviews. My own experience with interviewing teachers (Smith, 2010) revealed that it is often when supplementary questions are asked that participants engage with the question on a deeper level, consequently providing more insightful responses. This type of interview not only allowed the research questions to be addressed, but it also encouraged participants to "talk about what is significant to them" (Hobson & Townsend,

2010, p. 231). In selecting a format for the interviews that allowed the teachers to talk about what is significant to them about peer learning, the possibility for exploring teachers' understandings and for gathering richer, more meaningful data was created.

Initially, semi-structured interviews were conducted with a small number (this ranged from between two and five teachers) of early childhood teachers within each case study setting. Discussion with supervisors lead to the decision not to specify a particular number of teachers as that may have precluded those who wanted to participate. In addition, interest in and a commitment to the research process were part of the selection criteria for participants. Each teacher was interviewed individually twice: once before the observations occurred; and then again after the observations using the filmed recordings to prompt their thinking about their practice (stimulated recall interviews). Teachers were given the interview questions a few days before their interview so they had time to consider their responses.

The familiarisation visits were useful for building a rapport with participants and this helped to mitigate the interviewer effect which occurs when people respond differently according to the identity of the researcher and may in fact try to give answers they feel the interviewer expects of them (Denscombe, 2014; Fraenkel et al., 2012). Times for the interviews were negotiated with teachers and these took place during work hours, in non-contact times at the teachers' place of work. Interviews were recorded using a digital voice recorder and the data was removed from this device and transferred immediately after each interview to a password protected laptop to ensure security of the data.

The questions for the initial interviews explored a number of different areas related to teachers' beliefs about peer learning (see Appendix D). A cluster of broad questions about how children learn helped focus the interview at the beginning and these were followed by more specific questions relating to teachers' beliefs about peer learning. The interviews began with questions that helped the interviewee settle into the interview and focus on the topic (Creswell, 2014; Denscombe, 2014). For example, how do you believe children learn? And how have you developed your beliefs about children's learning? The questions that followed related to teachers' practice and the role of peer learning in the early childhood centre curriculum. Care was taken to ensure that the questions asked were open-ended, suggesting areas to be

explored, rather than suggesting to participants how they should be explored (Fraenkel, Wallen & Hyun, 2012).

3.3.5.2 Filmed observations and stimulated recall interviews

Observing teachers in action and recording this using an IPod was an exciting part of the data collection process. By adopting observation as a key method, the dynamic nature of teachers' practice in early childhood settings could be observed and documented as it unfolded; social interactions were recorded in the context in which they occurred. The objectives of this research included investigating how teachers' beliefs about peer learning are enacted in their practice and to discover how teachers promote peer learning within a sociocultural curriculum. Observing teachers in naturalistic settings as they supported and promoted group endeavour was the most appropriate method for generating the data required to meet these particular objectives. By adopting the role of a non-participant observer, the aim was to record the most accurate observation of the teachers' and children's interactions with each other as possible (Mutch, 2005).

When analysing the qualitative data, the relationship between teachers' beliefs and practices was able to be examined as the observation data shed light on the connection between beliefs and practice; an important factor as the literature identifies conflict between beliefs and practice (Rivalland, 2007; Sakellariou & Rentzou, 2012). Muijs (2006) states that observation has the advantage of providing researchers with the opportunity to accurately portray teachers as they work with children, noting that teachers' own reports of their practice may not always be accurate and in some cases can conflict with external observations. Support for this assertion comes from Basit (2010) who states that observation allows researchers to observe behaviour directly rather than relying on participants' perceptions of their own behaviour. The filmed observations recorded teachers' language and interactions across a number of curriculum areas and discussion during the stimulated recall interviews revealed some instances where teachers were surprised or puzzled by their actions.

When conducting observations for the purposes of research, the presence of the observer can impact on the behaviour of those being observed and produce what is termed the 'observer effect' (Basit, 2010; Fraenkel, Wallen & Hyun, 2012). In this study the presence of the researcher

created a tension for teachers as they worked with children. To help mitigate observer effects familiarisation visits took place before data collection began, as these helped to limit reactivity, allowing the children and teachers to become accustomed to the presence of a researcher in their teaching environment. Although I decided what was going to be filmed as the play unfolded, permission was gained from the teachers to ensure they were in agreement and knew exactly when recording was taking place.

Non-participant observations of teachers' practice were filmed with the teachers who had completed the initial interviews. These observations were carried out each day for up to two hours at a time, over a period of one week, in each early childhood centre. It was important to negotiate the time during the day when filming would take place so that teachers could plan their non-contact time and breaks; this factor was vital as teacher/child ratios needed to be considered. The decision was made to film teachers during instances when they were engaged with groups of children as a key aim of the study was to document evidence of teachers promoting opportunities for and supporting group play. Teachers were filmed across all areas of the curriculum and most of the filming took place when children were freely engaged in play rather than during routine times such as mat times so that data could be gathered about how peer learning occurs and is supported during naturally occurring play. Most of the observations took place in the morning as children were not in bed and teachers were refreshed and best able to accommodate being filmed.

The observations of teachers' interactions were recorded using an IPod. Initially the plan was to use a video camera, however a conversation with a teacher during one of the familiarisation visits lead to the decision to use an IPod. The IPod was tested during the familiarisation visits so lighting and sound quality could be checked; this testing occurred without actually filming teachers or children. Some of the children had a look at the IPod closely and one experimented with what it was like to operate. Previous research using video cameras in classrooms gave children opportunities to interact with the camera and this helped to build trust between the researcher and the participants (Fitzgerald, Hackling & Dawson, 2013). The IPod was selected as an appropriate recording device because it was unobtrusive, portable and children in each of the early childhood centres were familiar with teachers' use of cameras and IPads to document learning. These factors were important considerations as the aim was to disturb the play as little as possible and to minimise interruptions to the natural setting (Fletcher, Price & Branen, 2010).

After each observation had been recorded the footage was transferred as soon as possible from the IPod to folders (one for each teacher) on a personal laptop for security purposes. This data was then transferred onto disks which were given to teachers once filming had been completed. The data was cleaned before it was transferred onto the disks and this involved deleting any material that was not usable. For example, the sound quality was too poor or a child began to cry and filming was ceased. All other footage was placed on the disk without further editing. This ensured that the context surrounding teachers' interactions and children's play was included, allowing a more complete picture of what took place to be discussed.

Stimulated recall interviews were the second interview conducted with each individual teacher. This type of interview "involves the use of audiotapes or videotapes of skilled behaviour, which are used to aid a participant's recall of his thought processes at the time of that behaviour" (Calderhead, 1981, p. 212). This method was first used by Bloom in 1953 to investigate the thought processes of University students (Calderhead, 1981). Since then, the stimulated recall method has been used extensively in classroom-based research about teaching (De Smet, Van Keer, De Wever & Valcke, 2009; Schepens, Aelterman & Van Keer, 2007; Stoffels, 2005). Stimulated recall interviews have been described as a highly interactive process that allows for the social negotiation of meanings between participants and the researcher (Dempsey, 2010). How individuals make meaning reflects the theoretical framework of constructivism underpinning the current study.

Meijer, Verloop and Beijaard (1999) have used stimulated recall as a key method to assess teachers' practical knowledge, which they defined as the knowledge and beliefs which underlie teachers' actions and closely related to the context. Fenstermacher (1994) distinguishes between two major types of knowledge: formal knowledge which is known and produced by researchers and is knowledge *for* teachers; and practical knowledge which is knowledge that is principally known and produced by teachers as a result of their experiences and their reflections on these experiences, and is therefore knowledge *of* teachers. Teachers in this study described their practical knowledge about peer learning whilst reflecting on their use of pedagogical strategies to enhance children's experiences with their peers. In seeking to understand and explore teachers' practical knowledge, Dempsey (2010, p. 349) highlights the value of stimulated

recall as invaluable for bringing "informants a step closer to the moments in which they actually produce action", by providing an opportunity to confront their actions as they actually occurred. In this study, reproducing the teachers' interactions with children was a powerful means of sharing an authentic record of what had actually occurred with research participants.

There are limitations to stimulated recall interviews which need to be considered. For example, teachers may feel anxious and distracted by their physical characteristics when viewing their practice (Calderhead, 1981). Teachers were given the filmed observations up to a week before the interviews were conducted so they had time to view the footage and feel comfortable with it. In addition, teachers may find it difficult being asked to reflect at a deep level and could therefore formulate responses spontaneously and at a shallower level (Calderhead, 1981; Dempsey, 2010). Calderhead (1981) warns that experienced teachers may have reached a level of 'automation' and therefore find it difficult to articulate the rationale for their actions. Care was taken during the interviews to gently probe and to allow time for teachers to gather their thoughts and articulate their practice. Filmed clips were replayed when requested if teachers wished to elaborate on or clarify what they had seen. Establishing rapport with participants is recommended to counteract feelings of anxiety, which may be experienced when teachers are confronted with viewing themselves (Calderhead, 1981). In this study, time was spent establishing relationships with the participants so that they felt comfortable during the stimulated recall interviews. Spending time in the field and using stimulated recall alongside other methods is also recommended to enhance the reliability and validity of verbal responses (Calderhead, 1981; Dempsey, 2010; De Smet, et al., 2010).

In preparation for the stimulated recall interviews, each teacher was given a compact disk (CD) containing the observations of their practice. The decision was made to give the disks to the teachers one week before the second interview so that they had opportunities to watch the clips on their own initially and to consider their response to what they viewed. By viewing themselves before the interview took place, teachers were able to get used to seeing themselves on film, and to get past any self-consciousness, so that they could begin to reflect on the deeper meanings underneath their practice. Previous research notes the time it takes for participants to become comfortable with viewing themselves as this experience can be confronting for them (Colasante, 2011; Dempsey, 2010). One teacher did not view the disk before the interview,

which meant that some of the clips were viewed more than once during the interview to enable her to reflect on aspects of her practice before discussing them.

Conversation and negotiation with participants have been identified as important for developing a holistic understanding of the footage (Fitzgerald et al., 2013), therefore teachers in the current study were given the opportunity to decide which footage they would like to view and discuss; on some occasions they stated they had no particular preference. The stimulated recall interviews explored particular episodes of each teacher's practice and the use of filmed observations was a stimulus for exploring teachers' thinking about how they promoted and supported peer learning. Throughout the interviews teachers shared their thinking about various play episodes, explaining their teaching strategies and why these were appropriate at the time. Each play episode was shared and then paused at its conclusion.

At the start of the stimulated recall interviews teachers were made aware that there might be particular play episodes which could be useful to explore. When conducting the observations, it was evident some play episodes contained evidence of the use of intentional teaching strategies to support peer learning. It was explained to the teachers that the selection of the clips for discussion would be negotiated, the clips would be viewed together and that they would have opportunities to share their thoughts about their practice in relation to supporting peer learning. The questions 'can you tell me what is happening here?', 'tell me what was your thinking', 'you know the children well so tell me what was going on here', were useful for allowing participants' own understandings and explanations of their practice to be revealed. Once the dialogue started to flow, other questions were asked that specifically related to the play episode, the teachers' actions, and children's play. The questions were focused on teachers' practice in relation to supporting peer learning. At the end of each clip, teachers were asked if there was anything else they would like to add in relation to that particular play episode. The use of such open-ended questions was guided by previous educational research using stimulated recall that supports providing freedom for interviewees to discuss significant moments and to relive their teaching experiences (Dempsey, 2010; Schepens, Aelterman & Van Keer, 2007). This set of interviews was guided by a curiousness to explore teachers' practice in relation to peer learning and the aim was to privilege teachers' voices and perspectives of this aspect of their professional practice.

The stimulated recall interviews with individual teachers were one hour long, as they were conducted during teachers' non-contact time. This resulted in a total of ten hours of recorded interview data. The filmed observations were carried out each day for up to two hours at a time over a one week period. This resulted in the collection of approximately up to 50 hours of filmed observation data. The total amount of hours of filmed observations was slightly different for each teacher and this was due to a range of factors, for example teachers being called away to speak with parents or taking group times when other teachers were unavailable. There was also a need to be flexible when filming the teachers as they found this aspect of the study a bit daunting initially.

The teachers were initially nervous about viewing and discussing their practice, however they said they found the process to be very helpful for gaining a deeper understanding of how they support children to learn from each other. Fitzgerald et al. (2013) argue that in the process of viewing the footage with the researcher, the participant is given the opportunity to reflect on their own practice and that ultimately this reflection could lead to improvements in that teachers' own practice. The impact of the research process on the participant is documented in the literature (Kaler & Beres, 2016; Koelsch, 2013). All of the teachers in the current study expressed how much they had valued the opportunity to examine an aspect of their practice in depth and how the process had given them an insight into how they promote and support peer learning.

Transcriptions from both the initial interviews and the stimulated recall interviews were returned to the participants before the data was written up for analysis to check for accuracy and in case participants wished to add anything or make changes. No changes or additions were made to the interview scripts once they had been checked by participants. The use of member checking is a common means of establishing validity in qualitative research, in fact Stake (2006) terms it a vital technique for researchers. Koelsch (2013) states that in addition to checking the accuracy of participants' responses, member-checking assists with researcher reflexivity as the researcher is given the opportunity to reflect on their own biases and misinterpretations. The influence of the researcher on the interview process is well documented (Basit, 2010; Koelsch, 2013; Kvale & Brinkman, 2009) and Hobson and Townsend (2010) suggest that it is important to embrace reflexivity and in doing so, to be transparent about the biases and assumptions that the researcher brings to the research and the impact this might have on the findings.

3.3.6 Research journal and field notes

A research journal was used to record field notes and reflections on the research process and decisions that were made throughout the data collection and analysis phases. Research journals provide an audit trail to record the researchers' decisions throughout the research process. This increases the trustworthiness of qualitative research, as well as recording the researcher's evolving understandings of the field (Babbie, 2013). In the current study, a growing understanding of the different philosophies in each early childhood setting emerged in the research journal. The resulting narrative described the context within which teachers promoted and supported peer learning, providing the 'thick description' that supports the reliability of the data (Fraenkel, Wallen & Hyun, 2012). Teachers in all three centres shared their service's philosophy statement as it was closely connected to their teaching practices around supporting peer learning. The journal was used to document these types of conversations that occurred with teachers during the data collection process.

Field notes were kept from the first initial visit into each early childhood centre and were maintained throughout the data collection phase of the case studies. The field notes recorded contextual information such as the weather (this impacted on the numbers of children inside or outside and therefore the noise levels and positioning of the teachers), the presence of relieving staff and other visitors, special projects and learning experiences that the teachers were involved with and spontaneous teachable moments that arose during the time the observations were taking place. Recording aspects of the physical context is important for giving the reader a sense of 'being there' (Stake, 2006).The field notes were written up as soon as possible after the familiarisation visits and the observations. Notes were taken about the context within which teachers were making decisions as they responded to the learning taking place.

During the familiarisation visits, brief notes were taken (they were brief because of the busy nature of the early childhood centres) and these notes were rewritten in further detail as soon as possible afterwards. This method of note taking ensured that as much detail as possible was gathered about what was happening in each centre at that particular time. During filming it was not possible to simultaneously take notes and so notes about the observations were written up each afternoon or evening of the same day that filming had taken place. Writing up the

observations as soon as possible was an important means of ensuring that the data was an accurate record of the events that had taken place and a complete description as possible of what had been observed (Babbie, 2013; Johnson & Christensen, 2012). An understanding of how teachers worked to promote and support peer learning within different teaching philosophies became evident as data collection progressed and the research journal provided a useful forum for documenting these understandings and then reflecting on them throughout the data collection process.

3.3.7 Summary

This section has outlined the methods adopted for the first phase of this study into teachers' beliefs and practices related to peer learning. The procedures for collecting the case study data have been included in this discussion. This first phase of the study was invaluable for gaining insight into teacher's beliefs and practices and the use of case study methods resulted in rich in-depth data which helped to answer the research questions. The results of the first phase were vital for developing the survey which formed the second phase of the study and which is explained in the next section.

3.4 Phase two - Survey

3.4.1 Designing the survey

Phase two of the study comprised an online survey that was administered to early childhood teachers across New Zealand. The online survey assisted in the interpretation of the qualitative findings, enabling the qualitative findings to be tested and generalised to a wider sample thus providing a more complete picture of the question being investigated (Hesse-Biber, 2010). The survey gave the study breadth, making it possible to draw conclusions about teachers' beliefs and practices in the area of peer learning (Schreiber & Asner-Self, 2011). Hartas (2010, p. 257) describes survey research as a "non-experimental type of research, within which data are collected via self-reports, questionnaires or interviews".

The target population for the current study was early childhood teachers working in New Zealand early childhood settings. From this large potential sample a sample frame was developed in consultation with supervisors. A sampling frame "provides a basis for selecting a

sample" (Denscombe, 2014, p. 34). How well a sample represents a population depends on the sample frame, and therefore this was an important step in the design of this study (Fowler, 2013). The sampling frame outlined the factors necessary to ensure the sample was representative of qualified early childhood teachers from a range of services in New Zealand. Creswell and Plano Clark (2011) recommend addressing external validity by ensuring a representative sample is selected when conducting a survey. The sampling criteria stipulated licensed early childhood services, of which there are four main types: education and care centres, kindergartens, playcentres and Te Kōhanga Reo (Māori immersion centres). The other criteria was that services had an email address so that an electronic link to the survey could be sent out via email.

Once the sampling frame was established, sampling was carried out by accessing the New Zealand Ministry of Education database 'Education Counts' which contains the directory of licensed early childhood education services in New Zealand. An arbitrary random order was created by sorting the services alphabetically. The total number of services this produced as at 15/4/2014 was 4,232 services. Filtering was then used to identify early childhood and care centres, kindergartens, playcentres and Te Kōhanga Reo. Furthering filtering eliminated those services from these four service types that did not have email addresses listed in the directory. After filtering, the total number of services to meet the criteria was 2,936. Of these 2,936 services, 1,911 were education and care centres, 565 were kindergartens, 273 were playcentres and 187 were Te Kōhanga Reo.

To ensure each service type would be represented in the responses, stratified random sampling was applied and services were then organised by type and then every third early childhood service was selected. Stratified sampling ensures that "crucial parts of the population are appropriately represented in the overall sample" (Denscombe, 2014, p. 38). By utilising random stratified sampling, the sample selected consisted of 637 education and care centres, 169 kindergartens, 90 playcentres and 61 Te Kōhanga Reo. The total sampled was 957 early childhood services. In this study, random stratified sampling ensured representation of the different service types in the sample selected.

Careful planning took place during the development of the survey. The content was developed with the research objectives and questions in mind. The questions were based on the main themes that emerged from the qualitative phase of this study and from a review of current literature related to the topic. Supervisors and the research officer at Massey University Institute of Education were consulted throughout the development phase of the survey. The questions were constructed and then refined in response to feedback. This process took time and it was important to ensure it was not hurried if the survey was to answer the research questions. Creswell (2014) and Hartas (2010) draw attention to the challenging and complex process of designing good survey instruments and therefore attention to detail was vital.

Initial questions covered demographic information such as age, gender, years of teaching experience, position held and qualifications. It was important to find out this type of information because the respondents' backgrounds may have influenced how they interpreted and answered the questions (Hartras, 2010). These types of questions were asked at the beginning of the survey as they were simple and quick to answer and therefore respondents were more likely to persevere with the questions that followed (Denscombe, 2014). Questions were organised around the four main areas of the research topic. The first section focused on teachers' beliefs about peer learning and respondents were asked to define their understanding of the term peer learning by selecting from a list of possible definitions. Other questions in this section included stating their agreement or disagreement in relation to statements about how children learn, followed by questions which asked respondents to rank the influential sources of their beliefs about children's learning from a list. Ranking questions and Likert scales were included as these are useful for indicating degrees of response (Cohen, Manion & Morrison, 2011).

The second section explored teaching strategies to support peer learning. Respondents were asked to identify whether they intentionally supported peer learning or let it happen naturally. Questions were asked about whether some children needed more support than others to engage with their peers and if they did so, why. Finally, respondents were asked to identify how frequently they used specific teaching strategies to support peer learning and foster children's expertise. The survey was designed to ensure that the questions were structured and closed to enable patterns to be observed and comparisons made; closed questions helped to simplify the analysis process (Cohen, Manion & Morrison, 2011; Denscombe, 2014). In addition, the

qualitative data had established the research field and therefore closed questions were useful as they offered a 'sharper focus' than open-ended questions (Hartas, 2010).

The third section explored the relationship between centre/kindergarten influences and teacher's beliefs about peer learning. Respondents selected from a list the definition of peer learning that most closely resembled their centre philosophy and then ranked the degree to which their centre philosophy and their colleagues influenced their beliefs, understandings and practices related to peer learning. The fourth section contained questions about *Te Whāriki* as a guiding document for supporting peer learning. Respondents were asked to rank the relevance of the various strands in *Te Whāriki* to peer learning and to rate their use of the programme guidelines in the curriculum document for supporting peer learning. Finally, the survey concluded with two open ended questions ensuring respondents had an opportunity to add anything else they wanted to say about peer learning and to add any other comments (see Appendix E for a copy of the survey). Key considerations were questions that reflected the research aims and questions, were free of jargon and were clear and concise (Creswell, 2014; Hartas, 2010).

3.4.2 Administering the survey

Once the survey had been constructed, it was piloted to identify problems in the design and refine the items (Denscombe, 2014; Hartas, 2010). A link to the pilot survey was created using the online survey tool 'Survey Monkey', and this was sent out to a small group of tertiary colleagues and teachers. The pilot participants were all familiar with the early childhood sector and with conducting research. They were asked to complete the survey and then give feedback. Conducting a pilot was invaluable for gaining feedback in a number of different areas and some changes were made to the content in consultation with supervisors. This process identified a small number of questions that were not easily understood. A question containing statements about how children learn, included the statement 'children share their peers' life experiences'. It was suggested this was changed to 'children have similar life experiences to their peers' for clarity of meaning and this change was made. The testing addressed issues such as comprehension, ambiguity and length of the proposed questionnaire as well as giving feedback on the overall format of the survey (Fraenkel, Wallen & Hyun, 2012; Punch, 2003). For example, respondents were asked to rank the most influential sources of their beliefs about how children

learn and the suggestion was made to include 'your own observations as a teacher' as an option. This statement was included in the final version. Also, one colleague suggested the inclusion of a completion bar at the bottom so respondents knew how far they had to go and so this was inserted.

The early childhood services invited to complete the survey received an email outlining the purpose of the survey and the study itself, an explanation of the process for collecting and securely storing the survey data, a statement guaranteeing anonymity and confidentiality of respondents and the contact details of those involved in the study. The different phases of the study were also explained as was the use of the case study data to develop the survey (see Appendices H & I). The statement of ethical approval from the Massey University ethics committee was included in the email to ensure credibility (Hartas, 2010). Participation in the survey implied consent as the survey was anonymous. In relation to the survey, respondents were provided with sufficient background information about the study including how ethical matters had been addressed to ensure they could make an informed decision as to whether they wished to participate (Fraenkel et al., 2012). A link taking respondents directly to the online survey was embedded into the email to ensure it was as easy as possible for teachers to participate.

The emails were sent out in batches using blind-copy addresses over a period of one week so that any problems with sending or receiving the survey could be addressed. One teacher did email to say the link did not open and so the survey was resent to this teacher. Response bias can occur in surveys when the responses gathered do not accurately reflect the views of the sample and of the population (Creswell, 2014). Therefore the initial responses to the survey were examined to see if the answers were similar to those responding in the later part of the week. This procedure is termed wave analysis and it is performed to check for response bias (Creswell, 2014). It means that responses returned initially should be similar to those returned in the later stages of distributing the survey. No bias was detected from these checks as early emerging patterns in the data were confirmed in later responses.

Initially, 111 responses were received and after a period of one month the survey was re-sent resulting in a total of 220 responses received which was a response rate of 20%, a common

survey response rate (Hartas, 2010). In this study, re-sending the survey was an effective strategy which resulted in a higher response rate. Creswell (2014) recommends following up on non-respondents and ensure what you are studying will be of interest to the population being sampled as two strategies to encourage high response rates. The survey was closed one month after it was re-sent so that data analysis could begin. Emails were received from four respondents who expressed their thanks for the opportunity to participate in the research. One email was received from a kindergarten association requesting further details of the ethical considerations for the study and these were provided.

3.4.3 Summary

This section has outlined how the survey was developed and then administered to early childhood teachers in New Zealand. This discussion included how the participants were selected and how the survey addressed the research aims and questions. The use of a survey in this study was an important means of gathering data from a range of early childhood services. The survey strengthened the study as it provided confirmation of the case study findings. The next section explains the process for analysing the data from phase one and two of the study.

3.5 Data analysis

As this study followed an exploratory, sequential design, there were three stages of data analysis. Initially, the case study data was examined for patterns and themes in relation to the research questions and current literature around teachers' beliefs about peer learning. Thematic analysis is designed to identify, represent and report thematic patterns within the data (Braun & Clarke, 2006). The case study findings were organised around the emerging themes which are presented in chapters four and five. The next stage of analysis involved the transitioning of the themes into measures such as scales and ranking questions for the survey which were designed in a format suitable for statistical analysis. Analysis of the case study data was critical for ensuring the development of a robust framework for the proposed survey. Incorporating the main themes into the quantitative survey was an important means of ensuring validity (Creswell & Plano Clark, 2011). The results of the survey were then analysed using descriptive statistics and these results are presented in chapter six. Finally, the case study results and survey results were brought together in a comparative analysis and discussion and this is presented in chapter seven. The following discussion explains the data analysis process that occurred.

3.5.1 Analysing the case studies

The case study data comprised of a research journal containing field notes, interview transcriptions and filmed observations of teachers' practice. Familiarity with such a large amount of data was achieved initially by transcribing the interviews conducted with individual teachers. This process occurred over several months and transcriptions were returned to teachers to check for accuracy during this time. The document data (research journal and interview transcriptions) were organised into folders and these were indexed to allow particular material to be quickly located. The visual data (filmed observations) were organised into folders for each participant. Each film clip was labelled numerically and the clips were then grouped and named according to the various play episodes, which had been observed.

The data from the initial interviews with individual teachers was reviewed and coded with the codes then grouped into themes. Careful examination of the document data allowed the emergence of patterns and themes from the data. The themes were summarised firstly for each individual teacher (as the unit of analysis) and secondly in relation to each early childhood centre. The iterative nature of this process resulted in re-reading of the data to ensure a general understanding of what was in the database (Creswell & Plano Clark, 2011). The process of reading and re-reading of the data to identify common themes has been termed 'constant comparative analysis' (Wood & Bennett, 2000). Charts were used to display common themes across teachers and centres. As analysis progressed, it became evident there were some commonalities between teachers in the same centres and this informed the questions in the survey in relation to centre philosophy for example. The interview transcriptions and research journal were then uploaded into the qualitative research software programme 'NVivo'. The defined codes were entered and content analysis was conducted, resulting in further refining of categories and similar themes to enable triangulation of data sources.

Analysis and interpretation of the visual data was carried out on the transcriptions of the stimulated recall interviews. In this study, the decision was made to conduct the analysis on the transcriptions of the stimulated recall interviews, thus privileging teachers' interpretations of their practice related to peer learning to allow the research questions to be addressed. Therefore, it was the teacher's interpretations of their decision making and explanations of

teaching strategies which formed the categories for analysis. This particular set of interviews was a vivid retelling of teachers' practice. Visual footage is a useful analytic tool that allows researchers to discover the meanings that participants attribute to various contexts and actions (Fitzgerald et al., 2013). This decision avoided any misinterpretation of teachers' decision-making and use of teaching strategies to promote and support peer learning. Cherrington (2011) also used the interview transcriptions for analysis in her use of video stimulated recall when interviewing early childhood teachers about their interactions with children.

The analysis of the initial interviews and the stimulated recall interviews was initially conducted separately. The initial interviews with individual teachers were designed to explore their beliefs about peer learning and the subsequent stimulated recall interviews focused on teachers' practice. The themes from both sets of interviews were then combined and the results of this analysis informed the development of the survey questions, alongside the relevant literature. The main themes from both sets of interviews were transitioned into the survey by asking a series of questions around the themes. The survey questions were grouped under the themes from the qualitative data and were also informed by the literature (for example dominant notions related to teachers' beliefs about how children learn). The research questions were a constant consideration throughout the construction of the survey and the analysis process itself, to ensure the data collected was actually answering the questions. In addition, piloting the survey was a very useful means of confirming the validity of the questions being asked.

3.5.2 Survey data analysis

The online survey tool 'Survey Monkey' was used to gather the quantitative data during the second phase of this research. The data was then exported into an SPSS programme so descriptive statistical analysis could be undertaken. A descriptive analysis of all survey items was conducted to identify trends in a wider population than the case study participants afforded. The demographic data were analysed to provide a profile of the respondents. The use of descriptive statistics highlighted clear patterns in the data which confirmed or contrasted with the case study findings and effectively answered the research question and aims. Graphs and tables were used to present the survey data as this type of visual representation allowed the results to be clearly communicated.

3.5.3 Drawing together the case studies and survey

A strength of the research design was the use of mixed methods to converge qualitative and quantitative evidence to achieve triangulation (Yin, 2014). Case studies elucidated teachers' beliefs and practices related to peer learning and the survey confirmed the prevalence of particular beliefs and understandings and how teachers enacted these beliefs. This type of design requires the initial analysis to be conducted separately, followed by an overall analysis which merges the findings (Yin, 2014). The overall analysis discussed to what extent the quantitative results generalised the qualitative findings (Creswell & Plano Clark, 2011). Analysis involved looking across the qualitative and quantitative results to assess how the evidence addressed the research questions. A side-by-side comparison in a discussion format to develop a larger interpretation was the strategy adopted for comparing the qualitative and quantitative results (Creswell & Plano Clark, 2011).

3.5.4 Summary

This section of the chapter has reviewed the procedures adopted for analysing the data from both phases of this research. An important part of the design was using the qualitative analysis to build a quantitative instrument to validate the case study findings. In all stages of analysis the evidence was considered in relation to the research aims and questions. The next section describes the key ethical considerations for the study.

3.6 Ethical considerations

When setting up the study, an ethics application was submitted to the Massey University Human Ethics committee and permission to carry out the research was subsequently granted (Appendix F). In submitting a full application, the ethical issues relevant to this particular study were given due consideration. Particular consideration needed to be given to the issues that might arise when collecting data in early childhood settings. These issues and how they were addressed are outlined next.

Denscombe (2014) identifies guiding principles for ethical educational research. These are firstly that the interest of the participants should be protected; second that researchers should avoid deception or misrepresentation and third that participants should give informed consent. These

principles were adopted. In protecting the interest of the participants involved, pseudonyms were used for each teacher and early childhood setting. When describing the settings any identifying details were minimised. When recording teachers' practice, a clear focus was kept on the research aims and objectives; this was useful for ensuring that observations remained focused and anything that was observed but was not relevant to the study was not recorded. To avoid misrepresentation and to safeguard transparency, interview transcripts and all visual observations were shared with teachers to ensure they were accurate records of teachers' beliefs and practices.

Informed consent was obtained before data collection began; teachers signed written consent forms and children were asked for their ongoing assent during the filming process. Informed consent means that participants are made aware of the nature of the research, exactly what is expected of them, any possible risks, their right to withdraw at any time and what will happen to the data after collection (MacNaughton, Rolfe & Siraj-Blatchford, 2001). Spending time in each centre playing with the children gave them opportunities to ask any questions they might have had. The presence of young children meant it was vital to ensure they were comfortable with the filming and to acknowledge "the child's right to withdraw from the observation process at any time" (Harcourt & Conroy, 2005, p. 576).

Equally important, the ethical decisions made in this study were guided by a focus on relationships; this was particularly important with the case studies. Great care was taken to establish trust and to ensure open, clear communication with the participants involved in the case studies. Cullen, Hedges and Bone (2005, p. 2) term this a 'relationships perspective' and they emphasise its importance for qualitative research. Care was taken to maintain relationships with staff and children and to negotiate the aspects of the research process that were unexpected, for example a parent who did not wish her child to be filmed and the teacher who said she wished her supervisor had asked her if she could participate in the study. Concluding the case studies and leaving the field required a process of gentle extraction as relationships had been formed. To assist this process, the centres were offered an opportunity to meet and talk about initial thoughts about the data and two of the centres took up this offer. Doing meaningful research in early childhood settings is based on co-operative and supportive relationships between participants and researchers (Degotardi, 2008) and this notion was a key consideration during the data collection process.

There were some challenges that arose when conducting the filmed observations, particularly as early childhood settings are dynamic environments, which change quickly according to the needs of the children. Any unwillingness to be observed was respected. Sensitivity to the needs of young children was a priority, for example privacy and fatigue (Cullen, Hedges & Bone, 2005). At times the IPod was turned off, for example when children became upset. In primarily taking the role of the non-participant observer (Mutch, 2005) it was not apparent to the children not being observed that they were not part of the research. If teachers needed to change nappies, put children into bed or if they moved away to talk to parents (or were approached by them) or attend to children who were upset then filming stopped. Degotardi (2008) suggests that the increased use of digital technologies for conducting research in early childhood settings requires researchers to carefully consider ethical issues such as privacy. Some of the teachers needed reassurance during filming that the footage was useful data and on occasions this resulted in conversations about peer learning with teachers after the IPod was turned off. Consent was obtained to use the filmed observations for the purpose of analysis only and this was carefully explained to the teachers in the three centres.

Conducting the survey required attention to a number of issues. First, the survey itself was sent to the Massey University ethics committee at their request. Second, contact details of those involved in the study and the ethics committee who approved the research were included in the email sent out inviting participation (as previously discussed). Concern for participants was addressed by ensuring confidentiality and anonymity of those who took part. Also, any coercion to participate was avoided as was the inclusion of overly intrusive questions (Cohen, Manion & Morrison, 2011). One way to protect confidentiality of responses is to minimise links between answers and anything that would identify individual respondents (Creswell, 2014); consideration was given to this factor when reporting the survey results.

3.6.1 Summary

There were certain aspects of this study which required careful attention to ensure the research was conducted with honesty and integrity. In particular collecting data in early childhood settings meant careful planning and the ability to negotiate with participants and to make sound

decisions when issues arose. The filming of teachers and children was a privilege that was respected in the gathering and reporting of the data.

3.7 Summary

This chapter has described and explained the constructivist-interpretive paradigm underpinning this study, the mixed methods design and the methods used to gather evidence to answer the research questions. The procedures for collecting and analysing the data have been outlined, with a description of the case study settings included. Limitations of the design adopted and the steps taken to minimise any threats to validity have been explored. Finally, the ethical considerations for this research have been identified. Results for the case studies are presented in the next two chapters, beginning with the results of the initial interviews with teachers in Chapter Four.

Chapter Four: Case studies - results of the initial interviews

4.1 Introduction

Results from three case studies conducted to explore teachers' beliefs and practices about peer learning are reported in the following two chapters. This chapter reports the results of the initial interviews with teachers, which explored their beliefs about children's learning and peer learning in particular. Chapter five reports on the filming of teachers' practice and the subsequent interviews in which the filmed observations were shared and discussed. Chapter four is organised around the main themes which emerged when content and thematic analyses were undertaken using the NVivo programme. The purpose of the initial interviews was to identify teachers' beliefs about peer learning in order to help answer the research questions:

- What beliefs and knowledge do teachers have about peer learning?
- How do teachers form beliefs about how children learn?
- What do teachers understand is their role in peer learning?
- Do teachers promote opportunities for children to adopt expert roles with their peers and if so, how?
- How does *Te Whāriki* guide teachers' practice in relation to peer learning?

In the first section of the chapter, teachers' beliefs and understandings about peer learning and about how children learn are presented and discussed; the value of peer interactions for learning is emphasised. Second, the various sources of teachers' beliefs are outlined and the role of colleagues, teaching experiences and the centre philosophy in developing teachers' beliefs is highlighted. Finally, teachers' understandings of their role in promoting and supporting peer learning are explored. Specific teaching strategies and the role of *Te Whāriki* are included in this discussion. To ensure confidentiality, pseudonyms have been used throughout the results chapters (see Appendix D for a copy of the interview questions).

4.2 Beliefs about how children learn

4.2.1 What is peer learning?

When asked how they would define peer learning, seven out of the ten teachers interviewed defined peer learning as children learning from each other as they work together with their peers. Three teachers described peer learning as learning that happens within different

relationships in a social context, for example learning between parents and children and teachers and children. To describe the learning taking place between children, two teachers used the Māori concepts 'tuakana teina' (more knowledgeable child teaching a less knowledgeable child) and 'ako' (learning and teaching). Paula referred to tuakana teina to emphasise the role older children have in helping younger children to be successful in their play:

> *It is a bit more of tuakana teina, ako and that children learn alongside one another, being scaffolded by older children in a social learning environment. Whether it be something easy or something really really difficult,…we encourage the older children in our environment to help the younger ones (Paula, interview 1, p. 2, 36-37, p. 3, 1-3).*

Caitlin referred to the idea that children can be experts amongst their peers in her response:

> *well I suppose I would liken it to collaborative learning or co-operative learning, so peers learning from each other and that's where a child is, is taking on a leadership role and sharing their expertise and skills and interests with other children and that's where they're modelling and supporting somebody to scaffold their own learning (Caitlin, interview 1, p. 2, 17-20).*

The idea of collaboration or co-operation amongst children as they work together was a consistent theme in all of the responses. However, both Heather and Daniel extended the idea of peer learning to include learning that occurs between children and their teachers and children and their families. Heather explained how her understanding of peer learning had shifted beyond learning that occurs between children to learning that occurs in a much broader sense. This shift had occurred since she started working at her centre with a philosophy that placed whānau (families) at the centre of the teaching and learning relationship. Daniel made consistent reference to learning occurring in a relationships context which included connections with the wider community. His definition of peer learning was broad and expressed as a form of 'naturally occurring learning' within a context of relationships.

> *we value the interactions that happen within the family and in the outside community and…I've talked about through the whole interview, the multiple levels that peer tutoring can happen on. Yeah ok, so you see it as something that doesn't just happen here, but it's happening elsewhere. Yeah it happens at home and in the wider community as well (Daniel, interview 1, p. 10, 11-15).*

In the literature concerning peer learning, the terms peer collaboration and peer tutoring define the different ways children learn from each other. Cognitive constructivist theory views children

working together collaboratively; peers have equal status and in working together a context for disequilibration of thought is created (Piaget, 1977). Disequilibration can result in a transformation of ideas and ultimately new understandings. Peer tutoring is ascribed to sociocultural views of learning, particularly Vygotksy's zone of proximal development (Vygotsky, 1978). Vygotsky described tutoring by a more competent peer as an effective means of passing through the zone of proximal development (Vygotsky, 1978). These findings revealed that teachers recognised children can work both collaboratively with their peers and adopt expert roles amongst their peers during play. Both forms of peer learning were identified by this group of teachers.

Three teachers described peer learning taking place within interactions between teachers and children and between family members. These teachers defined peer learning in terms of interactions that occur not just with peers, but with adults. This finding was surprising as these understandings do not match definitions of peer learning found in the literature, as the learning that happens between children as peers. There is however recognition of the role of family and community in children's learning in the national early childhood curriculum *Te Whāriki* (Ministry of Education, 1996). Within *Te Whāriki,* the principle of relationships is based on the notion that children learn through relationships with people, places and things. Therefore, this finding suggests teachers' understandings about peer learning are influenced by the discourse of relationships which underpins *Te Whāriki*.

4.2.2 The powerful role of peers in children's learning

All teachers consistently expressed the belief that the learning that occurs between children is more powerful than the learning that occurs when teachers are involved. Teachers explained that children have a different 'lens', different ideas and they communicate differently to adults. Heather described how children explain how to do something in a way that was better than adults explaining. In exploring this difference further, teachers explained that when children see their peers do something, children feel that it is therefore possible for them to be able to do that very thing they see their peer doing. Caitlin explained:

> *if we were to model something like that then it kind of oh well you're a teacher and you can do*
> *that you know, it's out of my abilities to be able to do this, but if you see somebody whose your*

peer alongside you who has achieved something, it's that little bit of motivation and inspiration to go oh well if they can do it then I think I can and I think it humanises or it makes it, it seems like that ability is, is I think is much more within their reach (Caitlin, interview 1, p. 2, 33-37).

The notion that children humanise learning for their peers and create the possibility for success, was also described by Tatiyana:

So what peer tutoring is, is that the um expert shall we say, the other child perceives that they could become like them, too big a leap to be like a teacher, but there's potential there (Tatiyana, interview 1, p. 4, 17, 18).

Both Anna and Kathy expressed the belief that children see adults as knowing everything whereas their peers are seen to be like minded and provide opportunities for children to simply try things out. These beliefs support claims suggesting equality of status between children is a key factor in bringing about cognitive growth (Palinscar, 1998; Tudge, 2000). Furthermore, Piaget (1965) emphasised the value of peer interactions in allowing children to openly share thoughts, discuss, debate and negotiate through a process of mutual engagement. Bandura's (1977) social learning theory also refers to the role of competent peers as models for self-efficacy amongst children. In the present study, this group of teachers have recognised the uniqueness of peer interactions within learning, demonstrating a belief that children have the potential to motivate their peers to try new experiences, believing that they will succeed.

When describing the particular value of peers in children's learning, teachers recalled examples they had observed. Caitlin and Heather talked about instances where children had sought out children who they thought needed support or help and had intuitively given the assistance that was needed. Heather's example related to a boy who had special learning needs. She recounted the story of a four year old girl who sought out a little boy and helped him with his lunch. The older child fed the younger child his sandwiches and then 'she led him by the hand and helped him put his lunchbox in his bag, it just about made me cry' (Heather, interview 1, p. 6, 12). In addition to supporting their peers' wellbeing, all of the teachers talked about the opportunities peer interactions provide for children to develop important relationships skills. Natasha identified social norms and the way children role model empathy to each other as they play together. Anna emphasised opportunities to learn co-operation and to develop a sense of self.

Previous studies have found evidence that peer interactions provide opportunities for children to learn how to participate together and develop a sense of belonging within early childhood settings (Alcock, 2005; Flewitt, 2005; Ghafouri & Wien, 2005; Mortlock, 2015). The role of peers in supporting each other's emotional wellbeing was found to be important in Ghafouri and Wien's (2005) research into young children's play. Children in a kindergarten class developed social capabilities and social understandings that allowed them to support each other's emotional wellbeing and facilitate collaborative play, resulting in sustained shared play activities. Children facilitated their peer's involvement by ensuring they were included and involved in the play (Ghafouri & Wien, 2005). The responses from teachers in the present study extend these particular findings by providing evidence of teachers' understandings of the important role children can adopt in supporting each other's sense of wellbeing and belonging. For example, teachers identified the important role children have to role model empathy to their peers and to support their peers' emotional wellbeing.

All of the teachers mentioned how children support each other in learning important social skills but also about the role that peers assume in children's cognitive growth. Caitlin, for example described how she thought cognitive growth was achieved for the child who is taking on the teaching role. These strategies for growth included having to put their knowledge and understandings into words and actions.

> *I think it concretes their own learning, consolidates that and um and it also puts it into a language in a way often for the peer I think to be able to kind of see it and conceptualise it in their level (Caitlin, interview 1, p. 3, 12-14).*

Bernadette also emphasised how peer learning enables children to explain their learning to a peer and in doing so, consolidate their own knowledge. She stated that through explaining the learning, children who have not had a positive experience may decide to revisit that same experience; something they may not have decided to do had it been an adult they were talking with. The idea that children provoke each other's thinking by sharing their ideas was also identified by Ariana as an important outcome of children working together.

> *They would learn different working theories as children discover and inquire and research, they develop their own working theories and if they're working alongside and with their peers then they're sharing those working theories (Ariana, interview 1, p. 2, 36-38).*

The benefits for children who adopt teaching roles in peer interactions have been documented in previous studies (Haworth et al., 2006; Jones, 2007). Jones (2007) investigated the benefits for older children who were paired as peer tutors with younger children who had autism in a primary classroom setting. Jones noted increased self-confidence amongst older children, as well as an increased sense of responsibility and an ability to be patient with younger peers. Responses in the present study revealed teachers' belief in the value of peer learning both for children who are sharing their knowledge and ideas, and for children who are being assisted by more capable peers to learn a new skill or perhaps engage in problem-solving. Above all, this particular set of results provides evidence of teachers' recognition of the benefits of peer learning.

4.2.3 How children learn

Both relationships and the environment were central to teachers' beliefs about the cognitive benefits of peer learning. Learning taking place in a social context and through relationships with others was a dominant theme; 40 instances were recorded when the data was coded. For example, Anna talked about children learning socially, emphasising her belief in the importance of relationships, both with other children and family.

> *Children learn through interactions with the environment, other children and their whānau, and I believe it's all about how they communicate with other people (Anna, interview 1, p. 1, 7-8).*

In addition, all teachers reinforced the idea of creating an environment that supports collaborative peer play for learning. Caitlin had a strong belief in establishing an environment that encouraged and supported children to drive their own learning with their peers.

> *Ok um well I believe that they learn collaboratively, so um (pause) that sociocultural learning, so with and alongside their peers, and it's the interaction with the resources that we have, the people we have and the environment that we set for them (Caitlin, interview 1, p. 1, 5-7).*

Teachers also identified the different environments that children engage with as being significant. Both Tatiyana and Paula identified children's experiences with people in their community as being central to learning. There were three instances of teachers explicitly referring to Bronfenbrenner's (1979) ecological systems theory as being a defining theoretical position, as this extract from Bernadette's interview demonstrates.

the Bronfenbrenner approach, so that although they're in your centre, there's others things that they're learning and the different environments so thinking about how those children can share that information with you and with their peers and then back and forth between all of the environments that that child might be in, so that it sort of helps to cement that learning (Bernadette, interview 1, p. 2, 9-13).

Furthermore, children supporting their peers' development in specific areas was mentioned 19 times throughout the interviews. Tatiyana stated that children learn about the physical, social and emotional domains of development from their peers, whilst Bernadette connected children's collaborative play with language development.

If the children are interested in a similar activity they're both going to want to talk and therefore you get your language development (Bernadette, interview 1, p. 3, 7-8).

The image of the child who learns by actively exploring the environment through their senses was a consistent theme in the interviews and three teachers described children learning by building theories and then testing these theories through a process of trial and error. Ariana summarised these ideas:

I also believe that children learn as they play, so they learn, they learn through trial and error, they learn through exploration, through discovery, through wonder, through inquiry (Ariana, interview 1, p. 1, 5-7).

Teachers drew from a range of theories to explain their beliefs about how children learn with and from each other. In the extract that follows, Daniel describes his belief in the importance of relationships to peer learning, while acknowledging that the children's need to explore is equally important.

My time spent in the under twos here has really emphasised the relationships aspect of peer learning like just watching the interactions that the under twos teachers have with the children and particularly with families…so much of what we do is about relationships and for me that's the big thing that jumps out. But also in saying that exploration would be another one that jumps out for me…so providing just as many different experiences and opportunities for children to explore and learn in their own time (Daniel, interview 1, p. 8, 1-11).

Belief in the social nature of learning amongst peers is not surprising when New Zealand's early childhood sector has a socio-culturally based curriculum (Nuttall, 2013) which has a strong focus on family and community. *Te Whāriki* (Ministry of Education, 1996) specifically endorses ecological systems theory (Bronfenbrenner, 1979), in which children are seen as developing and learning within a set of nested environments such as the early childhood centre, home and local neighbourhood. The influence of these wider environments is acknowledged in the curriculum and was evident in teachers' responses. Recent research provides similar evidence of peer learning between more and less experienced learners in various social settings (Fair et al, 2005; Gray, 2011; Haworth et al., 2006; Jones, 2007; Maynard, 2002; Park & Lee, 2015). For example, Maynard's (2002) research of siblings in Mayan households in a Mexican village revealed evidence of the older children guiding their younger siblings to acquire physical skills and knowledge about appropriate cultural practices. The younger children benefited from these interactions as their older siblings scaffolded their play within their zone of proximal development. The responses from teachers in the present study support these findings as they reveal teachers' belief in the potential for peer learning in children's play across a range of settings with children of mixed ages.

Although teachers made consistent reference to the importance and relevance of the social context for peer interactions, references to children's development and the need to explore the physical environment were also present in some responses. Belief in the need for children to discover and explore their environment comes from cognitive constructivist approaches to learning such as Piaget's theory (1977), where it is argued that children learn from active exploration and opportunities to collaborate. Piaget (1977) stressed that co-operative play is vital as it allows children to learn from those who have different perspectives and provides opportunities for children to learn social behaviours by imitating their peers. As a result different perspectives challenge existing viewpoints and can result in the assimilation of new ideas

(Piaget, 1977). The results in this section demonstrate teachers' deep-seated belief in the role of discovery and exploration in learning.

4.2.4 Summary

The interviews revealed a belief in the social nature of learning. Teachers' defined peer learning as children working collaboratively during play whilst identifying the potential for children to share their expertise with their peers. However, some teachers expressed a view that peer learning also involves teachers, families and people in the wider community. This confusion about peer learning being the same as learning from other adults may go on to influence practices that do not facilitate peer learning in meaningful ways. Teachers did agree that the equality of status amongst children motivates them to attempt tasks and try new experiences with their peers that they might not otherwise. This result revealed teachers were cognisant of the particular role peers have in children's learning, compared to that of adults, despite the conflated understanding identified. The interaction between relationships and the environment was found to be central to teachers' beliefs about peer learning and teachers described how children support each other's wellbeing and sense of belonging. Finally, teachers' identified the role of exploration and discovery in learning, which can be linked to Piaget's theory (1977), as well as referencing Bronfenbrenner's (1979) ecological model to describe the processes associated with peer learning.

4.3 Sources of teachers' beliefs

4.3.1 Centre philosophy

These interviews uncovered a strong connection between teachers' beliefs about children's learning and the philosophy enacted in all three early childhood centres. Centre philosophy was the most consistent theme in the interviews and teachers across all three centres made reference to their centre philosophy a total of 62 times. For instance, Anna recounted her nervousness at being asked to adopt a philosophy that was based on what was for her a new theory about how children learn. At the time of the interview, Anna was a beginning teacher who had only been in the centre for a few months. The centre had researched schema learning theory (e.g. Nutbrown, 2011) and this was a key theory underpinning the philosophy and practices in the centre.

I was a bit nervous about taking on another theory…but when I was willing to accept another theory I actually stopped focusing on what I thought was how children learn and I was open to seeing actually in reality how children learn. I wasn't letting the theory lead my thinking, I was actually observing it in reality so I think the introduction of a new theory to me of how children learn led me to understand how children learn better (Anna, interview 1, p. 3, 12-17).

Anna went on to describe her realisation that children have patterns in their play and that once she became aware of this, she could not stop observing them to see what their current fascination was. In becoming cognisant with a new theory, Anna was able to extend her knowledge and grow her beliefs around how children learn; observing the theory in practice was a key factor in shaping her new knowledge. Anna's response illustrates the influence the centre philosophy had on her existing beliefs and understandings about how children learn.

Similarly, Caitlin taught in a centre that viewed children as researchers. When asked to identify what had had the most influence on her beliefs about children's learning, she responded as follows:

I would say that probably becoming familiar with our community of researchers programme and unpacking that. That to me has given me the best grounding to really connect what I've studied and learnt and to see that in practice and to see what the role of the teachers is and in supporting children in their learning. Yup I think it's a combination of having good material to be able to refer to, connect with your practice, use in reflection and kinda put all the two, you know all things those together (Caitlin, interview 1, p. 1, 34-39).

Caitlin's response revealed a connection between theories which stem from study and her growing understanding about her role as a teacher which has come about through familiarisation with the centre philosophy in practice. Reflection on the philosophy, as enacted in practice, is also referred to in her responses. Being able to connect theory with practical application through the lens of the centre philosophy had been an important factor for Caitlin in understanding what her role is in supporting children's learning. Fenstermacher (1994) differentiates between formal and practical knowledge and explains the means by which

teachers make connections between theory and practice. Caitlin had a body of formal knowledge from her studies and by familiarising herself with her centre philosophy was able to understand the practical aspects of her teaching role. The relationship between theories of practice and theories of development is important because theoretical knowledge allows teachers to both demonstrate and articulate theoretically sound practices (Fein & Schwartz, 1982). Both Anna and Caitlin used their theoretical knowledge which stemmed from their centre philosophies to articulate their beliefs about how children learn. These data reveal teachers' efforts to make connections between their theoretical knowledge and their centre philosophies and practices.

Heather explained how her beliefs had changed from those she had as a young teacher after completing her study to how she now thought. The centre she was teaching in at the time of interview gave parents a special role as educators. Parents often stayed with their children, were sometimes employed, and were always encouraged to learn alongside their children. Heather described how the philosophy operating at the centre impacted on her beliefs about learning.

> *I don't think that everything that we learnt in college is right now, whereas when you came out you thought right this is the way that you do it and you tell the others how, you tell parents this is the right way. I don't believe that anymore, I think there's lots of ways and I'm learning different ways from our parents that I think actually work better than what we've been taught. So to me, it goes to the whole I'm learning off them as much as they are learning off me (Heather, interview 1, p. 12, 16-21).*

The role of the centre philosophy as a powerful influence in shaping teachers' beliefs has been found in other studies as well (Rivalland, 2007; Salamon & Harrison, 2015; Stephen, 2010; Wood & Bennett, 2000). This influence is not always evident in teachers' practices as Rivalland's (2007) case study of early childhood teachers revealed. Rivalland discovered that the group of teachers articulated their centre's philosophy but their practices did not always align with the beliefs they espoused from the philosophy. In the current study, the centre philosophy in three different early childhood settings played an important role in shaping teachers' beliefs about their work with children.

In contrast to Rivalland's (2007) findings the centre philosophy not only influenced teachers' beliefs about their role in supporting children's learning, but it also guided their practice. Centre A's philosophy was influenced by the 'Reggio Emilia' approach (Rinaldi, 2001a) and in response to the question, 'what is it about the Reggio Emilia philosophy that aligns with your beliefs about how children learn?', Bernadette identified the importance of children being able to drive their learning through their own interests. This response revealed a connection between beliefs and practice for Bernadette. Ariana is a teaching colleague of Bernadette's and she also described the value of children driving their own learning. Both teachers viewed their teaching role as empowering children to make choices about their learning experiences. Ariana and Bernadette were not the only teachers to express the view that children need to be able to have agency in their play. Tatiyana worked in the centre which had embedded schema learning theory into its philosophy and practices. She explained the impact this has had on her teaching practice as follows:

> *and also my inquiry into schema learning theory. Um has hugely impacted my beliefs around how children learn and the need for the open ended resources and the need for them to visually be able to see what they need. The importance of not interrupting their flow, not getting them um to walk to the beat of my drum and my timetable, mm yeah (laughs) (Tatiyana, interview 1, p.1, 35-38).*

During the interviews I noticed the sense of ownership that the teachers at Centre A had of their philosophy. When I asked Caitlin how this came about, she described the constant dialogue about philosophy and practice, which they engage in as a team and the 'strong culture' they had of talking about what it means to be 'in this place'. Kathy also emphasised the importance of conversations amongst teachers about the relationship between philosophy and practice.

These responses are in line with the intent of *Te Whāriki* (Ministry of Education, 1996) in that teachers should construct curriculum that reflects their local community as well as their role in the teaching and learning process. Heather's acknowledgement that she is learning from parents in her centre illustrates how parents can make a fundamental contribution to the daily curriculum. Teachers interviewed for this study are arguably working in communities of practice (Wenger, 1998), within a teaching philosophy that is owned by their early childhood setting. Significantly, evidence from teachers' responses revealed the powerful influence exerted by the

centre philosophy on teachers' beliefs and practices. This group of teachers have not constructed their beliefs and practices about peer learning in isolation from their communities of practice. Instead, they have absorbed the characteristics of their centre philosophies in such a way that has shaped and defined what they believe and practice.

A potential outcome of philosophies shaping beliefs and practices is that children's experiences of peer learning will vary because the curriculum they experience will be different in different settings. This diversity in curriculum offerings can result in variations in teachers' practice and children's experiences of peer learning. The recent Education Review Office report (Education Review Office, 2013) on how teachers were working with *Te Whāriki* noted that the document does not provide teachers with clear criteria for high quality curriculum implementation. The report went on to warn that one of the consequences of a non-prescriptive curriculum was that it relies on teachers' professional knowledge to implement it. The findings from the present study reveal teachers' beliefs and practices related to peer learning are connected to the philosophy or culture of the setting they are working in, rather than the curriculum, and therefore children's experiences with their peers will be variable across settings. Furthermore, children's experiences of peer learning are less likely to be linked to theories of development, but instead to teachers' theories of practice (Fein & Schwartz, 1982).

Analyses highlighted how teachers adopted the language of their centre philosophy, using this to describe their beliefs and understandings about how children learn. The teachers at Centre A consistently communicated a philosophy that viewed children as researchers. They had a very strong image of the child and were able to articulate this, as illustrated by Caitlin when discussing her centre philosophy:

> *I think the fact that it talks about our community of practice and the way in which the teachers, children and parents come together and it's that collaborative learning, talking about that and then breaking it down to the image of the child and um seeing them as competent, capable, self-directed learners and what that means for this establishment (Caitlin, interview 1, p. 2, 2-6).*

From the same centre, Bernadette viewed children as researchers who pose questions and find out information that they share with their peers. The notion of children as human beings rather

than human 'becomings' (Rinaldi, 2001a) was a belief that all of the teachers from centre A referred to and saw as important. This idea of children as human beings (as opposed to becomings) originates from the Reggio Emilia philosophy which values and celebrates the unique identities of children (Brunton & Thornton, 2005) and parallels the concept of children as 'competent and confident learners', as found in *Te Whāriki* (Ministry of Education, 1996, p. 9).

Centre B teachers emphasised the central role of relationships and empowerment through their use of the language of schema learning theory (Nutbrown, 1987) when talking about children's learning, both as a team and with the children themselves. Tatiyana identified the importance of relationships for creating a safe space for children to try new things when describing the review of their centre philosophy. Anna, Tatiyana's colleague, viewed learning as being owned by everyone, with relationships being a primary influence on the quality of learning taking place.

> *We're just reviewing our philosophy currently and I think in the first sentence it mentions how we are in an environment where children learn off other children and teachers learn off the children and other teachers. It emphasises how it's really important here (Anna, interview 1, p. 12, 8-10).*

These findings suggest teachers espouse beliefs and understandings about how children learn that are adopted from the discourse utilised in their own communities of practice (Wenger, 1998). These dominant discourses form part of the 'regimes of truth' (Foucault, 1980) which operate within communities of practice and can constrain how teachers articulate and enact their beliefs. Argyris and Schon (1974) differentiate between espoused beliefs and theories in use, drawing attention to differences between beliefs that are expressed and actual theories of practice. Such a distinction raises questions about the relationships between the beliefs teachers espoused during the interviews and their observed practices. Chapter five reports on teachers' accounts of their practice, with the aim of illuminating the relationship between beliefs and teachers' practice related to supporting peer learning.

Teachers' beliefs about how children learn were also connected to the teaching and learning environment they worked in. Paula and Tatiyana taught in a centre (Centre B) that valued the provision of open-ended resources because they are empowering for children as they can use

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them for different purposes (for example sand, water and art materials). Both teachers identified the importance of these types of resources for children's learning. Empowerment and the idea of a 'can do' attitude were included in the centre's philosophy statement.

The language and the richness and the open-endedness and there's no saying sort of no, it's how can you do this or what do you need (Paula, interview 1, p. 8, 25-26).

Centre A emphasised the role of routines as a key factor in children's learning and these were carefully considered so that the day flowed uninterrupted for children. Teachers from centre A connected the nature of the environment they had created (including the routines) with their beliefs and philosophy about children's learning. Ariana described their centre environment as a place that viewed children as leaders in their play.

It sees everyone as leaders you know and we foster and promote a leaderful child and a capable child and a confident child and it's evident in, as you observe children playing, they're, you know they'll often show signs of leadership through peer learning or other means. They'll make up games or they'll and then they invite their peers to come and join them (Ariana, interview 1, p. 3, 15-18).

Routines were carefully considered in centre A so that play could continue uninterrupted. The teachers were adamant that by not interrupting play at set intervals, children were able to engage more deeply with them and with their peers. Ariana noted that children had opportunities to drive their learning when there are no set routines. Natasha also expressed the importance of this uninterrupted time as a means for allowing children to engage in more complex play.

The role of the environment in the learning process has been explored by Claxton and Carr (2004), who developed a framework for considering learning communities. A 'potentiating environment' is described as one that "not only invites the expression of certain dispositions but actively stretches them" (Claxton & Carr, 2004, p. 92). The teachers' responses illustrate how they gave careful consideration to creating environments that allowed children opportunities to

be leaders amongst their peers. Other studies (Burnard et al, 2006; Pohio, 2006) recognise the need for teachers to ensure learning environments enable collaborative interactions and promote shared problem solving and exploration. In this study, teachers recognised the provision of open ended resources and uninterrupted time for play as being important for promoting sustained play with peers. These results indicate there is teacher awareness of the need to foster learning environments that support children's collaborative play and enable them to have agency over their peer interactions.

4.3.2 The importance of colleagues

Teachers identified their colleagues as another important source of influence on their beliefs and understandings about how children learn and how to support it. Analysis found colleagues (as a source of teachers' beliefs) were referenced by all teachers 35 times throughout the first interviews. Teachers' responses suggested colleagues were an important source of knowledge when trying to make sense of how to engage children in collaborative endeavour. Both Anna and Kathy were recent graduates and they talked about the role of their colleagues in role modelling effective practices for working with children. Kathy emphasised the significance of having experienced teachers whom she could observe and model her practice on. Anna worked closely with Tatiyana in the same section of the early childhood centre and highlighted the benefits of a strong role model, saying 'it's good to have someone who already has so many strategies and has been doing it for a while' (Anna, interview 1, p. 12, 18-19).

That teachers learn from each other in ways that can change their beliefs and grow their understandings about children's learning became evident during analysis. Teachers supported each other in their work with children, but also challenged each other's thinking and practice. Daniel for example, talked about the importance of working as a collective amongst teachers who have different perspectives as this allows a 're-interpretation' of practice to occur.

> *The different ways that people see peer learning and the different ways that we interpret it, I think just having that collective of people that look at things differently is such an important driver and…it provides each of us with opportunities and examples of what it looks like in practice and how we can perhaps not necessarily better our own practice but…how we can re-*

interpret what someone else is doing and make it work for us and for other children and their

families as well (Daniel, interview 1, p. 10, 18-23).

Bernadette expressed a similar idea when she talked about each teacher bringing a different lens to the interpretation of children's learning; by sharing the lens with colleagues, teachers came to a new, shared, understanding. Kathy valued the discussion of different perspectives, teaching strategies and tools, as these discussions had an important impact on teachers' practice. When asked about the influences on her beliefs about children's learning, Natasha responded that the professional dialogue she engaged in with her colleagues had the potential to challenge her and ultimately change her thinking about her teaching practices.

These findings resonate with other studies (for example Nuttall, 2003) which explored how teachers working closely together can influence each other's beliefs and practices. Nuttall investigated influences on teachers' co-construction of the teachers' role in early childhood centres which illustrated the importance of teachers working together. Nuttall (2003, p. 25) termed it "a process of symbolic exchange with 'significant others' " in which working closely together afforded many opportunities for teachers to "influence each other's understandings". Despite this, Wenger (1998) argues that one of the dangers in a community of practice is that practice can be constrained by others, suggesting the influence of teaching colleagues on teachers' beliefs and practice may not always be positive.

4.3.3 Observations and experiences as a teacher

Different experiences during their teaching careers were also found to have an influence on teachers' beliefs about children's learning. Nine teachers made 27 references to their observations and experiences as a teacher as a source of their beliefs. Ariana had been teaching for thirteen years and when reflecting on her experiences in the sector, acknowledged the role these experiences had played in shaping her beliefs. Teachers emphasised the significance of their practical experiences with children in order to connect theoretical knowledge and practice. Natasha described her experiences:

By observing children, I've been able to see those things in practice, cause sometimes there's a difference between reading something or being told something and then actually watching it unfold in front of you, it often cements a lot of things, um (pause) and I often will have little aha moments, you see something and go aha that's what all that means (Natasha, interview 1, p. 2, 3-7).

Kathy was working through the teacher registration process for newly trained teachers at the time of the interviews. She explained the importance of understanding the context she was teaching in, as sometimes it caused her to question her beliefs and the theories these beliefs are based on.

Sometimes I just disagree with my practice and what I've learnt conflicts with what I learnt theory wise so then you have to evaluate. Well ok so what is real for me now? What is real for this environment, for these children? Because the children that I taught in previous centres have different needs to the children that I'm teaching here so it's about acknowledging where your children are and what's real for them in that moment, and their learning (Kathy, interview 1, p. 2, 9-13).

Recent research has examined the role of teachers' experiences in shaping their beliefs (Caudle & Moran, 2012; Rivalland, 2007; Wood & Bennett, 2000) and how teachers construct and re-construct their knowledge is a growing area of enquiry into teacher thinking (Wood & Bennett, 2000). The process of constructing and re-constructing knowledge is influenced by the settings teachers work in (Caudle & Moran, 2012). Caudle and Moran's (2012, p. 39) research into how teachers' beliefs and practices change over time found evidence that learning is 'situated' within various settings: "This relational, nested viewpoint of the situated nature of cognition assigns importance to the activity settings within which learning occurs". These data demonstrate that teachers' beliefs and practices about teaching and learning are influenced by their teaching experiences.

In the present study, teachers identified the importance of reflecting on practice for making connections to their theoretical knowledge base as well as challenging the beliefs that they currently possess. This finding highlights the importance of teachers engaging in regular critical reflection and is supported by previous research (Hamre et al., 2012; Hartnett, 2012). Hartnett's (2012) action research study emphasised the value of critical reflection for exploring beliefs and

changing teachers' behaviours. Similarly, Hamre et al. (2012) used video with teachers as a reflection tool, resulting in teachers adopting more effective strategies for supporting language and thinking skills. The present study confirms these earlier findings whilst drawing attention to the need for teachers to ensure they have ongoing opportunities to critically reflect on aspects of their practice. These particular results highlight the need for professional discussions with colleagues that prompt critical reflection on practice.

4.3.4 Initial teacher education and professional development

The initial teacher education (ITE) teachers had completed was a key source of their beliefs about how children learn, including the role of peer learning. In addition, nine teachers drew attention to the importance of ongoing professional development to ensure their knowledge and understandings continued to grow and develop. Analysis identified 20 references to study and professional development as key sources of beliefs about children's learning. For example, Bernadette explained how she developed her own beliefs about children's learning by referring to her interest in the Reggio Emilia approach, which came about during her initial teacher education. All teachers stated that, initially, study was vital in shaping their beliefs about how children learn but that these beliefs began to change through experience. Heather described how her beliefs evolved through a 'filtering' type process where she would adopt the types of practices that fitted into her existing belief system and then discard those that did not.

> *Yeah well it started off with the study and then it was a matter of filtering after I graduated, going ok yeah this fits with me, this doesn't, you know some things that I thought were really good back then, as practice went on I've actually sort of put to the side and taken on board like other you know, other ideas (Heather, interview 1, p. 26-29).*

Ongoing professional development challenged teachers' thinking around their professional practice and was an important source of their beliefs about peer learning. Tatiyana highlighted the impact of the reading she had done around brain development, and in the following extract, Kathy identified the important role of professional development for teachers.

> *Cause academic study is just a whole lot of knowledge that I need to know to be able to pass to have a qualification but the reality is taking all that knowledge and using it on the floor and being*

able to identify it and find it in practice and look at it and say that's how, that's how that makes
sense and that's how I'll do that and that's why that is that way. And then it's the PD and stuff to
keep what is relevant as possible (Kathy, interview 1, p. 7, 10-14).

These data indicate this group of teachers emerged from initial teacher education with a set of beliefs and a body of knowledge that they then attempted to make sense of by engaging in practical teaching experiences, as well as ongoing professional development. Research evidence highlights the role of professional development in growing teachers' professional knowledge and practice (Caudle & Moran, 2012; Isikoglu, 2008; Wood & Bennett, 2000). Wood and Bennett (2000, p. 642) conducted case studies with early childhood teachers and found that what teachers learnt from their initial teacher education was modified through experience and ongoing professional development. Similarly, Caudle and Moran (2012) examined changes in pre-service teachers' beliefs as a result of their teaching experiences and the results demonstrated that it was experiences over time that grew teachers' understandings of the 'bidirectional' relationship between beliefs and practice. Results from the present study confirm these earlier findings.

4.3.5 Summary

This section of results has identified the main sources of teachers' beliefs about children's learning. The philosophy of the centre was a very strong influence on beliefs, creating a lens through which teachers' understood and articulated their beliefs and practices. Teachers tended to make sense of their beliefs by relating them to their centre's philosophy of teaching and learning. Interactions with colleagues and a range of teaching experiences also provided essential opportunities for teachers to construct curriculum and develop their role in supporting children's learning. Initial teacher education and professional development were also identified as factors that influenced teachers' beliefs but with fewer teachers referring to these as sources. Overall, teachers' ongoing experiences within their own early childhood centres were found to be a key factor in shaping teachers' beliefs and professional practices.

4.4 What teachers believe about their role in peer learning

4.4.1 Key beliefs about the teachers' role

Teachers identified and discussed a range of strategies they used to engage children in collaborative endeavour with their peers. These strategies were driven by the two key beliefs identified in the previous section: that children need to be empowered to drive their own learning; and the environment is an important factor for the promotion of collaborative learning opportunities. Teachers believed their role was to create an environment that empowered children to take on leadership roles and to share their expertise. Empowering children was an idea that all teachers consistently referred to when talking about their role in supporting peer learning. Anna believed that her role was to show children that she does not have all the answers. Ariana expressed the same belief, stating that children think differently from adults and need to be given opportunities to share their knowledge. When asked about her role in peer learning, she described it as being 'the eyes and the ears that listen to children' (Ariana, interview 1, p. 4, 15). Bernadette argued that children are capable and competent and drivers of their own learning. She wanted children to be empowered to find the answers to their questions with their peers.

> *I think it's important for children to see other children as teachers and as being able and confident to be able to do different skills because then as a teacher I'm not necessarily the be all and end all and the curer of problems. I want the children to be able to negotiate and to talk and…to be empowered to fix their own problems and to drive their own learning and to find their own answers and if those answers are with one of their peers well that's good (Bernadette, interview 1, p. 7, 5-10).*

Many of the other teachers talked about their role in empowering children to have agency in their play. Tatiyana expressed a strong belief in children being encouraged and supported to seek each other out and be role models for their peers. She identified an example of a child showing another child how to use the flying fox and that if her self-esteem as a teacher wasn't strong she would have claimed that child's learning as a result of her own teaching.

> *I've heard teachers own learning that wasn't theirs…my role is to foster it, to spot it at any opportunity, and to always give that power to the children…because I believe that by doing that*

one act children are going to be that much more likely to go to a peer in the future than   they

are to me (Tatiyana, interview 1, p. 7, 27-28, p. 8, 18-26).

Establishing an empowering environment where children had collaborative learning opportunities was also a common theme. Daniel reflected on whether the environment he creates affords opportunities for older children to share their expertise with their younger peers. Paula said she worked in an environment where the teachers encouraged older children to help the younger ones. In addition to creating environments that provoked problem solving and negotiation amongst peers, and contained resources that were open ended and child rather than teacher led, teachers identified that they sought to create interpersonal environments that children could have ownership of, spaces where children could develop confidence to seek help from their peers. For example, Kathy expressed the importance of teachers communicating confidence to children that they can learn from each other and work together.

Empowerment is a key principle within *Te Whāriki* (Ministry of Education, 1996, p. 40) and is expressed as "the early childhood curriculum empowers the child to learn and grow". These teachers have embraced this ideal, seeking to provide environments that afford opportunities for children to drive their own learning with their peers. Previous research has highlighted the importance of environments that empower children to collaborate together (Burnard, et al., 2006; Pohio, 2006; Young & Morgan, 2015). As Pohio (2006) found, the environments that support children to work collaboratively do not just happen, but need to be specifically created by teachers. Burnard et al. (2006) also emphasised the need for teachers to plan such environments rather than assuming collaborative play will just happen.

4.4.2 Teaching strategies

As well as discussing the need to plan for the environment teachers shared specific teaching strategies they used to promote collaborative endeavour and the sharing of expertise amongst peers. An important idea that all teachers expressed was the need to be consciously aware of opportunities for peer collaboration and peer tutoring. Kathy expressed this same idea using the terms 'notice, recognise and respond' that come from Drummond (1993) and are included in Kei Tua o te Pae, the early childhood assessment exemplars (Ministry of Education, 2004/2009). Teachers described how they scan the setting and the importance of observing children so that

teachers can develop knowledge of their shared interests. Natasha discussed how teachers having such knowledge could lead to the creation of important opportunities for collaborative learning 'around research topics of interest' (Natasha, interview 1, p. 7, 19). In a similar study, Robson and Hargreaves (2005) investigated early childhood teacher's perceptions and practice in supporting children's thinking. They found that the ability of teachers to recognise opportunities for extending children's thinking during group play and capitalise on these moments was critical.

All teachers identified language as an important tool for supporting children's peer interactions. Teachers used language in two different ways. Firstly, they used it themselves to support peer learning. Secondly, they helped children use language to communicate effectively with peers. Bernadette discussed how she used open-ended questions and resources as provocations for children's thinking and to stimulate their curiosity further. Language was seen as having an important role in supporting children to communicate with their peers and teachers said they frequently modelled turn taking and sharing of resources. Opportunities for children to ask questions of their peers was viewed as being very important, as was the importance of children communicating their emotions to their peers so that shared understandings could occur. Tatiyana expressed it like this:

> *we really work intentionally with children to um be able to articulate or to say what they're thinking, feeling, so that other children can begin to understand their perspective (Tatiyana, interview 1, p. 11, 9-10).*

The importance of active listening was emphasised by five teachers. For example, Bernadette talked about her role being to process the information and to hear what children are trying to tell her. She identified active listening as a beginning point for successfully grouping children as it enabled her to discover children who had similar interests and who might like to work together. Hedges et al. (2011) argue that teachers have an important role in actively listening to children to ensure sustained shared thinking increases in complexity. More challenging thinking is achieved through the provision of more abstract and complex props. Recognising opportunities to afford this type of learning amongst children requires teachers to deliberately emphasise peer tutoring in their pedagogical practices. Siraj-Blatchford (2009) identified the critical importance of sustained shared thinking amongst peers in which children scaffold each

other as they work together to problem solve. In the present study teachers actively listened to children to gain insight into their interests and thinking in order to foster opportunities for peer learning.

Positioning children as having expertise to other children was a strategy that the teachers frequently adopted with all teachers giving examples of this strategy. Heather described a child who had learnt how to make paper planes at the centre and how she asked him to share this skill with other children. She said that he could then go home and teach his siblings how to make paper planes; an example of learning extending beyond the early childhood centre. She said that an important aspect of the teachers' role is knowing children well and fostering an environment where children have lots of opportunities to demonstrate leadership. Caitlin also considered recognising children's knowledge and promoting children as teachers amongst their peers was important.

> *Actually I know this person whose right here knows the answer and is capable of showing this person how to do it or could share their knowledge with them, it doesn't need to come from me, so being able to say well um I will use this child to be the example and to be the tutor and the teacher here so in those cases to be able to promote children as learners or as teachers, and yeah so I think a lot of it happens well I suppose because we do foster it and we do recognise it as important (Caitlin, interview 1, p. 5, 29-34).*

Daniel identified the provision of learning opportunities based around children's collective interests. He acknowledged the importance of encouraging children to share what is significant for them at that particular moment as this knowledge could be shared with peers.

In studies on sharing expertise Wood and Frid's (2005) case study, for example, highlights the importance of teachers establishing a social environment that is based on peer sharing and tutoring. Barnard (2002) studied peer tutoring in a bilingual setting and found that less capable children viewed their more capable peers as a source of knowledge and consistently sought their assistance. In the current study, teachers recognised the importance of positioning children as experts amongst their peers and valuing their knowledge and contribution to the learning process.

4.4.3 Intentional teaching

A key theme in the teachers' role in peer learning was intentionality in teaching. Analyses revealed teachers grappled with whether they believed that they deliberately promoted peer learning or whether this type of learning occurred spontaneously. All of the teachers said children learn from each other despite anything that teachers might do to intentionally ensure peer learning takes place. Paula described peer learning occurring spontaneously between children and that her promotion of it is an unconscious practice that just happens. Daniel was adamant that teachers needed to provide opportunities for children to learn from each other, but that teachers should not get too involved in the learning process. These responses contrast with their belief that they needed to provide opportunities and the environment for children to learn from their peers. In fact, when Heather was asked whether she thought it was important to provide opportunities for children to learn from their peers, she was initially puzzled as to why such a question would be asked.

> *I think the opportunities are everywhere and um I don't know how you mean provide the children with the opportunities (Heather, interview 1, p. 5, 8-9).*

Heather considered this question and then explained how the opportunities for peer learning were abundant in the environment in which she teaches. Most teachers agreed that peer learning happened naturally in play-based environments, with some teachers stating that mixed ages provided more opportunities for children to teach their peers.

However, some teachers agreed that peer learning happened spontaneously, but that they sometimes intentionally promoted this type of learning. Ariana was one of these teachers and she stated that children also can engage in peer learning in an unconscious manner. Tatiyana stated that she believed teachers needed to be intentional in supporting and promoting this type of learning. In this extract she refers to the child as the 'teacher'.

> *I think we do need to be intentional about it and always have our radar out around it because um I don't really know the technical term but I do know the look that I see on a child's face when they are supporting someone else. The teacher is just so profoundly proud of themselves and I can see them gaining mastery in order to be able to pass it on and its reinforcing the learning they have done (Tatiyana, interview 1, p. 3, 34-38).*

When asked whether she deliberately incorporated peer learning into her practice, Natasha responded that she did, but that she thought peer learning happened naturally anyway.

> *we might pair children up or…if a child comes up and says I'm not sure what to do or how to do this and we might say well you know I saw such and such using that piece of equipment and, why don't you go and see if they can help you…we've just done a big whale and ocean thing and we've got one child who has amazing knowledge and he became our go to expert and he would sit with the children and share his knowledge…But that happens every day, like as a natural part of the day and I think maybe we sort of take our role in that a little bit for granted (Natasha, interview 1, p. 5, 20-29).*

Some of the teachers were reluctant to state that they intentionally promoted peer learning, preferring to say that it is a natural part of the day. Kathy seemed to think aloud when asked whether she deliberately incorporated peer learning into her practice. Her response indicated a possible dilemma for her as to whether she wanted to be intentional in her practice in this area or not.

> *I think I casually do it. I wouldn't say I deliberately do it cause deliberately would have to imply intent. And as much as I'd like to sit here and say I'm the kind of intentional teacher, I think sometimes things happen on a snap of the moment (Kathy, interview 1, p. 10, 3-5).*

The idea of pairing, or grouping, children deliberately to promote peer learning was discussed during some interviews and teachers were divided as to whether they deliberately did this. The majority of responses indicated resistance to this idea, as teachers believed that children who shared similar interests would naturally gravitate towards each other and would engage in peer learning about their interests. In contrast, Anna reflected during the interview that pairing children was a strategy she could use more often.

> *We don't buddy them with older children but that is a good idea…we've had a new child start and an older child has taken a shine to her and so has had the best week showing this child around…and so I think we could do it more deliberately (Anna, interview 1, p. 8, 37-40, p. 9, 2).*

These data reveal a strongly held belief in the importance of naturally occurring opportunities for peer learning through play. Teachers seemed reluctant to state they were deliberately supporting peer learning, instead suggesting that if the environment was right then it would happen naturally. When answering questions about intentionality, teachers used the opportunity to reflect on whether they were intentional in their support of peer interactions or viewed these interactions as occurring spontaneously during children's play, without their involvement or prompting. These responses illustrate how play-based learning is a dominant discourse in early childhood education. This finding is not surprising as the philosophy of learning through play is a long established tradition in early childhood education (Stover, 2011) and a central idea within *Te Whāriki* (Ministry of Education, 1996, 2017).

The play based learning discourse has been the subject of much debate recently, particularly in terms of the teachers' role examined in relation to the concept of a play-based pedagogy (Stephen, 2010; Thomas, Warren & deVries, 2011). Thomas, Warren and deVries (2011) researched early childhood teachers' understandings of the relationship between play based learning and intentional teaching. Teachers identified the complexities of working in a discourse that required teachers to ensure children maintained control over their play and their learning, but also required them to maintain some control over the learning process and outcomes. Thomas et al. (2011, p. 74) concluded that teachers need to challenge the expectation that early childhood teachers "favour play over intentional teaching". The responses from teachers in this study demonstrate that teachers' beliefs are grounded in a play-based pedagogy and that viewing their practice in supporting peer learning as intentional can be a challenging notion.

4.4.4 *Te Whāriki* and the teachers' role in peer learning

Teachers were asked whether the curriculum document *Te Whāriki* (Ministry of Education, 1996) guided them to support peer learning. Responses indicated teachers viewed *Te Whāriki* as a guide for practice, but they sought other documents and literature to help them develop teaching strategies. Anna expressed the following view:

Yes I would say it has because it's a social document, it emphasises children learning through social interactions and tuakana teina and peer learning is part of that so in that sense it has. Directly, no. I don't think it has enough on how teachers can support peer learning…it doesn't have any strategies for teachers to help children learn, it has what we want them to gain in terms of life skills but it doesn't actually teach teachers how to support that…but I feel that partly the reason why the early childhood sector uses other documents is because Te Whāriki doesn't give teachers the strategies to use that document (Anna, interview 1, p. 9, 25-35).

In Centre B, Anna explained that the schema learning theory (Nutbrown, 1987) provided the teaching strategies she needed to deliver the curriculum 'in reality', rather than just telling her 'what children need to learn'. Anna's centre colleagues expressed similar views. Paula described the place of *Te Whāriki* as a guiding document and that schema learning theory was used for planning and is embedded in the centre philosophy. Tatiyana's view on *Te Whāriki* was that it was relevant for supporting children's sense of belonging and wellbeing, but that it 'fell over' when it came to exploration. Instead, she stated that Centre B used schema learning theory, metacognition and emotional regulation as frameworks to guide everyday practice.

Teachers in Centre A had developed their own 'community of researchers' document which they all consistently referred to as guiding their practice around peer learning. As in Centre B, teachers in Centre A viewed *Te Whāriki* as a foundation document. Caitlin expressed the view that *Te Whāriki* has Bronfenbrenner and sociocultural learning in it, and that is the groundwork, but that their own 'community of researchers' document sits on top of the curriculum document and is their working document that they use every day. Natasha also thought that the influence of *Te Whāriki* was subtle as the document was 'in the background' compared to their 'community of researchers' document. While supporting *Te Whāriki* as an important document for teachers, Bernadette described where she thought it fitted into her philosophy and practice.

Te Whāriki guides…but with our programme we do refer back to our own community of researchers which does allow for children to drive their own learning, for children to be seen as the, as the researcher, as the teacher, as the learner (pause)…I think Te Whāriki is very important for our younger children in terms of their emotional needs but I think once you start to look at children as researchers, I think that our programme then starts to fit slightly better (Bernadette, interview 1, p. 7, 19-22, p. 8, 5-7).

Heather (Centre C) described knowing how to use *Te Whāriki* by linking learning to the various strands such as wellbeing and belonging, but she did not see the document as influencing her daily practice. She said she did not incorporate the document into centre planning documentation, as parents wanted a visual narrative of their children's learning.

> *But I don't at all miss the quoting Te Whāriki, I always thought that was a little bit fake anyway...I wouldn't throw Te Whāriki out...I do like the way it acknowledges children learn holistically and everything weaves together, but I do think...yeah it might need the refresh button pushed (Heather, interview 1, p. 12, 29-30, p. 13, 14-21).*

Heather's colleague Kathy saw the document as being something she lived and breathed and that it was part of who she was as an educator; but also said that it was hard to think about the specifics in terms of how it guided her practice in supporting children's learning.

These responses indicate *Te Whāriki* has been adopted by this group of teachers as a guiding document and a foundation for thinking about teaching and learning. *Te Whāriki* underpinned the centres' own curriculum and practices and the other documents and theories which they sought out. In their responses, teachers described the lack of identified teaching strategies to support their thinking around supporting peer learning while acknowledging the holistic nature of the document and the relevance to children's wellbeing and sense of belonging. There has been some critique of *Te Whāriki* (Blaiklock, 2010; Dalli, 2011; Nuttall, 2013), with Blaiklock (2010) calling for research into the effectiveness and the implementation of the curriculum. In this study the lack of guidance in *Te Whāriki* for teachers about fostering peer learning supports Nuttall's (2013) claim that the non-prescriptive nature of the curriculum can be challenging for teachers. Findings from the current study add to the critique around implementation of *Te Whāriki* and more specifically the role of the teacher in relation to promoting and supporting peer learning.

4.5 Summary

This chapter has presented the data collected from the initial interviews with teachers. Teachers expressed their belief in the social nature of learning and some teachers connected Bronfenbrenner's (1979) ecological systems model with their understandings of peer learning. Reference to the ecological systems model was surprising as definitions of peer learning within the current literature do not reference this theory and Bronfenbrenner's model has no explanation for how children's thinking is transformed. One explanation for the reference to the ecological systems model is the presence of this model in *Te Whāriki* (Ministry of Education, 1996). Furthermore, the curriculum document emphasises the role of family and community in children's learning experiences. *Te Whāriki* was described as a foundation document to guide teachers' practice in supporting peer learning, but teachers identified a lack of specific teaching strategies in the curriculum to foster this type of learning.

Results reveal teachers' belief in the valuable learning that occurs when children work together as well as the potential for children to share their expertise and knowledge with their peers. An important finding was the influence of teachers' community of practice on beliefs and practices related to peer learning. Colleagues played a fundamental role as filters for teachers' shifting beliefs and understandings about their professional practice. This finding has implications for children's experiences of peer learning in a sector where centre philosophies and practices are diverse. Finally, teachers viewed their role as empowering children in their learning but were challenged about the idea of intentionally promoting peer learning. In addition, teachers emphasised the need to be 'tuned in' to opportunities to promote peer learning and this required active listening and knowledge of children's interests. In the next chapter, data from the stimulated recall interviews are presented.

Chapter Five: Case studies - results of the stimulated recall interviews

5.1 Introduction

This chapter reports the results of the stimulated recall interviews. Footage of teachers' practice was shared during the interviews and the conversations that followed provided insight into teachers' intentions about fostering peer learning. The interviews provided an opportunity for teachers to explain and discuss the strategies they adopted to support children's collaborative endeavour. The chapter is organised around the main themes which emerged when content and thematic analysis was undertaken on the interview transcriptions using the NVivo programme. When reporting the results, pseudonyms have been used for children, with teachers given the same pseudonym as in chapter four. This study sought to investigate teachers' practices related to peer learning and the results reported in this chapter address two main research questions:

- What do teachers understand is their role in peer learning?
- Do teachers promote opportunities for children to adopt expert roles with their peers, and if so, how?

This group of teachers held definite views about aspects of their practice in relation to peer learning. In the initial interviews (as reported in chapter four) teachers spoke about empowering children to have agency in their play and during the stimulated recall interviews teachers identified instances where they had promoted children's agency amongst their peers. Teachers reflected on how they fostered collaborative learning, including critiquing their own practices. When reflecting on the play episodes, teachers sometimes experienced moments of catharsis about children's intentions. During these moments teachers expressed new insights into children's peer play. This set of interviews illuminated teachers' understandings of their role in supporting peer learning and revealed a reluctance to engage in teacher-led learning. Importantly, contradictions between beliefs (as reported in chapter four) and practices related to intentional teaching were exposed in this set of results.

5.2 Reflection

Viewing the filmed observations provided opportunities for teachers to reflect about the decisions they made as they supported peer learning. This included reflecting on how they promoted and supported peer learning and interpreted their own practice. This group of interviews was an active exchange of ideas and sometimes this dialogue extended teachers' and

my own understandings. At the beginning of, and throughout each interview, teachers were asked to identify which clips they wanted to view and discuss. Providing choice avoided assumptions about teachers' practice being made while ensuring teachers' intentions were correctly interpreted for analysis. The methodology used built on that of Wood and Bennett (2000), who researched early childhood teachers' professional learning using interviews and video. In Wood and Bennett's study, teachers selected video clips to discuss based on whether they confirmed or confronted their theories of play. In the current study, teachers were often quite clear about how they supported children's group play and were keen to ensure what they were trying to achieve was communicated during the interview.

Teachers were given a compact disk with their own filmed observations on it, at least a week prior to the interview taking place, so they could view the footage; some of them reported they watched the clips several times. Initially teachers were critical of the way they looked and sounded. They made comments about how their hair looked and one of them said she did not realise that her mouth was often wide open and that she talked so much. The teachers became visibly more relaxed as the interview progressed and they got used to seeing themselves on the screen. Once they got over their own self-consciousness, viewing the filmed observations provoked reflection on their practice related to how they supported peer learning and examples of these reflections are presented in this section. Teachers' experiences of the interview process are described by Dempsey (2010) who states that stimulated recall interviews require participants to reflect on their actions and that the experience can be difficult. Teachers also shared what they had noticed about children's intentions and the way they interacted with their peers; reviewing the filmed observations provided opportunities for teachers to examine peer play closely.

5.2.1 Critiquing practice

Reflection on practice was a dominant theme with analyses revealing 55 instances throughout the stimulated recall interviews. Teachers commented that involvement in the study provided valuable opportunities for them to assess how they supported peer learning. Caitlin emphasised the value of 'the opportunity to look at something….analyse in detail' (Caitlin, interview 2, p. 12, 18). Heather said she noticed a lot more with the visual footage and Kathy stated that 'it just gives you the opportunity to have a more thoughtful reflection on your teaching practice' (Kathy,

interview 2, p. 17, 3-4). Teachers critiqued their practice, sharing what they could have done to further children's learning with their peers. Similarly, teachers in Wood and Bennett's (2000) study found viewing their practice enabled them to identify inconsistencies between their intentions and practices. Kathy remarked on her inattention to a child who was trying to negotiate a role for herself in some group play.

> *Looking back on this, seeing it like that, I was distracted with what was going on over here with this group, I really should have come along and supported her more…because she's very quiet…and she struggles to find her voice (Kathy, interview 2, p. 7, 34-36).*

Natasha also identified an instance where she felt like she had not supported a child who stated 'I'll be in charge' and she reflected that her failure to act was 'a missed opportunity' (Natatsha, interview 2, p. 6, 1-2). Kathy's and Natasha's responses demonstrated recognition of their potential role in supporting children's agency and ability to successfully engage with their peers. Promoting and supporting children's agency in peer interactions has been investigated in several studies and the teachers' role in empowering children to direct their learning alongside their peers has been recognised as vital (Izumi-Taylor, 2008; Lee, 2006; Tzuo, 2007). Furthermore, research by Singer et al. (2014) draws attention to the importance of teachers' physical proximity as a factor in supporting peer play.

As well as identifying missed opportunities, four teachers felt affirmed by what they saw when they viewed the clips. As Paula summed up her thoughts: 'Yeah I reflected lots last night, I thought that I'm actually an okay teacher' (Paula, interview 2, p. 5, 14). Tatiyana stated how hard it is to articulate her practice and that it was quite hard to 'unpack' what she did (Tatiyana, interview 2, p. 10, 26).

> *I was blown away by my drive to ensure that everybody accepts and understands how other people operate and it's all ok and that we can manage that (Tatiyana, interview 2, p. 16, 8-9).*

Tatiyana's comments about the importance of ensuring children accept and understand their peers are supported by recent studies (Kultti, 2015; Majorani et al., 2015; Mashford-Scott & Church, 2011). Purposeful teacher involvement in children's collaborative play has been termed

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guided participation (Rogoff, 1990). The role of the teacher in interpreting children's play and guiding children to communicate their perspective has been found to be crucial for successful peer interactions (Kultti, 2015; Mashford-Scott & Church, 2011). Evidence suggests teachers play a crucial role in enabling children to understand each other's perspectives in peer disputes, for example supporting children to discover possible solutions, prompting children to respond to each other's suggestions and, using props to support understanding (Majorani et al., 2015; Mashford-Scott & Church, 2011). In the present study, Tatiyana recognised that interpreting children's thinking and agency was a vital part of her role in supporting collaborative play.

Teachers' beliefs about child initiated and teacher led play emerged as a consistent theme as teachers reflected on their role in promoting and supporting peer learning opportunities. Five teachers assessed their practice in relation to whether the filmed play episodes were examples of spontaneous play that children initiated and led or whether they were play episodes that they defined as teacher led. For example, Anna was filmed for a sustained period of time working with a group of children in the art area who were pouring water into glass jars, and reflected as follows on this episode.

> *I think the water was the best thing, the best footage you got…..I think cause whether it was spontaneous I don't know….and I think I cope with spontaneous moments better than like planned experiences, I always struggle with those….I don't like forcing stuff on them (Anna, interview 2, p.1, 10-21).*

Bernadette supported a group of children who were launching rocket balloons but was initially reluctant to view and discuss this play episode because of her role in it. She described the rocket launching as 'quite a teacher led experience that I wouldn't do very often' (Bernadette, interview 2, p. 3, 20-21). However after discussing this particular play episode, Bernadette identified the specific opportunities for children to take on leadership roles amongst their peers that this experience afforded.

Daniel also valued spontaneous, child initiated play. He described his role in establishing and maintaining group play and in doing so he identified the clips he felt were evidence of best practice. He decided the first group of clips were not his best practice and he wanted to discuss

the second group of clips as his role was quite different. The second group of clips recorded a spontaneous play episode using ropes between a group of boys, whereas the first group was about fireman's play in which Daniel took more of a leadership role. He valued the observations where children initiated and led group play, in what he defined as a natural context. He expressed the importance of being responsive to opportunities to ask questions that support children to involve themselves with their peers. 'Sometimes the play context just presents opportunities like that' (Daniel, interview 2, p. 5, 7).

> *The contrast between these clips and the ones at the start, is just completely different, like the first one I'm talking lots and asking lots of questions…whereas in these ones…I'm still trying to probe their thinking and ask questions…but I'm not doing it all the time…..cause it was child led….even though the stuff with the fire engines…was tied into what they were interested in I don't know how much of that they initiated….whereas this is a more natural context (Daniel, interview 2, p. 3, 4-33).*

Daniel reflected on his body positioning, commenting 'that time I just kind of sat back from the start', concluding 'and that's a good example of where it's more child led" (Daniel, interview 2, p. 11, 18-20).

This study showed teachers held clear beliefs about the value of child initiated as opposed to teacher led experiences. Teachers described how their presence, the questions they asked and the ability to capitalise on teachable moments enabled children to be powerful and lead play. Teachers viewed their role as one of supporting and responding, rather than leading and directing children's learning. Previous research has also found teachers' strong belief in the spontaneous nature of peer interactions and the passive nature of the teachers' role (Davis & Degotardi, 2015; Williams et al., 2014). Williams et al.'s (2014) interviews of pre-school teachers about peer learning found teachers did not expect to deliberately foster peer collaboration, but believed that it would happen naturally. However, studies which observed teachers' practice have identified the important role of the teacher as actively engaged in peer play (Bulotsky-Shearer et al., 2014; Cohrssen, Church & Taylor, 2014). Although teachers in this study expressed reluctance to engage in what they termed 'teacher led' play, previous research suggests teachers have a role to play in supporting peer collaboration and teachers in this study undervalued the strength of their observed practice in supporting peer learning.

5.2.2 Reflecting on children's intentions

Being able to watch the way children interacted with their peers several times meant teachers often came to a deeper understanding of children's intentions and their learning with 17 different references to these insights. Caitlin remarked on what she had observed about the way a child interacted with her close friend.

> *I thought with Lily (child) is she's the one that does get quite physical…I noticed her in a couple of clips being quite, wanting to be quite physically close as well and I thought oh that's really interesting (Caitlin, interview 2, p. 12, 31-33).*

Heather expressed her surprise about a child's involvement in play, after watching a clip several times. She described the child as someone who did not respond very much in terms of verbally communicating with his peers.

> *I actually thought he interacted more than I thought he did…he is more involved than I thought he was…he's actually listening to everything that's happening so he's not quite in his own little world (Heather, interview 2, p. 18, 12-14).*

Daniel was able to identify the learning that had taken place for a child over time after he had viewed the clips. Daniel noticed increased confidence, the ability to share and to lead play as valuable learning that had occurred for this child from peer play. The child knew about construction and had regularly played with a group of boys who were involved in various construction activities outside. Daniel realised that the child's peer interactions within this particular group over the past few weeks had empowered him to begin to initiate group play.

> *what I find even more interesting is looking at his recent play episodes like in the last two weeks where he's taken on a lot of the qualities that Aaron and Lee show like he's leading a lot of stuff now and he's articulating his own ideas to the other children so it's almost like being involved in play episodes like this has just been an important precursor for him (Daniel, interview 2, p. 9, 22-25).*

Daniel's recognition of the importance of opportunities for sustained peer interactions over time is an example of the transformation of participation that occurs as children participate in experiences with their peers and their knowledge is transformed (Rogoff, 1998; Rogoff, 2014). In addition, teachers' knowledge of individual children meant they were able to identify and discuss in some depth the different strategies children used to join and sustain play. One example was expressed by Anna as follows:

> *He can't always communicate what he wants to do…often he wants to join in play and his way of showing children is by taking a resource they're working with but he's not trying to be mean, he's trying to join in (Anna, interview 2, p. 4, 20-23).*

The extant research contains evidence suggesting teachers have a critical role in interpreting children's intentions to ensure group play is maintained and opportunities for peer learning arise (Kultti, 2015; Stanton-Chapman & Hadden, 2011; Williams, et al., 2014). These results demonstrated that when in the moment teachers may not be fully aware of children's intentions, but do recognise them when given opportunities to look closely at how children are engaging in collaborative endeavour. In this study, filmed observations were a useful tool for heightening teachers' awareness of children's strategies and for prompting reflection. This finding suggests that teachers could use video more purposefully to capture group play for the purposes of assessment and planning.

5.2.3 Summary

The notion of child-led learning and teacher-led play was a key theme as teachers analysed their practice during the stimulated recall interviews. Teachers expressed a strong desire to empower children to have agency in their play and were loath to discuss any play episodes that they identified as teacher-led. Reflection formed a key component of these interviews and teachers articulated aspects of their role as they viewed and discussed the footage. Teachers critiqued their practice, noting missed opportunities, whilst affirming specific aspects of their practice. Finally teachers reflected on children's intentions and stimulated recall was an effective method for illuminating teachers' thinking about their practice. The next section reports the strategies teachers adopted to support peer learning.

5.3 Teachers' strategies

5.3.1 Intentionality

A key focus of this study was to explore the relationship between teachers' beliefs about peer learning and their practice. In the initial interviews, with the exception of one teacher, teachers stated peer learning happened naturally and that they did not need to intentionally promote this type of learning. Teachers expressed a strong belief in naturally occurring opportunities for peer learning and stated a preference for learning that was child initiated rather than teacher directed. In contrast, the stimulated recall interviews revealed 47 instances of teachers describing their intentional practices related to supporting peer learning.

Natasha explained the importance of capitalising on teachable moments by being aware of children's ideas. She described 'being in tune so that when you hear something you're ready to put that language out there and get them thinking or involved' (Natasha, interview 2, p. 10, 19-20). Bernadette shared her thinking about the teachers' role as being connected to her 'teaching intentions' (Bernadette, interview 2, p. 6, 16), giving an example of how she deliberately positioned herself low amongst a group of children to enable them to take on leadership roles during a rocket launching activity. By deliberately getting down low so as not to be physically in a position of power and by asking questions to prompt children to problem solve together and share ideas, the children worked together to successfully pump the air into the balloon rocket for take-off. In another example, supporting a child to enter play was a deliberate teaching moment for Caitlin who knew that this particular child did not find it easy to join play and often felt lost:

> *I know that I came over to bring her and that was the intent cause she finds it hard (Caitlin, interview 2, p. 7, 28)*

Promoting opportunities for children to share their expertise and leadership was the most common teaching strategy adopted to foster peer learning by all of the teachers and analyses revealed 51 instances of this practice. In one example, Kathy identified empowerment as an intentional teaching strategy she used to ensure children became skilled problem solvers who

assisted each other. In another example, Heather recounted how she deliberately asked a child to take on a leadership role at the morning mat time. This child was chosen to begin the karakia (prayer) for the day.

> *I was purposely choosing him so trying to give him some responsibility…and making him feel important and valuable and that I trusted him to do something (Heather, interview 2, p. 1, 7-9)*

In another example, Anna created an opportunity for Tyson to help another child by showing her where the jars were so she could join the colour mixing activity in the art area.

> *I intentionally got Tyson to show Olivia where the jars were because I thought it might help him feel a sense of belonging if he can teach another child…this was a chance for him to be a teacher (Anna, interview 2, p. 7, 3-5)*

These findings highlight the contradiction between the beliefs teachers espoused in the initial interviews and their actual practices as discussed in the stimulated recall interviews. When articulating their beliefs about their role in supporting peer learning, teachers had expressed a strong belief that they did not need to promote opportunities for children to learn from each other as this type of learning would happen naturally. However when confronted with their practice, teachers consistently identified instances where they had deliberately cultivated opportunities for children to be teachers amongst their peers. Fang's (1996) review of research around teachers' beliefs and practices highlighted inconsistencies between what teachers believe and what they practice. Despite evidence that teachers' beliefs are connected with their practice (Saracho & Spodek, 2007), the current findings and other recent research have identified contradictions (La Paro, Siepak & Scott-Little, 2009; Sherwood & Reifel, 2013). In this study, although teachers expressed a belief in children collaborating and learning from each other without teacher involvement, teachers identified their use of purposeful teaching strategies having reviewed filmed observations of their practice.

5.3.2 Supporting group entry

During filming there were many instances where children stood on the periphery, observing play and possibly wanting to be part of the group. During the interviews teachers expressed the view that children sometimes simply liked opportunities to observe their peers before they would feel confident enough to get involved or try an activity for themselves. Teachers saw this observation of play as a legitimate means of learning. In addition, teachers stated that sometimes children hovered on the edge of play and needed their assistance in order to enter the activity. Analyses found 18 instances where teachers discussed supporting children on the periphery to enter play. For example, Bernadette assisted a group of children to successfully launch a rocket made from balloons and operated by a pump. One of the children was very interested in the count down, which occurs when a rocket is launched, and so this activity was introduced to support his interest. A large group of children had gathered around and Bernadette negotiated turn taking. She involved as many children as possible by drawing them in at different points to ensure they each had a turn launching the rocket.

> *You can help, but it's actually Michael's turn as he brought the bits and pieces, we will all share and get a turn…Whoa look how long it is, ok hold it here, you've got to hold it tight, count down (Bernadette, clip 0159)*

When discussing this clip, Bernadette emphasised the importance of ensuring children on the periphery are supported to enter play, but that watching first was a strategy sometimes used by children to understand the expectations of the play.

> *It's about supporting them with entry and exit strategies so that they have a strategy, ok I've watched, I know what the expectations around this group play is so now I'm ready to enter (Bernadette, interview 2, p. 10, 7-9).*

> *Like I said they are observers and so they might not necessarily want to be part of that group but you've got to be aware of them so that when they are ready to be part of that group you can help them enter (Bernadette, interview 2, p. 10, 15-17).*

Bernadette identified group entry as an important skill for children to learn and that teachers need to be aware of which children need assistance to successfully engage in group play. Natasha also agreed with the importance of teachers intentionally seeking to ensure children had opportunities to join group play. Natasha reflected on how entry into group play and participation is an important precursor for peer tutoring.

> *I wrote a note about it that before they can do peer tutoring, they've got to learn strategies, like they've got to be able to work alongside and with children before they can sort of become the leader in what is happening…and some children do it quite naturally and other children need a lot of support (Natasha, interview 2, p. 3, 27-32).*

Encouraging older, more capable children to be role models and to assist younger children to enter group play, was identified by Paula as a strategy she commonly used when she wanted to ensure children move from observing to joining play. Paula was filmed in the puzzle area working with two four-year-old boys when a younger child approached, observed for a short period of time and then edged closer, wanting to join in the play. Unfortunately, as she sat next to Paula she knocked the train puzzle that the boys had just completed and so Paula gently encouraged the child to connect the pieces back together, with facilitated guidance from one of the older children.

> *Do you want to sit next to me Amy…..do you like going on trains Amy? Does she need to connect it back together Elijah, is that what you are saying? Amy can you connect it back together? Do you think she will be successful (yes chorus the older children) I hope so…look she did it, high five (the children join with Paula saying high five to the younger child) (Paula, clip 0425).*

Paula explained her intention during this particular play episode in the interview.

> *I could see Amy standing off observing and I could tell she wanted to join the play, she doesn't yet have the skills to join in um successfully at times and I knew that she wanted to participate so when she accidently broke the puzzle…I sort of said oh well you know if he could help and show…he's very competent at the puzzles…he could role model for Amy to help connect the puzzle together (Paula, interview 2, p. 1, 5-11).*

The result was that the younger child successfully joined the group and by positioning the older child in an expert role this created a positive focus after the child had accidentally knocked over the newly completed puzzle. The younger child was given an opportunity to feel good about herself as she was given a high five by the older children. The value of mixed ages for peer learning has been documented in previous research (Fair, Vandermaas-Peeler, Beaudry & Dew, 2005; Gray, 2011; Jones, 2007). For example, Gray (2011) identified opportunities for older children to practice leadership and nurturing of their younger peers as a real benefit of mixed age settings. In this example, Paula created an opportunity for the older child to practice leadership and this also achieved Paula's goal of the younger child successfully joining the play.

These results are consistent with research that suggests that social competence with peers is influenced by the support children receive to enter peer groups and to understand how to interact with their peers (Howes, Sanders & Lee, 2008; Rosenthal & Gatt, 2010). Ely (2014) found teachers play an important role in establishing and promoting co-operative play activities as taking part in these types of activities meant that young children were more likely to be successful in peer group entry. Teachers in this study provided opportunities for children to play co-operatively and were alert to those children who needed support to join their peers in play. The findings revealed teachers recognised that children engaging positively with each other was vital if peer learning was to take place. Entering group play successfully is vital if children are going to work collaboratively with and learn from their peers (Beilinson & Olswang, 2003; Ely, 2014; Howes, Sanders, & Lee, 2008; Mawson, 2011; Petty, 2009).

5.3.3 Children observing their peers

As noted in the previous section, teachers recognised and highlighted the role of observation in children's peer play. The interview discussions revealed 20 examples of children watching their peers. Teachers identified observation or watching as a first step in children participating in learning experiences with their peers, a finding that aligns with Rogoff's cross cultural studies of the role of observation in children's learning (Rogoff, 2014). For example, Kathy had set up some water play for children in the sandpit and children were busy transporting water from one large container to another. One of the younger children was sitting in the sandpit quietly watching the older children shift the water about. Kathy discussed quantities with the children as they

played: 'How many more buckets do you think you could put in there?' (Kathy, clip 0728). When asked what she thought was happening for the younger child who was watching, Kathy replied with the following:

> *How do children know that they can do something unless they watch somebody do it…and how are they going to be brave enough to be able to go out there and give it a go unless they've watched somebody else give it a go themselves…some of these new learning areas are really scary when you have to actually put yourself out there whereas if you've watched somebody else do it and know that it's safe…their play, even though they don't know it is influencing what she's learning, because she's just watching what they're doing you know (Kathy, interview 2, p. 9, 16-26).*

Kathy's recognition of observation as a means of children learning from their peers resonates with Bandura's (1977) observational learning in which children learn by observing and then modelling their behaviour on that of others. Rogoff, Paradise, Arauz, Correa-Chavez and Angelillo (2003, p. 175) called this process 'intent participation', a strategy children use as they observe their peers and listen to them playing. From watching and listening they come to understand the rules of the play and what their involvement could be. More recently, 'intent participation' has been extended to 'Learning by Observing and Pitching In' (LOPI) (Paradise & Rogoff, 2009) which refers to children firstly observing and then actively contributing to ongoing activities in their community. Williams, Sheridan and Sandberg (2014) interviewed Swedish preschool teachers about what they perceived to be the fundamental aspects of children's learning in preschool. The teachers identified the role of peers as important, giving several examples where children collaborated together and gained knowledge from each other. They also identified opportunities for children to "observe, communicate and/or interact in different ways, meaning that children become interested in what their peers are doing and thinking" (Williams et al., 2014, p. 234). In these data, teachers similarly recognised the role of observation in peer learning.

5.3.4 Promoting expertise and leadership

Analysis of the second interviews following filming revealed that promotion of expertise and provision of opportunities for children to be leaders amongst their peers were the most common

teaching strategies used by this group of teachers. Analyses identified 45 instances where teachers promoted children's expertise and six instances where teachers provided opportunities for children to take on leadership roles. The instances included a variety of ways teachers promoted children's expertise amongst their peers across a number of different curriculum areas.

In one instance, Daniel was working outside with a group of boys who were experimenting with different pieces of rope by tying them to the fort like structure in the playground. The fort was being used as a steamboat and four-year-old Lachlan was sharing his knowledge of knot tying with Daniel. Lachlan had given the rope to Daniel to hold and was explaining how it needed to be tied:

> *Lachlan: You should tie it with the ends of the rope hanging down here, like this (gestures with his hands)*
>
> *Daniel: How are you at tying knots Lachlan?*
>
> *Lachlan: Oh sometimes I do children ones and sometimes the children ones end up to be too tight*
>
> *Daniel: Do you think you could maybe show Aaron a children's knot, what it looks like? (Daniel, clip 0286)*

Rather than tying the knot himself, Daniel gave the rope to Aaron whilst encouraging Lachlan to show Aaron how to tie a knot. Daniel commented that he knew this group of boys well and deliberately stepped back in the play, creating an opportunity for Lachlan to share his knowledge, as his comments suggest:

> *When he talked about children's and adults knots I found that kind of fascinating and I thought it serves as a good means for him to be able to show another child what his interpretation of a knot is…I thought right I'll get him to physically show so they can see his interpretation of it …and so more than anything I think it was the physical and the showing is what I was trying to encourage (Daniel, interview 2, p. 1, 3-10).*

Daniel emphasised the importance of physical modelling between children as he said it allows children with particular expertise to expose their peers to new thinking and new skills.

> *Getting him to rather than tell me what he can do show me and in doing that he's exposing particularly Lachlan who came up and had a look, that's why I said oh how do you tie knots Lachlan so its expanding his thinking as well so I'm getting Aaron to physically show me what he interpreted, his interpretation of a knot is but I'm also exposing other children and hoping that they look at the way that he's doing things…and then maybe afterwards let them have a turn and they can show me how they do it (Daniel, interview 2, p. 2, 12-19).*

Encouraging children with particular skills to share these with their peers was a strategy that Heather also used consistently. In the following footage, Whitu decided he wanted to construct a building from mobilo (plastic material that can be fitted together to construct vehicles and buildings). He did not know how to get started and he asked Heather for help. Another child, Martin, was busy building a complex mobile structure and Heather saw an opportunity for Martin to share his knowledge with Whitu.

> *Well do you know who is really good at making things with this mobilo? You need to use your words to ask Martin to help you. (Heather turns to Martin) Martin, Whitu was asking you can you show him how to make windows? You are so clever at this….can you show him how to Martin, I'll just pop this away and you can figure out together which pieces you need from the box (Heather, clip 0774).*

When discussing this clip Heather explained her intention was to position Martin as an expert in construction.

> *In this situation it is like tuakana teina as opposed to naturally occurring sort because you know one of Martin's strengths is he's the expert when it comes to mobilo so while he might lack in the conversation area to make friendships…it gives him something where he knows he's good at it that he can be a leader and he can be the expert and the other children acknowledge and respect him for that rather than oh I don't play with him cause he can't talk (Heather, interview 2, p. 14, 34-35, p. 15, 1-7).*

Heather deliberately utilised the opportunity that presented itself to promote Martin's expertise and in doing so positioned him in a teaching role alongside his peers. She was particularly intent on maximising this moment as Martin had difficulty expressing himself and rarely talked to his peers.

These data demonstrate the potential for children to contribute to each other's learning through modelling skills within their peer group. In these examples, Lachlan and Martin were encouraged to teach their peers how to make knots and how to construct with mobilo. The role of assisted performance (Tharp & Gallimore, 1988) in peer interactions with more capable peers assisting across a range of problem-solving activities was evident in this study. Importantly, the teachers viewed these children as having valuable expertise and intentionally created opportunities for that expertise to be shared. These results (specifically evidence of more capable children assisting the performance of their peers) relate to the notion of 'pedagogical relationships with peers' (Hedges, Cullen & Jordan, 2011, p. 196). Hedges et al. (2011) have identified the importance of peer interactions for enabling children to contribute to each other's learning and thinking by drawing on each other's knowledge. Similarly, in this study, teachers recognised the role of peers as sharing their expertise to extend each other's learning.

In addition to creating opportunities for children to share their expertise, teachers sought opportunities for children to take on leadership roles during learning experiences. Paula was an avid gardener who had recently established an area for children to create a vegetable garden. Paula and Anna (another teacher at the same centre) met together to select pairs of children to work together planting vegetables. They had considered which children might take on the role of a peer tutor. They then gathered the four-year-old children together and Paula organised them into pairs for a gardening session, as the following excerpt shows.

> *Which one of my friends did some gardening yesterday? Would you like to do some more gardening today? (chorus of yes from the children) there are some more plants that we need to plant. Can I have my friend David standing up, and Ellie and my friend Laura can you stand up please? You guys were my absolute masters at planting yesterday…my question to you, is to pick a friend that you would like to help today to do some digging and gardening alongside you, to work together as friends, as pairs, who would you like to choose Ellie? Ka pai, what a great choice. Catherine you can be a leader as well, cause you were so keen to garden (Paula, clip 0587)*

The children then went down to the vegetable patch and spent a considerable amount of time before lunch planting vegetables. Paula and Anna had carefully considered who they would choose to lead the planting session and Paula explained her thinking during the interview.

They have shown a lot of interest and they are very um good at planting so I wanted to use their expertise and show their friends, that was the aim hopefully for them to show or support the other friends and you could hear the language later on that some of them do help, so you need to pack it, you need to dig deeper (Paula, interview 2, p. 15, 29-33).

Paula knew which children had particular knowledge about gardening as she knew some of these children had helped their parents and siblings or grandparents with planting and were quite skilled. In the planting session that followed, these children were heard telling their peers when to dig down deeper and how to pack the soil down and they also showed the child they were paired with how to put the plants in the ground. The peer learning that took place in this gardening experience illustrates child-led scaffolding (Wood, Bruner & Ross, 1976), with the more capable children breaking down the steps involved to successfully complete a task. The children adjusted the level of support they gave during the planting task so that their peer was successful, using what Tharp and Gallimore (1991) termed contingency management. The gardening experience was a catalyst for peer learning and Paula utilised her knowledge of the children to ensure particular children were empowered to take on a leadership role amongst their peers.

The centre where Ariana taught was organising their annual cross-country event for the children and their families. In one of the observations, Ariana had spray painted a running track for the children and a group of boys spent a considerable amount of the morning outside practising running around the track. Ariana supported the boys as they negotiated how they are going to run together around the track.

What do you want Jack to do buddy? Do you want Jack to run with you or after you? After you, ok so where do you need him to be? There. Ok did you hear what Toby said Jack he needs you to be beside him or just behind him.

Jack: I want to run with Jacob.

Ok I wonder if you want to take Jacob over there so you can all run together (Jack does so). Good job. Ok are you ready? On your marks, go! (Ariana, clip 0086)

From observing this group of boys, it was evident that one of them followed the direction given to him by his peers. Ariana described her role as supporting children to communicate their ideas and intentions to each other. In this example, Ariana encouraged the older children to take a leadership role with the younger child who had not participated in the centre cross-country event before. The older children showed the younger child where the track went by running slightly ahead of him. Ariana explained:

And again it's an example of how those two boys are being leaders with their thought processes and their theories and so, so that in turn will help, help Jacob make sense of, of this event that he hasn't been part of before (Ariana, interview 2, p. 8, 26-28)

Ariana thought that it was up to the teacher to 'grab those moments and to say well I can step back here' and allow children to lead (Ariana, interview 2, p. 5, 21-22). Promoting leadership roles amongst children has been previously researched in New Zealand early childhood settings (Haworth et al., 2006). In the current study, more capable children (tuakana) were encouraged to take on a support role with younger children (teina) and this resulted in the younger, less experienced children gaining new understandings. In Haworth et al.'s (2006) study, researchers also described seeing the Māori teaching learning principle of tuakana teina in action. Rogoff's (1990) notion of apprenticeship is also valid here as it highlights the role of more capable children supporting and guiding their peers. These data provide further evidence that teachers can promote leadership roles amongst children. Teachers stepped back to empower children to share their knowledge and skills with their peers. This result confirms the large body of evidence identifying the potential of more capable children to take on teaching roles amongst their peers (for example: Chung & Walsh, 2006; Hyun & Davis, 2005; Jones, 2007; Maynard, 2002).

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5.3.5 Physical positioning

Discussing teachers' knowledge of children during the interview was an important part of understanding teachers' practice. The observations showed that the presence of particular children often determined where teachers positioned themselves in the environment. Data analyses revealed 20 instances when teachers went into an area or stayed in an area when a particular child entered or was amongst a group of children. The teachers stated that sometimes children needed extra support if they were to successfully participate in sustained group play. For instance, Anna explained her presence alongside a younger child who entered the water play experience, stating she had stayed there because 'he needs extra support cause he's so busy and he can't always communicate what he wants to do' (Anna, interview 2, p. 3, 8-9). Anna supported the child by being physically close to him and this then allowed her to role model the language he needed to successfully communicate with his peers.

Ariana had worked consistently with a child who struggled to enter play. She supported this child by being physically close to where he was playing and by promoting positive behaviours so he could engage in sustained group play. She explained 'the importance of being there supporting him with his positive guidance stuff was the priority and that other children know that he is, he can be a good friend…..I'm more involved with a group of children when Tim is there because I know that has to happen' (Ariana, interview 2, p. 15, 22-24, p. 17, 21-22). Similarly, Tatiyana summed up her thinking around a particular child and her reason for close proximity when he is involved in group play: 'to empower him and for him to see himself as that competent, capable person, I have a voice, people can hear me, they will respond positively' (Tatiyana, interview 2, p. 3, 8-9).

These findings support previous studies which found the teachers' physical presence has a powerful influence on children's ability to successfully engage in peer play (Ahnert, et al., 2006; Gosselin & Forman, 2012; Petty, 2009; Singer, et al., 2014). Teachers in the current study positioned themselves in close proximity to children who needed extra support to communicate and interact positively and constructively with their peers. In the same way, Singer et al. (2014) found that the continuous presence of the teacher played an important role in children's emotional security as teachers were sensitive to the group dynamics which were significant for successful peer play. Teachers in this study intentionally positioned themselves near children

who they knew would need their assistance and this supports Petty's (2009) claim that teachers' presence is a vital factor in guiding children to successfully engage in joint endeavour with peers.

5.3.6 Using language to support children's group play

Analyses revealed the role that teachers' use of language played in supporting children to successfully work with and learn from their peers. There were 23 instances of teachers supporting children to participate in sustained peer play by role modelling appropriate language. In the following examples teachers used language to facilitate and maintain group play: to ensure children communicated effectively with their peers; to encourage children to extend each other's thinking; and to give each other feedback.

In one typical example, Anna was in the art area where a group of four-year-old girls were experimenting with water, using different sized jars to pour water from one jar to another. Three-year-old Hayden had joined the group and the girls wanted some of Hayden's water. However he was busy using the water he had and so Anna modelled how to express this.

> *Anna: say no sorry I'm using it*
>
> *Hayden: no sorry I'm using it*
>
> *Hayley: yeah but then we don't have any water*
>
> *Anna: you do have water, maybe if you ask Hayden again soon he'd like to share. But he doesn't want to right now and that's ok (Anna, clip 0577)*

Discussion of this clip demonstrated Anna was modelling the particular language that Hayden needed to use to ensure he could continue to use the water and remain involved in the play with his peers.

> *I think I really asked Hayden to use his own words to Hayley because in play he doesn't often use his words, he'll use his body or his actions so I'm trying to support him to communicate if he's not happy or what his plan is so that other children understand.....and I think that would have really*

helped him to know that when he does say what he is thinking that he is listened to (Anna, interview 2, p. 16-21).

Hayden's continued involvement in this play episode led to him observing the older children and modelling his play on their actions. For example, he copied the way they mixed colours and experimented with measuring different quantities of water. Anna's support of Hayden ensured he played alongside his peers for a sustained period of time. This group of children engaged with the water play for around an hour. Anna explained that it was important to model the use of language as an effective means of communicating with his peers rather than trying to communicate with his body and not succeeding. Anna also wanted to ensure that Hayley understood that it was okay for Hayden to not give up his water. This use of verbal prompts has been found to be a particularly useful teaching strategy for building peer interactions for children who do not have the necessary language skills (Brown, 2006; Pantaleo, 2007; Stanton-Chapman & Hadden, 2011).

Kathy explained she consistently role-modelled phrases to support children to communicate effectively with each other. In the following observation, Kathy was supporting Matthew and Peta to play together in the block area as working with other children was a skill that they were both still learning. Peta had found some dress up gloves which she was trying to put on, but was struggling to do so.

Kathy: Can you help Peta put the gloves on? Push, push, good work

Matthew: there's a hole

Kathy: there is a hole, what do you think we should do? You need to tell her what to do, pull your finger back, say pull your finger back Peta. Pull your finger back, push it forward. Do you need some help? Shall we do it together? (Kathy, clip 0632)

Kathy described how she drew on her knowledge of these particular children to successfully facilitate collaborative play.

I think that was more about extending their continued support of each other…..I think if they had been left to their own devices it would have been more of a I'm going to have it or a push and a shove and a slap bang whereas by being there I was able to facilitate them actually communicating with each other….so it's about learning, teaching him how to help not only himself but help someone else (Kathy, interview 2, p. 1, 32-36, p. 2, 1-2).

Both of these examples demonstrate the role that teachers have to assist children to communicate effectively with their peers. Rose and Rogers (2012, p. 65) describe the importance of adults verbalising what they think the child is trying to say as it means the adult is "sharing the child's perspective and feelings and jointly constructing a shared understanding". This sharing is an important type of talk that adults need to use when working with children so they can jointly construct shared understandings (Rose & Rogers, 2012).

The centre where Paula worked used the language of schema learning theory consistently with children. Enclosure, transportation and trajectory are examples of key concepts in schema learning theory which teachers from Centre B identified and described and they explained how they used these types of concepts in their conversations with children. Tatiyana commented 'we have to constantly upskill our language around the schema that the child's engaged in' (Tatiyana, interview 2, p. 12, 13-14). Paula explained her belief in the importance of using the language of schema learning theory in conversations with children so that children could then use the language of schemas with each other.

It's a rich language you know and you can hear it in children after a while um using similar language… it's very descriptive adjectives…I think it (pause) in terms of their thinking I think they can think deeper perhaps to problem solve and using the language can help their thinking (Paula, interview 2, p. 1, 20-26).

The teachers at this centre stated that children with the same schema seek each other out and will naturally gravitate towards each other in their play. These teachers described schema language as a powerful tool children used to communicate with and support their peers during play. Paula was developing a vegetable garden from a bare patch of earth with a group of interested children. She described how one of the children regularly gardened at home and this

fitted into the child's current schema of transforming things (this child was also creative and liked to do art activities). Paula then explained that the children who were helping develop the vegetable garden were children who liked to transform things. Another example she gave was about children who like to enclose themselves and will often be found working together using materials to construct huts or houses that they can then get into with their peers. The teachers in Centre B included other children in the gardening experiences and the hut construction to extend children's thinking and exposure to the language of schema learning theory.

Tatiyana emphasised assisting children to communicate clearly with their peers as a huge part of the teacher's role. She worked alongside two children who were problem-solving as they created buildings with Lego blocks. Arabella liked to enclose objects and Tatiyana role modelled the language to help them communicate with each other, as the following example illustrates:

> *Tatiyana: (to Arabella) Hamish's got a plan, could you ask him what his plan is. He was upset that you tipped them all out. Do you think you could poke them back in? Can you slide them in there, can you enclose them in your shed? (Tatiyana, clip 0495)*

Tatiyana explained that her intention was to support these children to communicate and to interpret their actions so that they understood each other better.

> *the bit that I like about that is that I have my hands off.....I work quite hard at using my words to say what needs to happen so that um so saying to Arabella you know what's your plan or what was his plan to help her begin to think and give her that space to think and encourage her to talk to him...language is powerful, I think the wider the vocab the less frustrations, the easier it is to get your message across...also I think if Arabella can consider Hamish and see that. I also try to remove it from being personal so the personal affront that she's taken something off him it's like actually she had a purpose for doing that and so sharing that with Hamish that she had a purpose (Tatiyana, interview 2, p. 1, 6-19)*

In this example, Tatiyana was ensuring Arabella understood what Hamish was trying to achieve, which allowed the children to use language in socially effective ways, rather than being concerned with formal language skills. Increasing a child's ability to clarify and explain situations

"increases their potential to structure ongoing child-child interaction" (Naerland, 2011, p. 610). In another observation, Tatiyana was working with an older and younger child in the block area. The older child liked to plan and wanted to create a heart shape out of the blocks and Tatiyana knew that the younger child would want to enclose the heart once it had been constructed. Tatiyana wanted to be present to ensure that each child could understand each other's intentions as she stated that this understanding is very important if children are to successfully collaborate together in play. Tatiyana expressed it like this:

> *It is, accept that this is how this child learns, this is what they need to be able to do how can we facilitate that while you still meet your own needs as well, how can you have your heart and support Sally to be working alongside and learning from you (Tatiyana, interview 2, p. 9, 20-22)*

Understanding peers' intentions is important if children are to engage in joint attention and develop social understanding which leads to successful peer play (Cannella, 1993; Farver, 1992; Goncu, 1993; Shin, 2012). Tatiyana's presence and ability to interpret the play and communicate it, was critical in ensuring the two children were able to recognise what each needed and learn from each other. Tatiyana explained that this level of acceptance and understanding amongst children promotes peer collaboration and that her role was to role model collaborative play, while tapping into the older child's strengths and ensuring the two children understood what each other was trying to do. The older child drew a plan of a heart shape while the younger child helped with the construction. The following extract from the observation reveals the older child giving the younger child feedback on the learning that had occurred for her.

> *Sally: Here's the mail, here's the mail Tatiyana (as she pokes a wooden block through a slot in the box)*
>
> *Melanie: (as she exits the block area) Thanks for the art idea Sally, now I'm going to make some mail*
>
> *Tatiyana: Okay are you done here, you're all finished?*
>
> *Melanie: Mm, Sally would you like to use the heart? (Tatiyana, clip 0395)*

Tatiyana stated that children giving each other feedback is important and that she believed teachers need to role model this. She stated that giving children feedback is something that they as a teaching team work hard on. Interestingly, this was the only recorded instance of a child giving peer feedback on their thinking and ideas. However, scaffolding involves giving feedback and role modelling and these teaching strategies can be used by peers (Tharp & Gallimore, 1988).

There has been little investigation of how young children give their peers feedback in naturalistic settings. One exception is Carr's (2011) 'Learning wisdom project', which used an action research methodology to help teachers develop strategies to support children to reflect on their learning and give their peers feedback. Within research which has examined peer tutoring amongst young children (Chung & Walsh, 2006; Fawcett & Garton, 2005; Hagan, 2007; Williams, 2001 and Wood & Frid, 2005) there is evidence to suggest that young children take on teaching roles such as modelling, co-constructing meaning and assisting their peers by motivating them. For instance, Fawcett and Garton (2005) paired young children to complete a block sorting task and the children gave each other feedback on the success of the completed task. Fawcett and Garton (2005) concluded that children need to be trained to give feedback, rather than simply creating opportunities for children to work together. This study has found only one instance of a child giving their peer feedback, suggesting this was not a strategy teachers recognised or utilised in supporting peer learning.

5.4 Summary

The results from the stimulated recall interviews revealed the complex relationship between teachers' beliefs, knowledge and understandings of peer learning, and the enactment of this aspect of their practice. A major finding was the contradiction between teachers' beliefs about naturally occurring opportunities for peer learning and their own intentional practices as reported in this phase of the data collection. Teachers strongly expressed their belief in child initiated experiences with peers. Despite this, discussion of their practice revealed their active and deliberate promotion of and involvement in peer learning. Teachers intentionally used a variety of strategies (for example asking children to be role models, providing leadership opportunities, using language to facilitate communication with peers) to foster peer learning. This raises questions about how teachers reconcile beliefs and practices when aspects of those

beliefs are different from practical application. The use of stimulated recall was valuable for allowing teachers to reflect on this aspect of their practice, allowing the paradox between espoused beliefs and teaching practices to come to the fore. In addition, the use of stimulated recall meant teachers had moments of realisation about how children were responding to their peers and the way various experiences supported children's learning.

This chapter has reported the various strategies teachers' adopted to enable children to firstly enter group play successfully and secondly to support children to work collaboratively and to take on teacher roles amongst their peers. Teachers acknowledged the role of observation as a legitimate means of children learning from their peers. The results revealed evidence of teachers assisting children to enter play when teachers realised this was what children were trying to do, but needed help. Analyses showed the promotion of expertise and leadership amongst children was the most commonly observed teaching strategy. Examples from the data provided a picture of what this teaching practice looked like across the three centres. At times teachers moved into curriculum areas or stayed there as they wanted to provide extra support for children who needed assistance to successfully engage with their peers; teachers' knowledge of individual children was to the fore when discussing the observations. Finally, teachers deliberately used language to facilitate children to communicate clearly and successfully with their peers, to problem solve with each other and in one case to give their peers feedback while understanding their peers' learning intentions.

In sum, although teachers expressed their preference for child-initiated peer learning, these findings showed teachers intentionally used specific teaching strategies to foster and support peer learning. The next chapter reports the results of the nationwide survey which explored the relationships found in the qualitative data.

Chapter Six: Survey results

6.1 Introduction

Phase two of this study comprised of a survey of peer learning beliefs and practices that was distributed to New Zealand early childhood teachers once the case studies were complete (see Appendix E for a copy of the survey). This chapter presents the survey results and discusses them in relation to relevant theory and research. The survey was constructed around the significant themes and patterns that emerged from analyses of the case studies; key themes in the literature were also woven into the survey questions. The following themes emerged from the case studies:

- Belief in the social nature of learning;
- Teachers' beliefs about peer learning and their early childhood centres' philosophy and practices are closely related;
- Teachers intentionally used a range of teaching strategies to foster peer learning;
- Belief in naturally occurring opportunities for peer learning were contradicted by evidence of teacher led practices; and
- Lack of guidance in *Te Whāriki* in relation to supporting peer learning.

The main aim of the survey was to see if the patterns of understanding, beliefs and practices found in the case studies were also found in the larger sample of early childhood teachers. The term respondents is used to refer to the teachers who answered the survey; the decision to use this generic term was made in order to accommodate the various positions teachers held, including, centre manager, centre supervisor, owner, and head teacher. Not all respondents answered every question in the survey and the percentages reported throughout this chapter account for the non-respondents.

The results reported in this chapter are organised around the patterns that emerged from analyses. Firstly, a summary of demographics of the survey respondents (for example their teaching position and qualifications) is reported. Following this, the results related to respondents' beliefs about peer learning are presented. This section includes how teachers' beliefs about peer learning relate to the philosophies and practices in their early childhood settings. Next, the specific strategies teachers used to support peer learning are identified; how teachers fostered children's expertise is included. Finally, data about the relationship between

teachers' beliefs and practice and the national early childhood curriculum *Te Whāriki* (Ministry of Education, 1996) is reported.

6.2 Who answered the survey?

Respondents were asked a series of demographic questions, which included: the type of service they currently work in; their current teaching role or position; their age and gender; number of years of teaching experience; and their teaching qualifications. The survey was sent out to a range of licensed early childhood services (see Figure 6.1). The majority of responses came from teachers working in education and care centres (63.89%). State and private kindergarten teachers were the next highest group to participate (25.0%), followed by play centres (3.24%). There were no responses from kohanga reo services; the lack of response possibly reflects the preference of Māori to engage in face to face kōrero (conversation). Respondents could also select 'other' and 7.87% (17 respondents) did so. A breakdown of the responses in the 'other' category revealed five responses from teachers working in special character centres and kindergartens, six from community based centres, two were early intervention teachers, and the other four responses came from teachers in parent co-operatives, a private preschool and a kindergarten trust.

The number of responses from the various service types reflected the participation rates of the sector, with education and care services dominating the number of enrolments at licensed early childhood services in New Zealand at the time the survey was administered. Kindergartens had the second highest participation rate for licensed early childhood settings, followed by playcentres and kohanga reo (Ministry of Education, 2014).
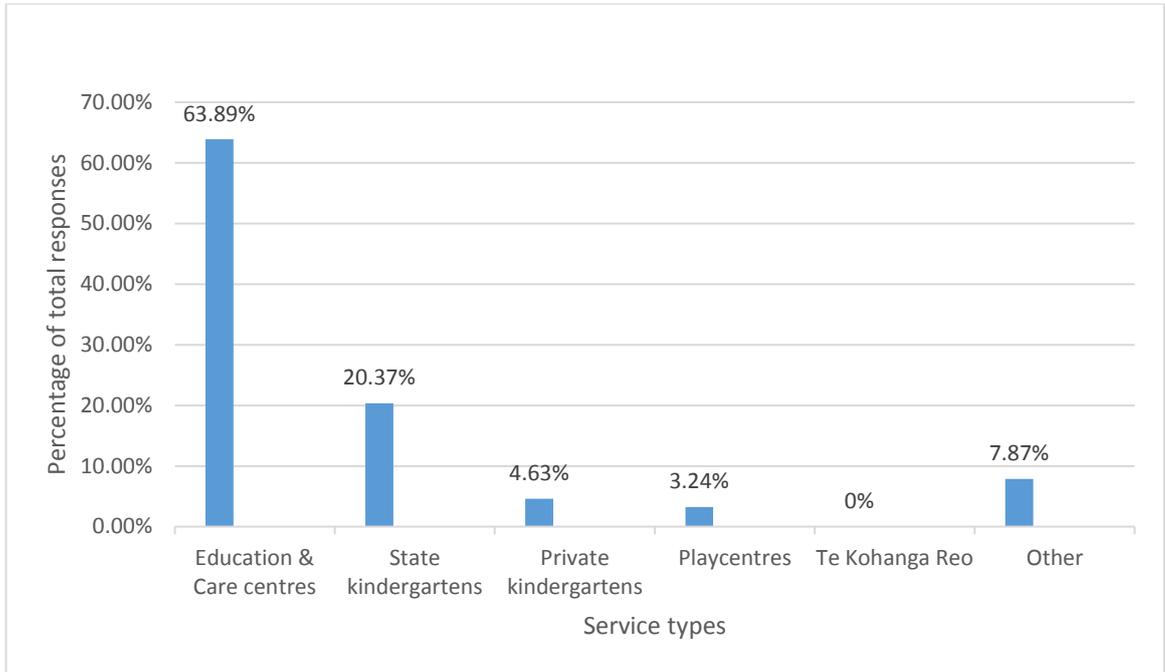
Figure 6.1: Distribution of survey responses by service type

The majority of respondents held leadership or management roles, with 65.14% of respondents in head teacher, centre supervisor or centre management positions. An analysis of the 'other category', where respondents were asked to specify their role, showed that 25 of the 29 respondents (86.20%) in this category were also in positions of responsibility. Responses in this 'other' category included centre owners, managers of more than one centre and team leaders. These responses combined with the 65.14% brought the total number of respondents who answered the survey and who are in positions of responsibility to 76.60%. Figure 6.2 presents a summary of these data, which shows that only 21.56% of respondents were teachers.
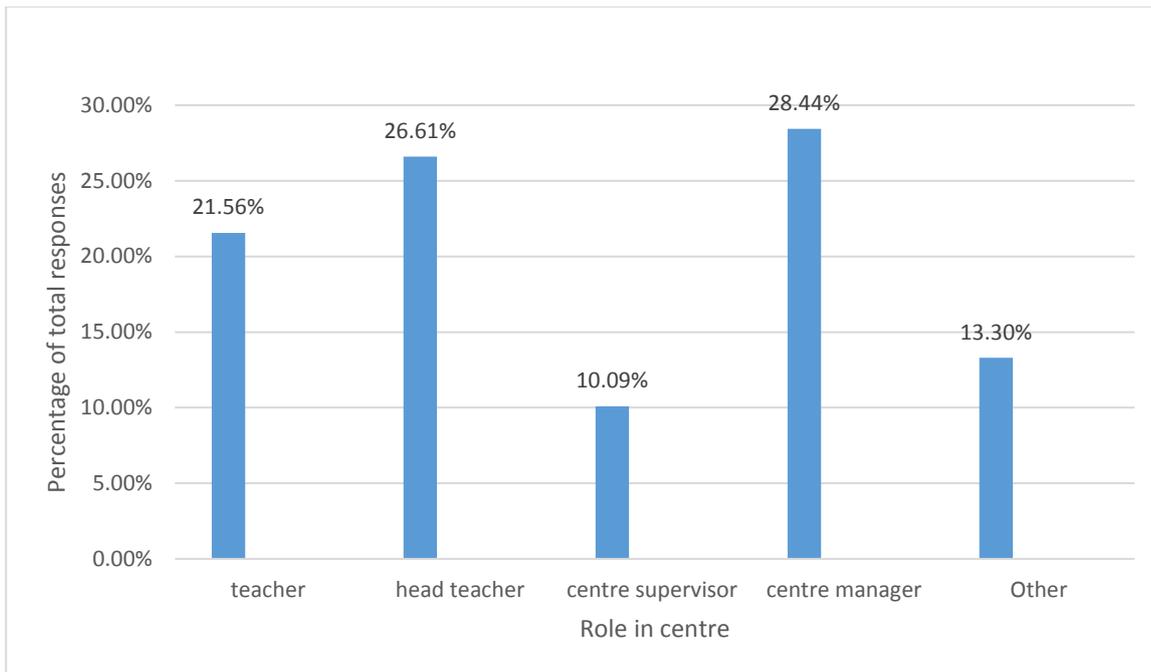
Figure 6.2: Percentage of responses by role within early childhood centres

Almost all of the respondents who answered the survey were women (98.6 %) except for three males (1.4%). This was not unexpected as the early childhood profession is a feminised, one with males making up only 2% of all teaching staff in teacher-led services as reported in the latest early childhood education census report (Ministry of Education, 2014). The number of non-respondents for this question was five (2.27%). The majority of respondents were aged over 40 years (68.0%). The smallest number of respondents were aged 60 plus years followed by those aged 21 to 30 years (see Figure 6.3).
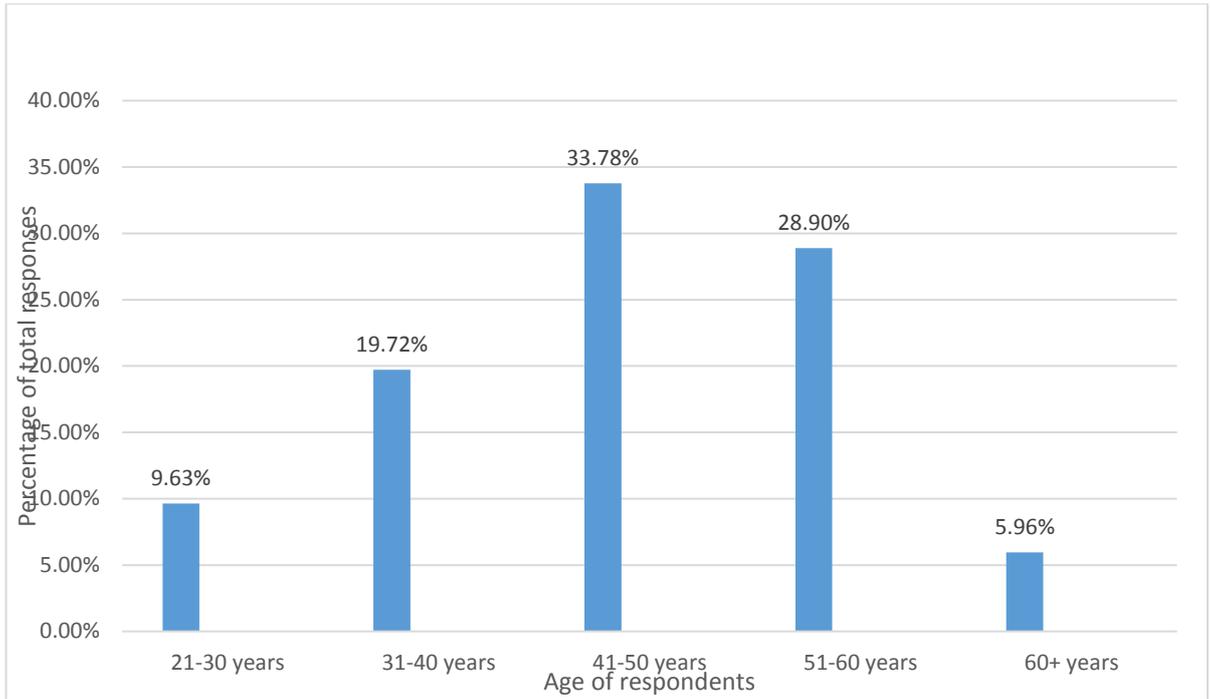
Figure 6.3: Percentage of responses by age of respondents

The majority of respondents who answered the survey (66.54%) had up to 20 years' experience in the sector. The rest of the respondents (33.46%) had been in the sector for more than 20 years (see Figure 6.4).
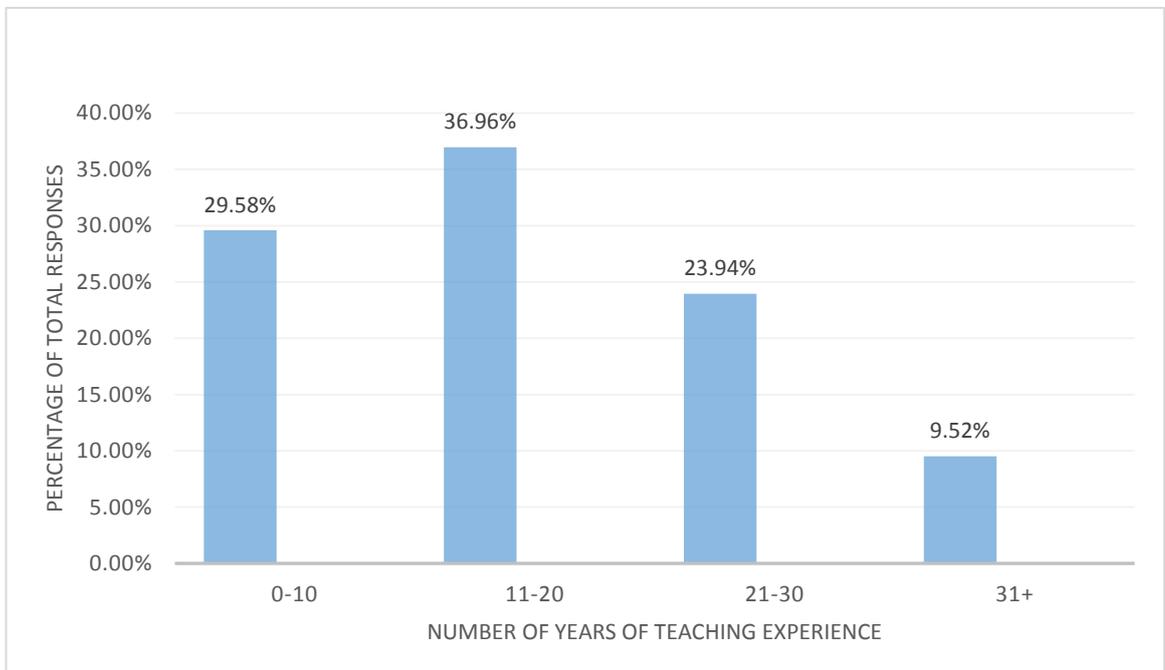
Figure 6.4: Percentage of responses by years of teaching experience

The survey respondents held a range of teaching and academic qualifications (these results are combined and reported in Figure 6.5). Bachelor of Education/Bachelor of Teaching (ECE) degrees

were held by 45.16% of respondents and 31.80% of respondents held a Diploma of Teaching (ECE). Graduate Diplomas of Teaching (ECE) were held by 8.29%, while 11.25 % selected other. Only 0.92% held an ECE Certificate as their highest teaching qualification and 2.30% of respondents reported having no teaching qualification.

Over half the respondents (55.09%) selected Bachelor degrees as their highest academic qualification. Undergraduate Diplomas of Teaching were held by 31.02% of respondents and 1.85% of respondents identified NCEA levels 1-3 (school qualification) as their highest academic qualification. A total of 4.63% respondents held a Masters qualification and one respondent (0.46%) held a Doctorate. Finally 18.19% of respondents selected the 'other' category across highest teaching and academic qualification. In this category, 16 respondents had postgraduate qualifications. In addition to postgraduate qualifications, one had a Graduate Diploma, seven had diplomas and two had degrees such as a Bachelor of Arts. A very small number held an ECE certificate (0.92%) and one respondent in the 'other' category had a teaching certificate and a Waldorf Teaching Diploma. Five respondents held play centre qualifications, one had a level four qualification and two identified that they were currently studying for a post graduate certificate.
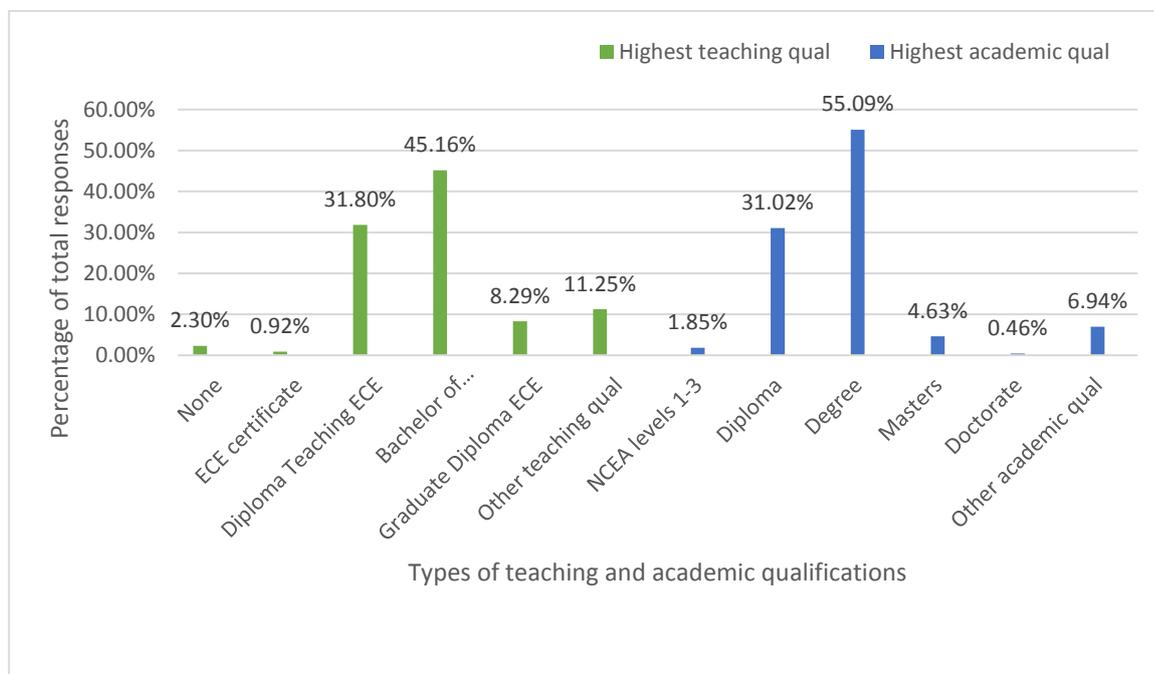

Figure 6.5: Percentage of responses by summary of teaching and academic qualifications

In summary, the majority of survey respondents were women over the age of 40, teaching in education and care settings. Most respondents had up to 20 years teaching experience in the early childhood sector and the majority held positions of responsibility. Over half of respondents

were qualified to degree level. The next section reports on respondents' beliefs about peer learning.

6.3 Beliefs about children's learning and peer learning

6.3.1 Defining children's learning and peer learning

One of the main objectives of this research was to identify New Zealand early childhood teachers' beliefs about peer learning and the survey accordingly contained a set of questions designed to explore these beliefs. The questions were derived from the review of research literature and the phase one case studies. Respondents were asked to rank a series of statements about how they believe children learn. They were asked to rank the statements from the most important way to learn (1 being most important) to the least important way to learn (5 being least important). Over half the respondents (58.73%) ranked 'learning occurs through a process of social participation' as being the most important way that children learn. The next most important way that children learn was identified by 24.87% of respondents as being through interaction with the physical environment. Children learning through trial and error and through verbal interaction were not ranked as highly (11.11% and 3.17% respectively). Children learning through cognitive conflict as they explore alternative viewpoints with their peers was ranked the lowest at 2.12%. These responses are reported in Figure 6.6.
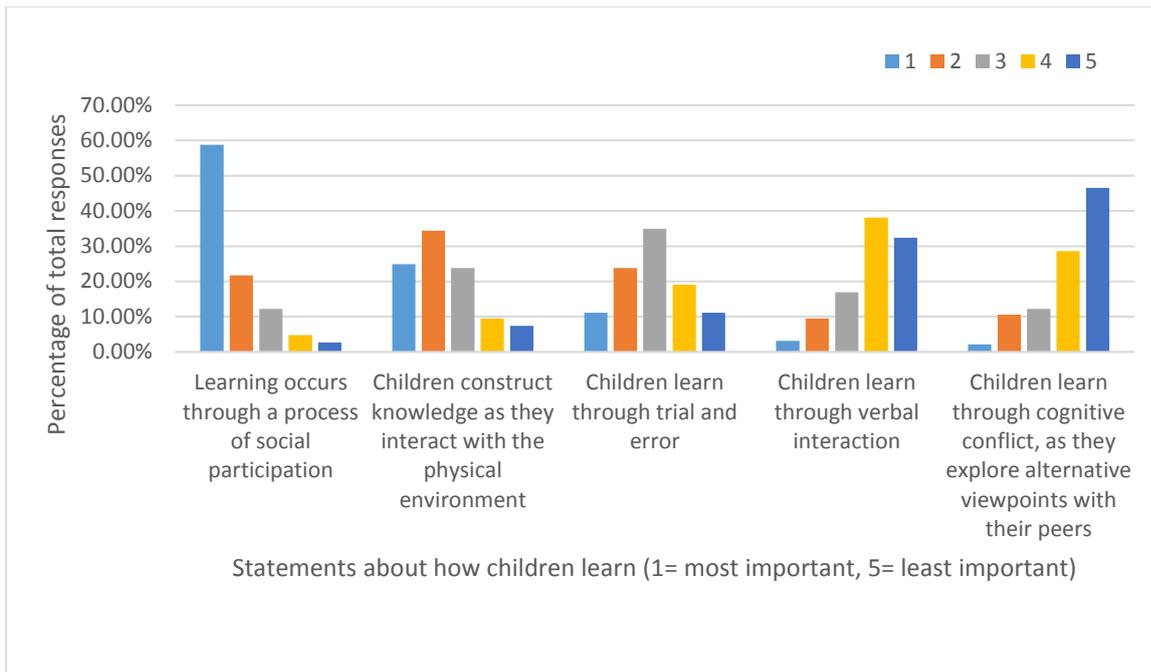
Figure 6.6: Ranking statements about how children learn in order of importance

Respondents then selected from a list the definition that was closest to their understanding of the term peer learning. These findings, reported in Figure 6.7, showed that the most common definition of peer learning for these respondents was 'children learning from their peers and adults within a community of learners'. A smaller number of respondents identified 'children working alongside their peers who share a common purpose' and 'experienced peers assisting inexperienced peers with a task' as defining peer learning. Only one respondent identified the idea that 'children learn as they engage in cognitive conflict with their peers' as a definition that aligned with their understanding of peer learning. There were 12 responses in the 'other' category. Of these, five respondents said that all of the provided definitions were definitions of peer learning. One teacher simply said 'ako' (Māori word which means 'to learn') and the rest described learning between children including one who referred to co-construction. Two respondents mentioned that the learning can include observation.
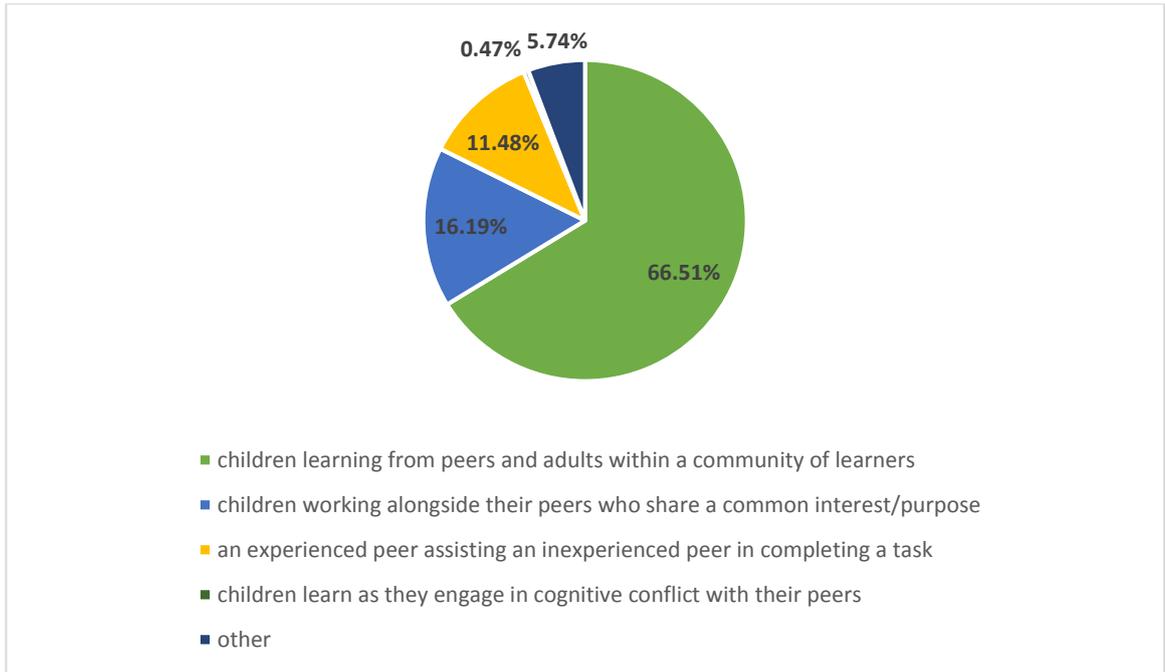
Figure 6.7: Definitions of peer learning closest to respondents' understanding of this term

Similarly, when asked to select the definition of peer learning that most closely related to their centre/kindergarten philosophy, 80.59% selected 'children learning from their peers and from adults in a community of learners'. The other definitions were only selected by a small number of respondents as Figure 6.8 shows. Although the definitions of peer learning presented to respondents across the two questions were the same, they were asked to consider them in relation to their own understandings of the term and in relation to their centres' philosophy. Although these questions were asked in different sections of the survey, there was a similar pattern in the responses as seen in Figures 6.7 and 6.8.
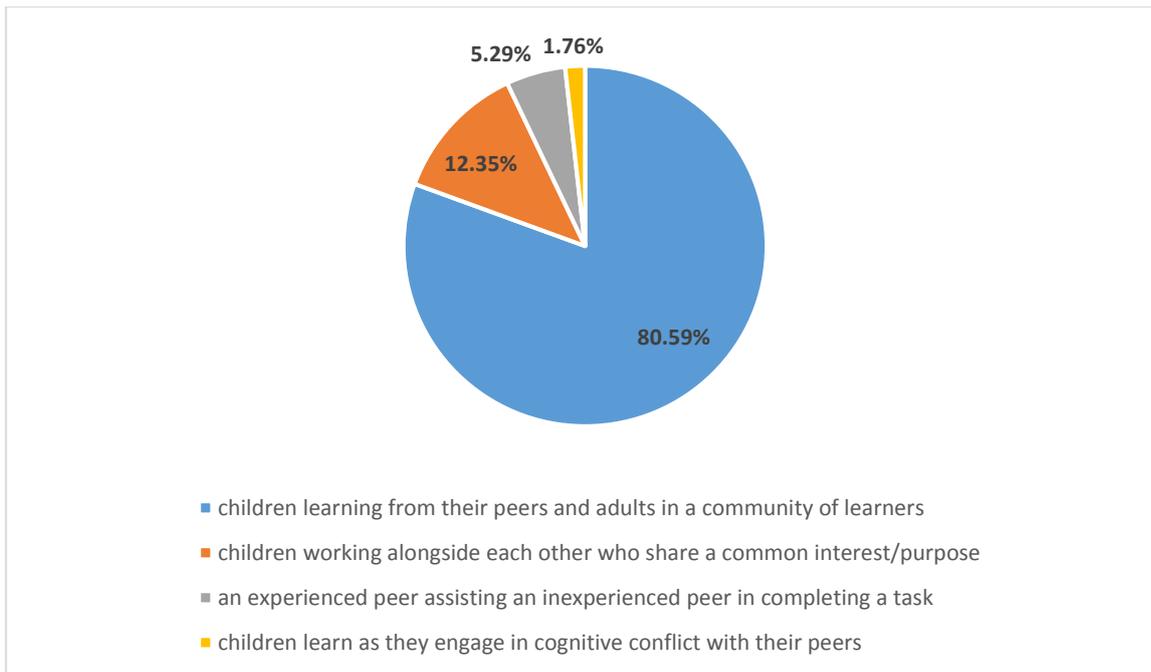
Figure 6.8: Defining peer learning in relation to centre/kindergarten philosophy

Respondents' beliefs about the influence that teachers and peers have on learning was explored by asking them to identify the degree by which they thought teachers and peers influenced children's learning. The result for this question was mixed and indicates that most respondents thought (by a small margin) that the teacher's influence on learning was 'somewhat' or 'very' influential. However, when it came to selecting whose influence was 'always evident', 38.28% of respondents thought peers were 'always' influential compared to 31.40% who thought teachers were 'always' influential as Figure 6.9 shows. Overall, this result suggests teachers consider both teachers and peers as equally influential in learning.
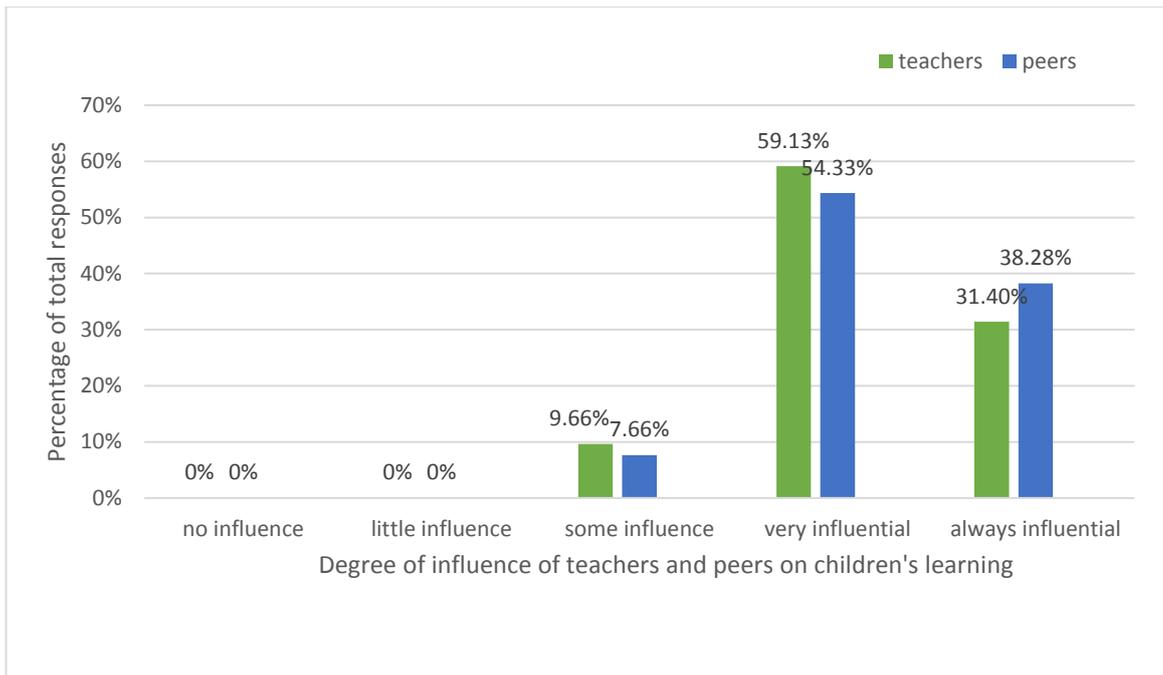
Figure 6.9: Influence of teachers and peers on children's learning

The belief that children influence the learning experience of their peers was also illustrated when respondents were asked to indicate the extent to which they agreed or disagreed in relation to two statements about children's thinking. There was agreement amongst respondents with the statement 'children are more likely to try something if they see their peer doing it' (55.98% of respondents strongly agreed with this statement) and 'children think differently to adults' (39.51% of respondents strongly agreed with this statement) as reported in Figure 6.10. This result suggests teachers believe children have a valuable role to play in peer learning as they offer different perspectives and are role models for each other.
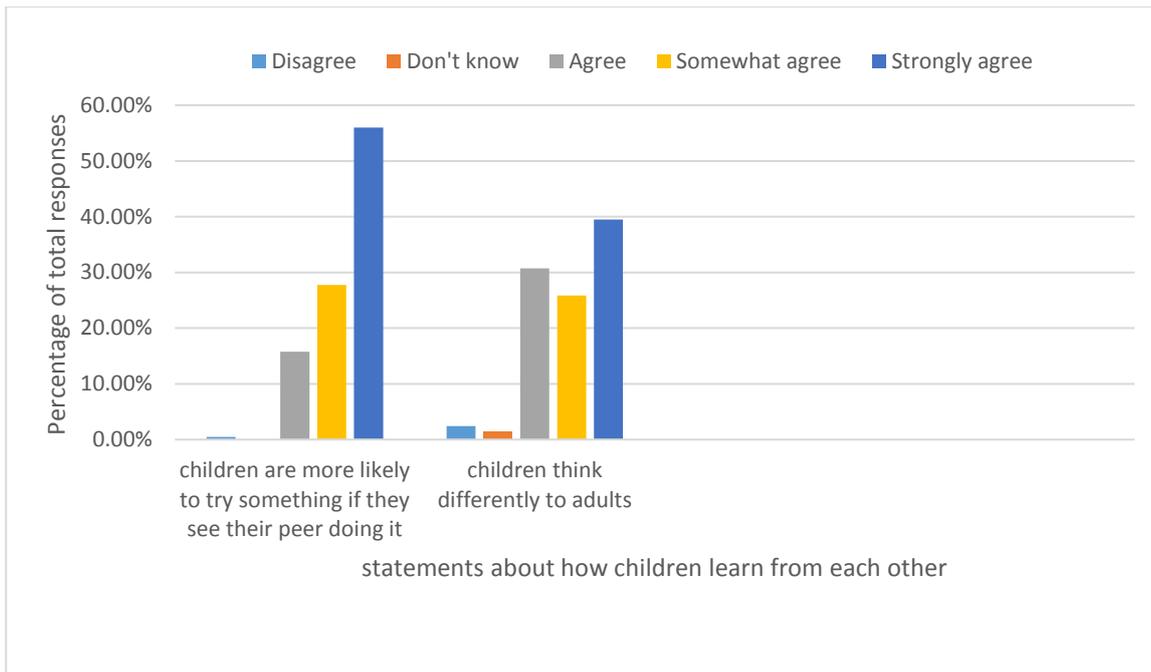
Figure 6.10: Statements about how children learn from their peers

The majority of survey respondents believe that children learn from both their peers and from adults as they participate within a learning community. On comparing the results across different questions about how peer learning and children's learning are defined, respondents consistently selected definitions that describe learning and peer learning occurring through a process of social participation in a community of learners. As these questions were asked in different sections of the survey, the results effectively corroborate each other. Despite this common understanding, this set of results also provides evidence that respondents do not appear to recognise the importance of the role of alternative viewpoints in children's learning. The combined set of results (Figures 6.6, 6.7 & 6.8) reveals 'children learn as they engage in cognitive conflict with peers' as the definition that was selected the least by respondents.

Evidence of a belief in the social, participatory nature of learning reflects the sociocultural discourse underpinning *Te Whāriki,* (Ministry of Education, 1996), the national curriculum document. The curriculum "emphasises the critical role of socially and culturally mediated learning" (Ministry of Education, 1996, p. 9) and collaborative learning with peers is highlighted as an important way to facilitate this. Furthermore, belief in the social nature of learning is consistent with a 'community of learners' model, in which learning is a result of ongoing involvement in sociocultural activities (Rogoff, 1998, p. 715; Brown, 1994). Children learn in an

apprenticeship process as they are guided and supported by more capable peers. One example of an apprenticeship model of learning can be found in Rogoff's (1990) cross-cultural research which examined interactions between expert and novice weavers in Mexico. She used the term 'transformation of participation' to describe the new level of understanding which children move towards when they are involved in shared, collaborative activities (Rogoff, 1998, p. 690). This new level of understanding cannot be achieved when children work by themselves; collaboration with peers is vital.

Co-operative and collaborative play provides opportunities for children to discuss ideas and negotiate different perspectives and children's conceptual understandings are challenged by the alternative viewpoints provided by their peers (De Lisi & Golbeck, 1999). Piaget argued that co-operative play with peers is an important part of children's social experiences as children of equal status challenge each other and in doing so, create the cognitive conflict that is necessary for new understandings to develop (Piaget, 1926). Furthermore, the notion of learning involves permanent changes in thinking and these changes are the result of experiences (Hoffnung et al., 2010). This set of results shows that respondents did not equate the notion of cognitive conflict with their understanding of peer learning.

The results reported in Figures 6.9 and 6.10 revealed that respondents thought peers influence children's learning. Respondents considered teachers and children to be equally influential in the learning process. There was some agreement amongst respondents that children think differently to adults and that children learn through observation and imitation of their peers. Children's peer interactions have been found to be different to adult-child interactions and this is partly because "children possess different cultural resources to adults which allow them to engage in the complex negotiation required to establish collaboratively constructed play" (Cekaite, Blum-Kulka, Grover & Teubal, 2014, p. 8). This result shows the majority of respondents surveyed understand that children engage with their peers in a different way than they do with adults.

The finding that teachers believe children will try an experience if they see their peer doing it (Figure 6.10) is recognised in the work of Bandura (1977) who proposed that children develop through observational learning. Modelling and imitation are central to Bandura's theory and

children act as models for their peers who imitate their behaviour and replicate their play. More recently, Paradise and Rogoff (2009) conceived the notion of 'Learning by Observing and Pitching In'; this idea recognises children's active participation in learning from their peers. Furthermore, this result supports the claims of others who identify the important role of the more capable child modelling their skills and expertise in order to engage their peer in collaborative endeavour (Chung & Walsh, 2006; Fair, Vandermaas-Peeler, Beaudry & Dew, 2005; Wang & Hyun, 2009 and Wilson, 2007). When children are given opportunities to share their expertise, play develops a sense of purpose and intersubjectivity occurs (Rogoff, 1990). This shared focus comes about between children and their more skilled peers, ultimately resulting in a problem solving approach to thinking and learning.

6.3.2 Influences on teachers' beliefs and practices

The survey found a strong relationship between respondents' beliefs about peer learning and the philosophy and practices which exist in their early childhood setting. The relationship between beliefs and centre/kindergarten practices was highlighted when respondents were asked to rank in order of importance the most influential sources of their beliefs about how children learn (1 being most important and 9 being least important). Respondents were given a variety of choices, for example being a parent, their own childhood experiences, pre-service study, cultural/family values and in-service professional development. Respondents chose a variety of factors and the responses to this question did not show a clear pattern. However when ranking the choices, 30.69% of respondents identified their observations as a teacher at number one, and therefore as the most important source of their beliefs around how children learn. This result highlights the day to day work of watching and observing children as an important factor that influences teachers' beliefs and understandings about children's learning.

To identify the degree to which their centre/kindergarten philosophy and their teaching colleagues influenced their beliefs and practices around peer learning, respondents rated these factors and the results are reported in Figure 6.11. Their centre/kindergarten philosophy was found to influence teachers' beliefs about peer learning with 37.57% of respondents saying it had 'some' influence through to 20.23% who said it was 'very influential'. Their centre/kindergarten philosophy also influenced teachers' practice with 33.71% of respondents choosing the option 'some influence', followed by 'often influential' (27.43%) and 'very

influential' (25.14%). The influence of teachers' colleagues on teachers' practice was evident in this result with 30.81% saying their colleagues had 'some influence', 37.79% of respondents stating that their colleagues were 'often influential' and 22.09% said their colleagues were 'very influential'. Thus, colleagues and the centre philosophy had a strong overall influence on practices, but less influence on teachers' individual beliefs.
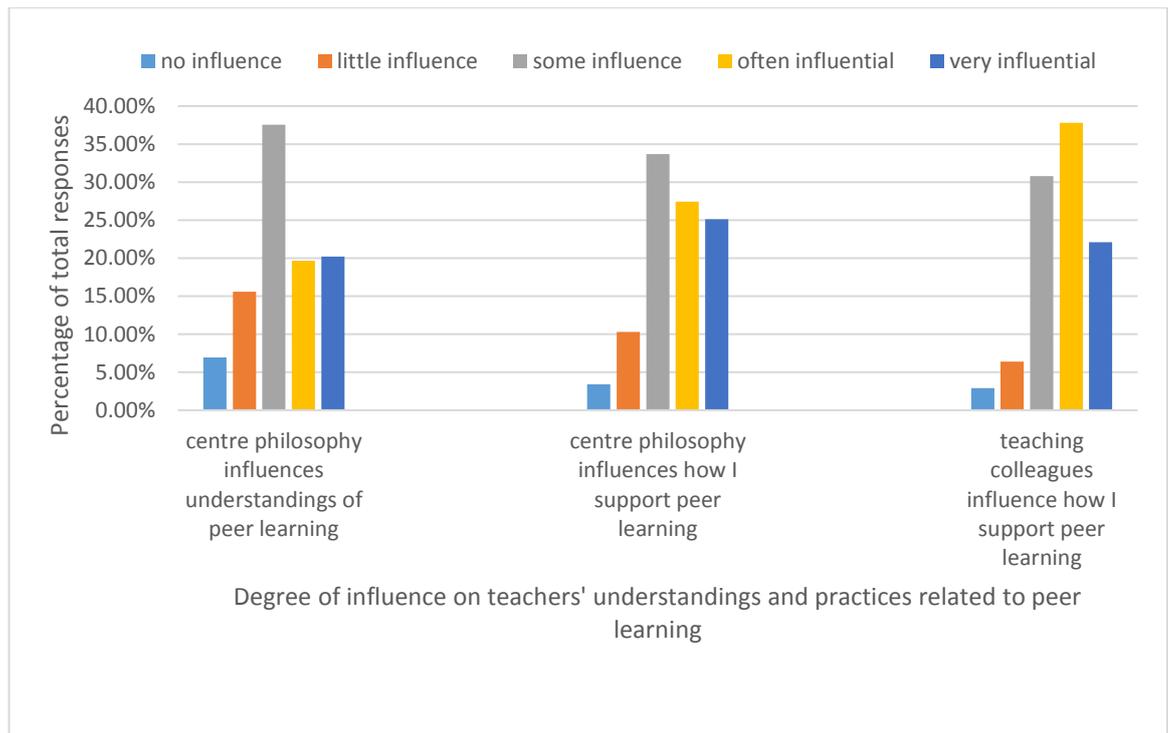
Figure 6.11: Influences on teachers' understandings and practices in relation to peer learning

These results draw attention to the connection between teachers' practice and the early childhood setting they work in. Both the philosophy of the early childhood setting (including teachers' observations) and teachers' colleagues, influenced how teachers understood and supported children's collaborative endeavour. 'Theories of practice' underpin decisions teachers make about curriculum and their role in children's learning (Genishi, 1992, p. 198). These theories influence the knowledge base and the belief system of teachers working in the early childhood sector and are contrasted with theories of development which explain how children develop but don't address the teacher's role in children's learning (Fein & Schwartz, 1982).

Existing research has identified colleagues and the early childhood setting as factors that influence teachers' practice (Corrales, 2012; Nuttall, 2004; Rivalland, 2007; Salamon & Harrison, 2015). Corrales's (2012) study of teachers' beliefs and practices related to children's leadership in early childhood centres found that contextual factors such as routines were barriers for teachers as they tried to nurture leadership amongst children. Nuttall's (2004) study of curriculum negotiation amongst early childhood teachers found that the centre discourses influenced teachers' practice as they negotiated their understandings of the centre rosters with their colleagues. The results in this section support the presence of a theory of practice amongst this group of teachers; teachers' practice in relation to promoting and supporting peer learning was influenced by the setting they were working in.

6.3.3 Summary

This set of results revealed patterns in respondents' beliefs and understandings about peer learning. In particular, beliefs about the social participatory nature of learning was clearly evident across a number of questions. Contrastingly, respondents did not identify understanding and negotiating different viewpoints as an important part of how children learn from their peers. Despite this, respondents identified children as influential amongst their peers in the learning process, and that children model themselves on their peers and try things they see their peers doing. There was also agreement that children think differently to adults. Finally, this set of results has highlighted the presence of a strong relationship between teachers' beliefs and practices around peer learning and the early childhood centre they are working in. Teachers' colleagues, the centre philosophy and the observations teachers make when working with children have been shown to impact on their beliefs about peer learning. These results suggest that teachers' knowledge, understandings and practices related to peer learning change in response to the setting they are working in. The survey contained a series of questions about teachers' practice in supporting and promoting peer learning and the next section of this chapter presents these results.

6.4 Teaching practices

6.4.1 Supporting children's engagement with their peers

Almost all of the respondents surveyed (98.37%) agreed that some children need more support than others to engage positively with their peers. Respondents were asked to then say why they

thought some children needed more support than others by selecting possible reasons which they then ranked in order of frequency (Figure 6.12). The ability of children to communicate effectively with their peers was selected by 33.52% of respondents as being the most frequent reason why teachers supported group play followed by children having difficulty entering group play (25.70%). Children exhibiting challenging behaviours was next (21.79%), followed by children having difficulty sharing and children who have special educational needs (both were selected by 9.50% of respondents).
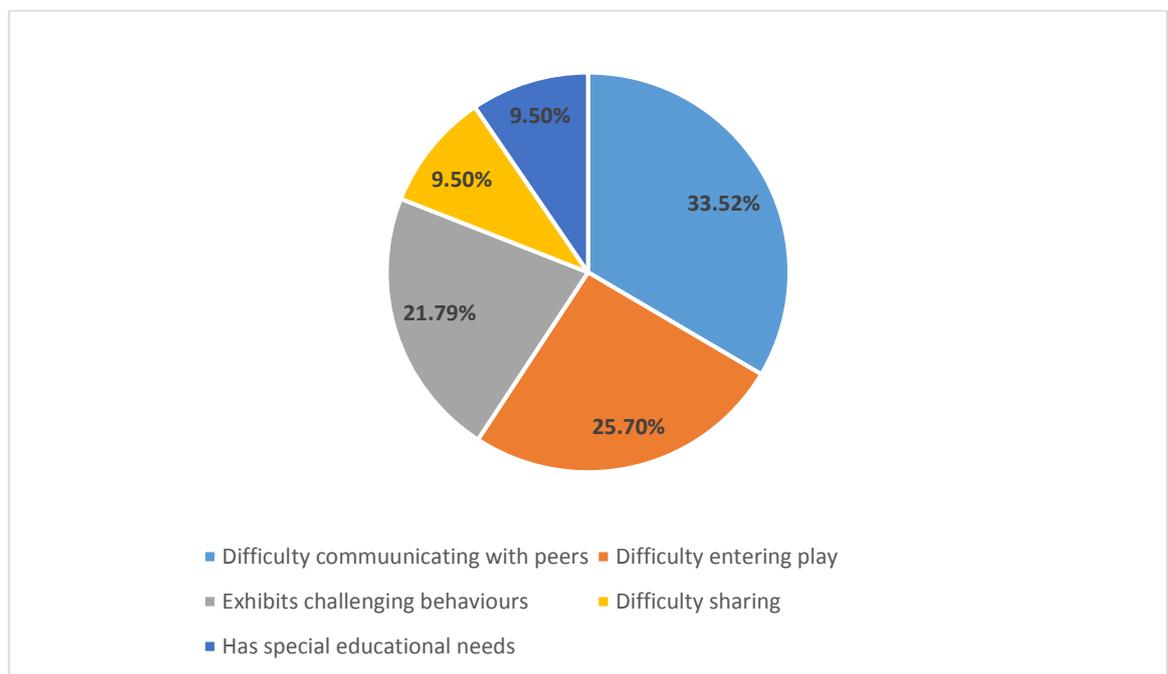
Figure 6.12: Reasons for teachers' involvement in group play

There is a contradiction between teachers' beliefs and practices that is revealed when comparing the results in Figure 6.12 with those in Figure 6.8. The ability of children to communicate effectively with their peers was the most commonly identified reason for teachers' involvement in group play (Figure 6.12). However, when respondents were asked to define how they believed children learn (see earlier Figure 6.8) only 3.17% of respondents ranked children learn through verbal interaction as number one (most important) on a scale of 1-5, with 32% ranking children learning through verbal interaction as number 5 (least important) on the scale. This suggests that although teachers may not believe verbal interaction is the most important way children learn, their practical experience highlights the need to support children to communicate with each other for collaborative play to be successful.

To explore exactly how teachers supported children to learn alongside and from their peers, respondents were asked to indicate on a scale how often they used particular teaching strategies to support peer learning (see Table 6.1). Using language to model sharing and turn taking and using language to scaffold children's learning were ranked most highly in the 'always' category (41.67% and 41.11% respectively). Providing opportunities for peer talk was the next most frequently used strategy in the 'always' category (35%). In addition, the following strategies were frequently selected in the 'very often' category: deliberately posing questions to extend children's thinking (44.20%), modelling specific strategies, for example, how to enter play and share (46.07%), co-constructing knowledge with children (45.20%) and using language to model thinking out loud to children (40.56%).

Table 6.1: Teaching strategies used to support peer learning

	Never	Occasionally	Often	Very often	Always
I deliberately pose questions to extend children's thinking in group play	0.55%	6.63%	20.44%	44.20%	28.18%
I use physical positioning to support children's group play, eg enforce boundaries	5.08%	25.42%	30.51%	25.42%	13.56%
I model specific strategies, eg teaching children how to enter play and how to share	1.12%	5.62%	19.10%	46.07%	28.09%
I group children together who have different skill levels	15.17%	38.20%	26.97%	15.17%	4.49%
I actively participate in the co-construction of knowledge with children	0.56%	2.82%	25.42%	45.20%	25.99%
I talk to children about my own thinking	1.68%	14.53%	27.93%	39.11%	16.76%
I encourage children to give their peers feedback on their learning	4.49%	24.16%	28.65%	33.71%	8.99%
I use language to model thinking out loud to children	1.11%	4.44%	24.44%	40.56%	29.44%
I use language to model sharing and turn taking	0.00%	2.78%	13.33%	2.22%	41.67%
I use language to scaffold children's learning	0.00%	4.44%	12.22%	42.22%	41.11%
I provide opportunities for peer talk	0.00%	1.11%	17.22%	46.67%	35.00%

The results in this section highlight teachers' awareness that some children need additional support if they are to have positive experiences with their peers and if the potential for children to learn from each other is to be realised. Teachers in New Zealand early childhood settings work within a curriculum framework that emphasises the importance of relationships as being a foundation for quality learning and teaching (Ministry of Education, 1996, p. 9). The curriculum document places the child at the centre of these relationships and when outlining its vision, the document states that the curriculum is "about the individual child" (Ministry of Education, 1996, p. 9). These results demonstrate that teachers used a variety of teaching strategies in response to individual needs.

These results suggest there are different reasons why teachers involve themselves in children's play. Teachers were responsive to the needs of individual children and they supported them to engage positively with their peers. In particular, children needed support to communicate effectively and to enter group play. The nature of teachers' decision making when supporting collaborative endeavour is complex and such decision making is grounded in teachers' knowledge of the individual child; their disposition, interpersonal skills and interests are all factors which influence teachers' practice in this area (Rose & Rogers, 2012). The child-centred approach of *Te Whāriki* is highlighted by Dalli who states that teachers' pedagogy is "negotiated as a sociocultural activity within a learning community that respects individual interests and choices" (2011, p. 231). These results indicate that teachers understood that their role in supporting children to work successfully with their peers requires them to respond in different ways depending on the child.

The results suggest that teachers are using specific strategies to ensure children can engage in positive learning experiences with their peers (see Table 6.1). Furthermore, teachers appear to be actively promoting children's thinking. The importance of using language to model key social skills is evident in this result and respondents had already indicated that communicating with peers was a skill that children often needed support with. Teachers were focused on supporting children to enter play, to share, take turns, and to engage in peer talk. Extant research identifies language as an important tool for teachers to use to support collaborative play (Brown, 2006; Kultti, 2015; Pantaleo, 2007; Stanton-Chapman & Hadden, 2011). Kultti (2015) found teachers' involvement in young children's play through listening and interpreting children's actions was vital for peer engagement. Supporting children to communicate effectively with their peers was

highlighted by respondents in the present study. Language was used for the purpose of scaffolding their learning and extending their thinking; however there are other important strategies that teachers can use to enrich and extend peer interactions and these are discussed next.

Grouping together children who have different skill levels was not a strategy that respondents used very often to support peer learning; only 26.97% of respondents said they did this 'often'. This suggests a belief in naturally occurring opportunities for learning rather than the more intentional strategy of grouping children who have a variety of expertise. However, there is strong support in the literature for children adopting expert roles amongst their peers (Chung & Walsh, 2006; Williams, 2007; Wood & Frid, 2005) and these opportunities can be purposefully created by teachers. This finding raises some questions about missed opportunities for children to take on teaching roles amongst their peers. Intentional teaching practices have been investigated in a number of studies in early childhood settings (Bulotsky-Shearer et al., 2014; Kilderry, 2015; Leggett & Ford, 2013) and there is evidence that teachers preferred children to experience spontaneous peer play and struggled to articulate purposeful planning for peer collaboration (Davis & Degotardi, 2015; Williams et al., 2014). Respondents in the present study also identified teaching strategies that supported naturally occurring opportunities for peer play, rather than selecting one of the more intentional strategies (grouping children who have a variety of expertise) for fostering this type of learning.

6.4.2 Children as experts

One of the research questions the present study explored was, whether teachers promote opportunities for children to adopt expert roles with their peers and if so, how? Therefore, respondents were asked to rate how often they provided children with the opportunity to adopt expert roles amongst their peers. Although it was evident that some teachers provided opportunities for children to share their expertise, only a small percentage (12.88%) said they 'always' did so and only half the respondents (50.31%) did so 'very frequently' (see Figure 6.13).
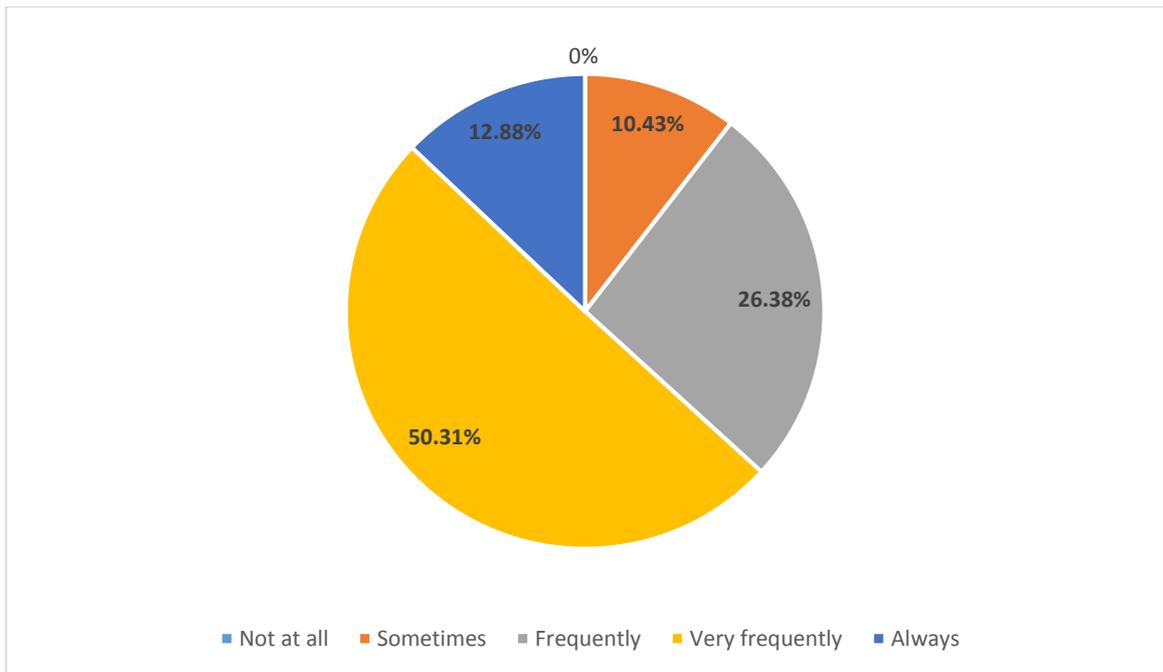
Figure 6.13: How often teachers provide opportunities for children to adopt expert roles amongst their peers

To explore the idea of fostering children's expertise further, respondents were asked to rate how often they used specific teaching strategies to promote opportunities for children to share their knowledge and the results are presented in Figure 6.14. In addition to identifying the types of strategies used most frequently by teachers, the teaching strategies included in this question were designed to explore whether teachers intentionally and deliberately created opportunities for children to share their expertise or whether these opportunities were understood as occurring naturally within a play based learning environment. The responses to this question were quite mixed. In terms of giving children agency in the age of children they played with a total of 78.41% of respondents said they 'always' or 'very often' let children of different ages decide if they want to play together. In addition, a total of 69.67% of respondents said they 'always' or 'very often' let children direct their own learning with their peers. When considering whether they let children decide if they want to be role models for their peers, 90.96% said they 'always', 'very often' or 'often' did so. In contrast, only 10.71% of respondents said they 'always' or 'very often' deliberately paired older and younger children for play. In terms of asking children to role model specific skills for their peers, 74.16% of respondents said they 'very often' or 'often' did so. These results suggest teachers prefer to let children direct their own learning and choose when to be role models for their peers, but that they often ask children to role model skills for their peers.
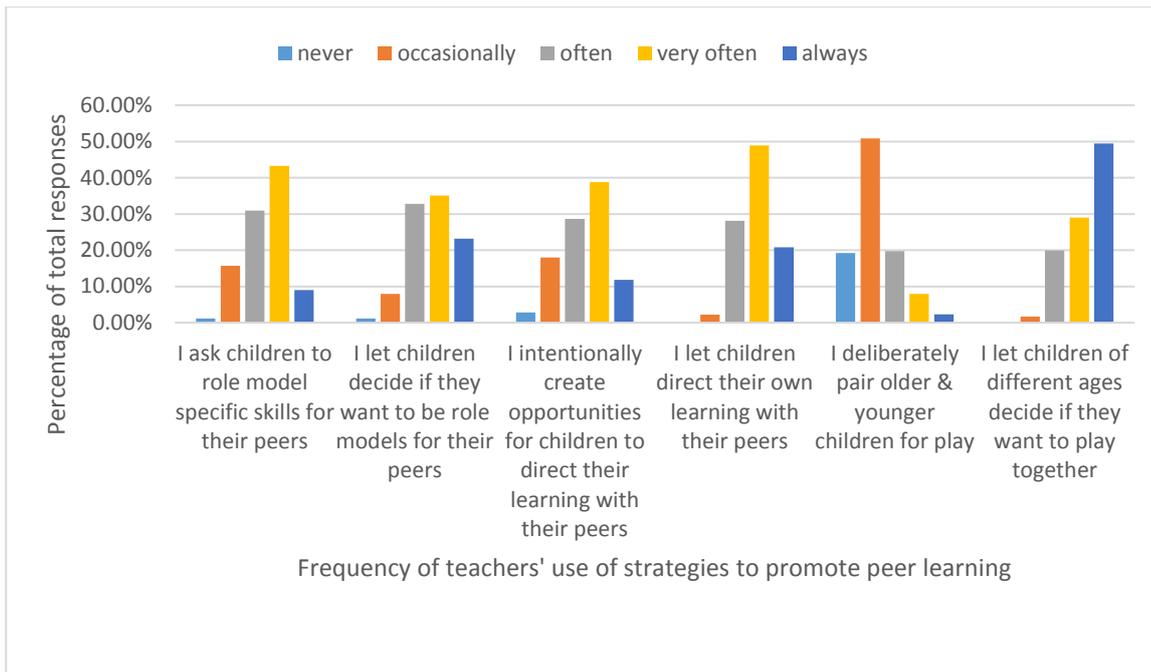
Figure 6.14: Use of teaching strategies to foster children's expertise

Respondents were asked more specifically to indicate the extent to which they intentionally created opportunities for peer learning and the extent to which they allowed opportunities for peer learning to naturally occur. Figure 6.15 presents these results, which again suggest teachers value the spontaneous nature of peer learning. When it came to stating how strongly respondents agreed with how they supported peer learning, 40.44% of respondents said they strongly agreed with allowing peer learning to happen naturally, compared to 35.33% of respondents who said they strongly agreed with intentionally creating opportunities for peer learning to occur. However the options of agree and strongly agree did indicate mixed responses and these results revealed that respondents were divided about this aspect of their practice (as with the previous finding illustrated in Figure 6.14).
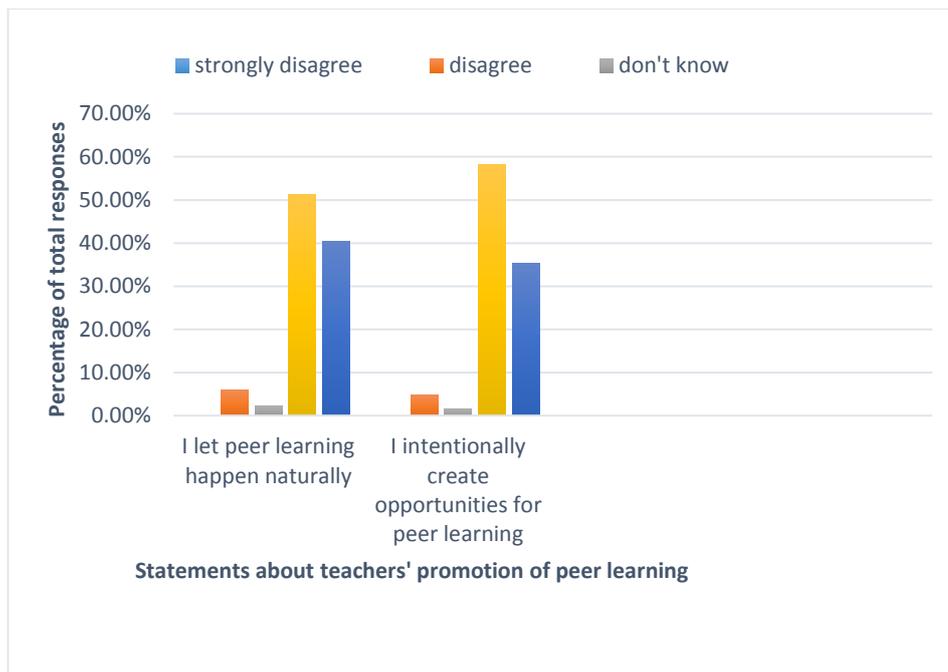
Figure 6.15: Teachers' promotion of opportunities for peer learning

There is evidence suggesting inconsistencies between teachers' beliefs and practices across a number of studies (Rivalland, 2007; Sakellariou & Rentzou, 2012; Wen, Elicker & McMullen, 2011). Findings from the current study indicate inconsistencies between beliefs and between beliefs and practices. In the survey responses teachers stated their belief in the importance of peers in the learning process and that children attempt new learning experiences if they see their peer engaged in them. Yet, only a small percentage of teachers surveyed said they 'always' sought to provide these types of learning opportunities (Figure 6.13). Children are positioned as powerful and active in the learning process (Dahlberg, Moss & Pence 2006), and *Te Whāriki* (Ministry of Education, 1996) positions children as having agency within the learning process, an idea which is embodied in the principle of empowerment and supports the idea of children directing their own lives. It was therefore surprising that only half the respondents surveyed said they 'very frequently' provided opportunities for children to adopt expert roles amongst their peers (Figure 6.13). This result raises questions about how beliefs are enacted in practice.

The results provide insight into how teachers perceive their role in promoting children's expertise amongst their peers. The responses to the different teaching strategies were mixed, however, the emerging pattern favoured a belief in children having agency. A close examination revealed that most teachers chose to let children direct their learning with their peers; asking

children to role model specific skills for their peers was the exception. Teachers seemed to rely on the naturally occurring opportunities for collaborative play which present themselves throughout the day at any given time in an early childhood setting rather than deliberately ensuring that children had opportunities to be teachers amongst their peers. For example, the more intentional teaching strategies such as pairing older and younger children were not adopted as often as allowing children of different ages to decide if they want to play together.

The survey results reveal that teachers' strong belief in peer learning taking place within a community of learners (as discussed in section 6.3), is reflected in their practice of promoting children's agency within naturally occurring opportunities for joint play. The evidence here suggests teachers are relying on spontaneous opportunities occurring for children to be teachers amongst their peers. The reliance on naturally occurring opportunities for learning is historically positioned within the context of play and as Thomas et al. (2011) suggest, silences the 'teaching' and intentionality in early childhood contexts (Thomas, Warren & de Vries, 2011). Indeed, research with New Zealand early childhood teachers found evidence to suggest that teachers' reliance on the principles and strands of *Te Whāriki* could result in teachers simply setting up the environment and leaving the children to find their own way (Alvestad, Duncan & Berge, 2009).

The evidence from this survey suggests teachers may still view themselves as facilitators rather than taking a more active role in the learning process. For example, an examination of the degrees of agreement amongst respondents about the intentional provision of opportunities for peer learning (Figure 6.15), indicates that teachers' practice is varied in relation to intentionality. This finding suggests that teachers do not always consciously create opportunities for children's expertise to be fully realised, as they believe in naturally occurring learning throughout the early childhood curriculum. This result indicates a dilemma for teachers as they think about how they can afford children opportunities to share their knowledge with their peers. This finding highlights the impact of the teachers' role on children's learning, particularly in relation to their support of collaborative endeavour.

6.4.3 Summary

The relationship between teachers' beliefs about how children learn alongside and from their peers and how teachers support this type of learning appears to be complex. This set of findings has revealed differences between teachers' beliefs and their practices. These disparities confirm what is already known about the inconsistent relationship between teachers' beliefs and their practices. When questioned about the degree of intentionality surrounding teachers' practice in relation to supporting and promoting peer learning, the responses were mixed. This group of teachers may not always intentionally create opportunities for children to have agency amongst their peers, instead they seemed to favour naturally occurring opportunities for learning. This is concerning because if teachers only support naturally occurring peer interactions, then there is the possibility that children could be missing out on the expertise of their peers. In the next chapter, the survey results are compared with the case study findings and the notion of intentionality is again revealed to be a complex one. The survey sought to better understand how *Te Whāriki* guided teachers' practice related to peer learning and the next section reports these results.

6.5 Peer learning and *Te Whāriki*

The study explored how *Te Whāriki* guides teachers' practice in relation to peer learning. Respondents were asked to identify which of the strands within *Te Whāriki* they believed to be most relevant to peer learning, by rating them from having no relevance to being extremely relevant (see Figure 6.16). The contribution strand was selected by 68.39% of respondents as being extremely relevant to peer learning, followed by communication (61.02%). Belonging and exploration were the next most extremely relevant strands selected at 55.37% and 52.54% respectively. Lastly, 42.94% of respondents identified wellbeing as being extremely relevant to peer learning. Within the curriculum, the contribution strand is about valuing and affirming children and its intent gives children agency to contribute to and direct their learning. The communication strand aligns with the importance of verbal interaction between children.
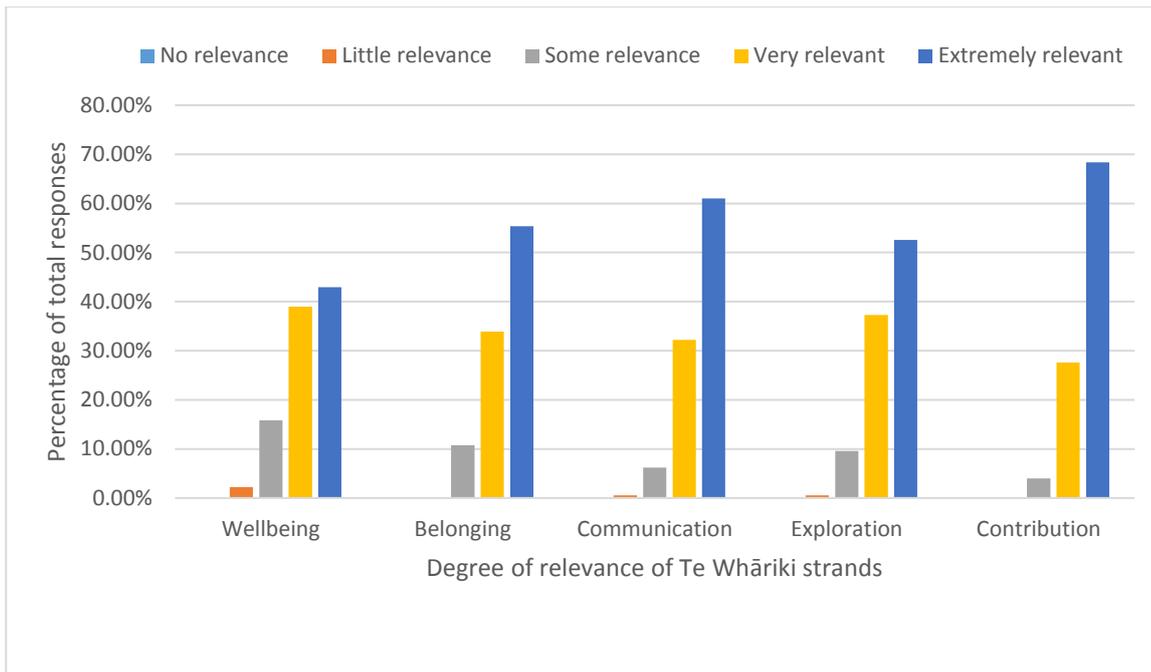
Figure 6.16: Strands within Te Whāriki that are relevant to peer learning

Respondents were then asked to rate their use of the programme guidelines within the national curriculum *Te Whāriki* (Ministry of Education, 1996). Each strand within the curriculum has several goals and learning outcomes. These are accompanied by guidelines for teachers and those in the contribution strand support teachers to foster opportunities for children to learn from each other. The guidelines respondents were asked to rank were those which guide teachers in supporting peer learning. As reported in Figure 6.17, teachers indicated that they provided a range of opportunities for children to play an active role in the peer learning process. In particular, 38.86% of respondents said they 'always' provided opportunities for children to see themselves as a help for other children. Similarly, 39.31% of respondents said they 'always' provided opportunities for children to empathise with their peers. However, providing opportunities for children to take another's point of view (26.86%) and to discuss or explain their ideas to their peers (28.57%) were not rated as highly in the 'always' category. Rather, 44.57% of respondents said they 'very often' provided children with opportunities to take another's point of view and 46.86% said they 'very often' provided children with opportunities to discuss or explain their ideas to their peers.
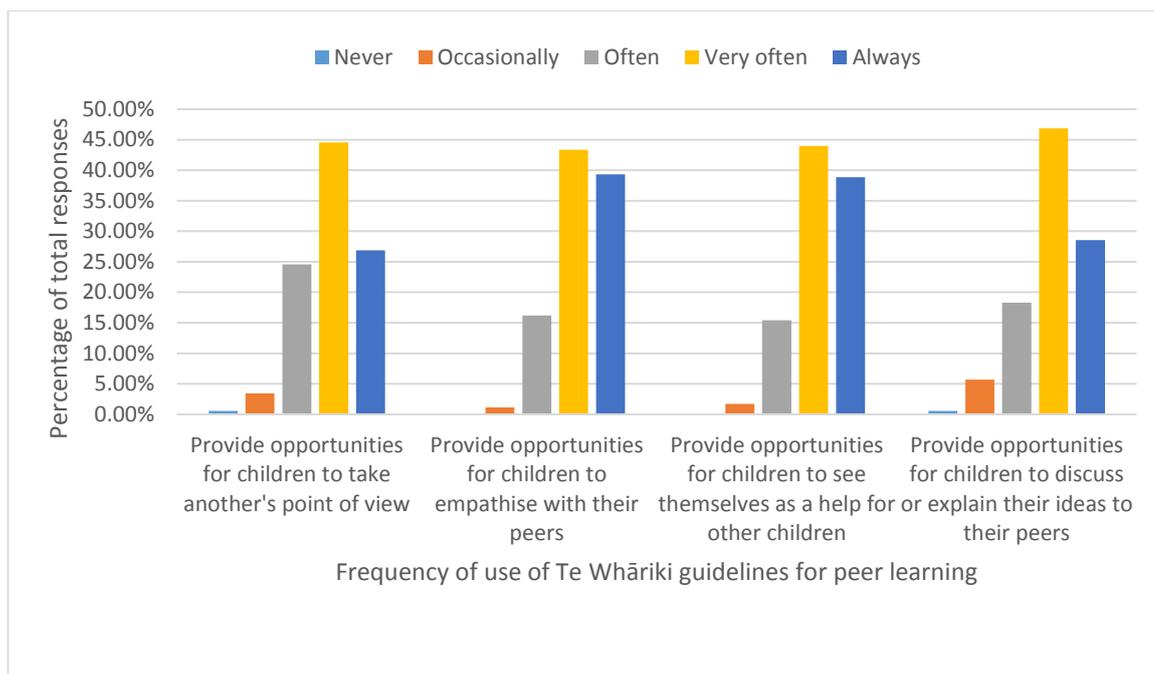
Figure 6.17: Teachers' use of Te Whāriki programme guidelines for peer learning

When asked to rate their use of the programme guidelines within *Te Whāriki*, providing opportunities for children to take another's point of view and to discuss or explain their ideas to their peers were not rated quite as highly in the 'always' category by respondents as providing opportunities for children to see themselves as a help for other children and opportunities for them to empathise with their peers (see Figure 6.17). This suggests teachers may place more importance on children's contribution in the form of helping and empathising with their peers, rather than supporting children to share their knowledge and alternative perspectives with their peers.

This finding reflects the positioning of children as playing an important role in their peers' emotional wellbeing and belonging as they are given opportunities to assist their peers and empathise with them. *Te Whāriki,* as the national curriculum, has emphasised wellbeing and belonging as integral to children's experience in an early childhood setting. However, in adopting a view of peer learning from a relationships perspective, which is supportive of social emotional development, there seems to be less recognition of the critical role that peers can play by sharing their ideas, providing an alternative viewpoint and supporting cognitive development. It is known that peer learning encourages children to consider different perspectives and negotiate and problem solve as they work together (DeVries, et al., 2002). Earlier studies

emphasise the role of cognitive conflict in peer interactions (Cannella, 1993; Fawcett & Garton, 2005; Hyun & Davis, 2005; Johnson-Pyn & Nisbet, 2002). Children in these studies negotiated and problem solved, whilst exploring the perspective of their peers. Despite this, this result indicates respondents in the present study viewed peers as supporting children's emotional wellbeing first and foremost, rather than seeing their potential role as co-constructors of knowledge with their peers.

6.6 Summary

The survey results reported in this chapter provide data about peer learning from a representative sample of New Zealand early childhood teachers. Results revealed a strong belief in the social, participatory nature of children's learning with their peers. Respondents valued the role peers play in the learning process and the notion of children learning through observation of their peers. However, respondents did not associate the premise of negotiating different perspectives with definitions of peer learning. This finding suggests teachers do not know about or do not understand the theoretical explanations and research related to cognitive conflict which provide explanations about how children learn from each other (for example: Cannella, 1993; Fawcett & Garton, 2005; Hyun & Davis, 2005; Johnson-Pyn & Nisbet, 2002; Piaget, 1977).

Another finding was that the early childhood settings teachers worked in influenced their beliefs and practices related to peer learning. In addition to their observations of children, the early childhood centres' philosophies and other staff influenced how teachers' supported peer learning. There were also contradictions within the results, including inconsistencies between respondents' beliefs and responses to questions about their teaching practices. For example, despite expressing beliefs in the importance of peers in the learning process and the role of observational learning, only a small percentage of respondents said they 'always' provided opportunities for children to share their expertise and role model for their peers. This finding mirrors those of earlier studies, which also found contradictions between teachers' beliefs and practices (Sakellariou & Rentzou, 2012; Wen, Elicker & McMullen, 2011) and complexities in the relationship between teachers' beliefs and practices (Cheung, 2012; McLachlan-Smith, 1996; Stephen, 2010).

Although the results show that teachers use of a range of teaching strategies, teachers had a preference for children to have agency in their collaborative group play. Respondents favoured naturally occurring opportunities for peer learning rather than utilising more deliberate teaching strategies such as pairing children to foster peer learning. These findings provide insight into teachers' interpretations of the programme guidelines related to supporting peer learning within *Te Whāriki*. Respondents placed more importance on providing opportunities for children to help and empathise with their peers, rather than supporting children to share their knowledge and alternative perspectives with each other. Finally, respondents identified the contribution and communication strands within *Te Whāriki* as the most relevant to peer learning. These strands promote children's agency to direct their learning and emphasise the role of verbal interaction in peer play. The next chapter synthesises the results from phase one and two of this study. The chapter provides answers to the research questions that guided the study and examines the results in relation to theory and research.

Chapter Seven: Discussion

7.1 Introduction

Case studies and a nationwide survey were the methods adopted in this mixed methods exploratory study to investigate the nature of early childhood teachers' beliefs and practices related to peer learning. The use of mixed methods allowed exploration of the research problem in depth, and an opportunity to measure its prevalence in a wider population (Creswell, 2015). This chapter discusses both data sets in response to the research questions, which guided this study. Qualitative and quantitative results are compared and contrasted, with reference to relevant theories and the extant research.

The research questions were:

- What beliefs and knowledge do teachers have about peer learning?
- How do teachers form beliefs about how children learn?
- What do teachers understand is their role in peer learning?
- Do teachers promote opportunities for children to adopt expert roles with their peers and if so, how?
- How does *Te Whāriki* guide teachers' practice in relation to peer learning?

The chapter is organised around the research questions; a summary of the key findings concludes this chapter. The term participants is used throughout to denote results from both the case studies and the survey.

7.2 What beliefs and knowledge do teachers have about peer learning?

7.2.1 Belief in the social nature of learning

Findings across the phases of the study revealed strong support for a belief in the social, participatory nature of learning. When interviewed, teachers described peer learning as children learning from each other in a social learning environment. The majority of survey respondents also defined peer learning as children learning from each other, and from adults, within a community of learners. These beliefs have a number of theoretical sources, including those of George Herbert Mead who considered that play took place in a social environment (Mead, 1925). The social aspect of learning was also adopted by the philosopher John Dewey, who espoused the notion of children actively constructing knowledge through co-operative learning

in social environments (Krogh & Slentz, 2011; Phillips, 1995). In addition, these understandings of peer learning connect with constructivist ideas about learning, of which Dewey has been associated (Evers, 1998; Phillips, 1995). Constructivist theories view children as active participants in learning and co-operation between children is a central idea (DeVries et al., 2002; Piaget, 1965; Vygotsky, 1978).

Teachers talked about 'that sociocultural learning' when they referred to children learning with and alongside their peers. In addition, the survey responses revealed a belief in the social nature of peer learning. The ideas of constructivist theorists Piaget and Vygotsky are particularly relevant to these findings. Both of these theorists have provided theoretical explanations for how children learn from their peers (Hogan & Tudge, 1999; Rogoff, 1998). Vygotsky (1978) viewed the internalisation of knowledge as being derived through social interaction, a view that corresponds with the understandings expressed across both phases of this study. Furthermore participants recognised the potential learning opportunities that exist when children work together and this corresponds with Piaget's (1965) belief that children learn through being active participants in collaborative play.

Although constructivist ideas were evident in teachers' responses, a few teachers included people other than children when defining peer learning. This result reveals some teachers' understandings of peer learning appear to be confused. Some of the teachers interviewed described a broader definition of peer learning as involving teachers and family members, and as occurring not only in the early childhood setting, but also at home and in the wider community. Two of these teachers used the term 'Bronfenbrenner approach' when discussing the importance of peer learning. Contrastingly, survey results found just one instance where the ideas of Bronfenbrenner (1979) were referred to; the notion of peer learning extending beyond children learning from each other and in contexts other than the early childhood centre was not a strong theme in the survey.

Bronfenbrenner's (1979) ecological systems theory is clearly identified in the national early childhood curriculum *Te Whāriki* (Ministry of Education, 1996), so this finding is perhaps unsurprising. However, Bronfenbrenner's (1979) theory does not provide an explanation for how children learn; instead it identifies and explains the different environments within which

learning takes place and the factors that influence learning. Despite this, ecological systems theory was found to be part of some of these teachers' understandings about how children learn. The understandings expressed by a small number of participants suggests some teachers see cognition and context as synonymous. This is problematic because it may mean some teachers may not have robust understandings of theories of learning versus theories of development which this finding suggests.

7.2.2 Children learn through active exploration of their environment

In addition to recognition of the social nature of learning, results from both data sets showed consistent support for the belief that children learn through play, through exploration of the environment and through discovery. The notion of children learning through active exploration of their environment with sensory play first appeared in the writings of Rousseau (1712 – 1778), Pestalozzi (1746-1827) and Froebel (1782-1852) and findings in this study suggest this is a notion that is an enduring proposition for early childhood teachers. Froebel placed great importance on play and the idea of children initiating and directing their own activities (Bruce, 2011). The philosopher Dewey believed children thrived when allowed to experience the curriculum through hands-on learning, active exploration and problem-solving (Dewey, 1916). These early philosophers influenced more recent accounts of children's learning, including those of constructivist theorists Piaget (1896-1980) and Vygotsky (1896-1934), who viewed learners as discovering and constructing knowledge for themselves.

Although Vygotsky (1978) believed children actively construct knowledge, he emphasised the role of social interactions as central to the internalisation of knowledge. In the current study, participants acknowledged the social nature of learning, but this result seems more closely associated with Piaget's (1969) views of cognition, in which he argued that children learn by actively constructing knowledge through interaction with their environment. Despite subsequent challenges to his theory (Donaldson, 1978) and advancements in thinking (Case, 1991; Dawson & Fischer, 1994; Dosie, 1978; Perret-Clermont, 1980), this result demonstrates that his ideas still influence teachers' beliefs about how children learn. Also, cognitive constructivist theory has an implicit presence within the early childhood curriculum *Te Whāriki* (Ministry of Education, 1996). The exploration strand describes children learning through active exploration of the environment as they make sense of the world (Ministry of Education, 1996).

The specific reference to the child as an explorer has undoubtedly contributed to the emphasis participants placed on exploration of the environment and the validation of play as a vehicle for knowledge construction.

Results from the interviews and the survey showed strong support for the idea that children learn from each other through naturally occurring child-initiated play experiences. There is some research that suggests play is disappearing in early childhood programmes and is instead being replaced with academic activities (Frost, 2010; Miller & Almon, 2009; Stover, 2011). This study did not support these claims, rather it confirms the place of play as a long standing ideological tradition in early childhood (Wood & Bennett, 2000). However, the history of play-based learning in the early childhood sector can mean teachers struggle to articulate their role in children's learning (Rose & Rogers, 2012; Wood & Bennett, 2000). Importantly, reliance on a play-based discourse can mean the role of the teacher becomes potentially less important.

In particular, participants' belief in the social nature of learning highlighted a tension for teachers as they tried to balance their belief in the social nature of learning, with a belief in children exploring and discovering their environment. This tension was identified in the teachers' descriptions of their role that were unclear and difficult to articulate when interviewed. Teachers struggled to define their role as deliberately supporting opportunities for peer learning. They expressed a preference for empowering children to direct their own learning with each other, rather than them initiating and directing collaborative play. The presence of constructivist and social constructivist theorising in the curriculum document *Te Whāriki* (Ministry of Education, 1996), and the resulting uncertainty for teachers in relation to their role in children's learning has been discussed by a number of researchers (Cullen, 2001; Greenfield, 2002; McLachlan, 2006; Nuttall, 2003) and these findings confirm earlier research. Furthermore, Aras (2016) has identified the amount of teacher involvement and the role of the teacher in children's play as ongoing issues for investigation. Findings from the present study support these concerns and emphasise the need for teachers to be supported to better articulate their role in a discourse of play-based learning.

7.2.3 Peer tutoring and peer collaboration

Participants defined the term peer learning by referring to the complementary processes of peer tutoring and peer collaboration. Teachers consistently identified that there is a role for more capable children to act as role models by sharing their expertise with their peers. In the case studies, the idea of children learning through observing their peers was a constant theme, as teachers identified observation as a legitimate means of learning and as a way of sharing expertise. This was supported by the survey responses with more than half expressing the view that children are more likely to try something if they see their peers doing it.

Previous research provides evidence of more competent children tutoring their less experienced peers during naturally occurring opportunities for play (Haworth et al, 2006; Maynard, 2002), and in situations where children were paired to work together (Fair et al., 2005; Jones, 2007). In the present study, participants identified observation as an important means for children to learn from each other and the case studies revealed teachers' awareness of children taking time to observe peers before entering play. This belief, and the practice of facilitating children learning from expert peers through observation supports similar findings (Alcock, 2007; Fagan, 2009; Gauvain, 2001; Mortlock, 2015; Odegaard, 2006).

Participants also identified that children working collaboratively was a form of peer learning. In particular, case study participants discussed the role of peers in learning, explaining they offer different perspectives from adults and are equal in status as opposed to adults. Survey responses supported this finding as they agreed that children think differently to adults. This belief in the value of collaborative play originates from early philosophers such as Froebel and Dewey, who proposed that co-operative play provided opportunities for children to negotiate ideas and problem solve whilst developing relationships with peers (Saracho & Spodek, 1995; Stover, 2011). Piaget (1952) also recognised co-operative social interactions as an important means for young children to develop social behaviours and acquire language. He believed that the equality of status that existed between children was crucial for negotiating, discussing and compromising in a process of mutual engagement (Piaget, 1965). Notably, Piaget theorised that peer interactions provide opportunities for cognitive conflict as children share alternative viewpoints with each other, leading to transformation of understandings (Tudge, 2000).

In contrast with the case study participants, the survey respondents did not rank the provision of opportunities for children to explain their thinking and explore alternative perspectives with peers very highly or place much importance on opportunities for children to express and negotiate different perspectives. This finding conflicts with evidence that peer interactions provide opportunities for children to share different perspectives and resolve cognitive conflicts to reach new understandings (Cannella, 1993; Fawcett & Garton, 2005; Hyun & Davis, 2005; Majorano, et al., 2015; Mashford-Scott & Church, 2011). Carr's research (2011) highlighted the importance of opportunities for children to adopt other perspectives when revisiting learning with their peers. Similarly, Siraj-Batchford (2009) states that peers have an important teaching role in sustained shared thinking as they increasingly acknowledge others' perspectives and then negotiate with their peers.

Furthermore the negotiation of different perspectives is clearly signalled in *Te Whāriki* (Ministry of Education, 1996) and yet this group of teachers did not appear to value this type of learning between children. Instead they equated peer learning with social participation in a community of learners. One explanation could be that teachers did not understand the term cognitive conflict in the survey. Despite this, the lack of understanding of the importance of young children experiencing opportunities to explore different ideas and perspectives was of concern and suggested that some teachers may not recognise or value the role of cognitive conflict in constructing new understandings in peer interactions. A lack of recognition of this important aspect of peer learning could mean children are not supported to negotiate their views and thinking about their play.

7.2.4 Summary

Participants' beliefs about peer learning are that it is a collaborative, social process and that they should provide learning environments that promote individual exploration and discovery. There were some contrasting findings between the qualitative and quantitative results, which suggests topics for further research. In the case studies, teachers' reference to ecological systems theory suggested eclectic or confused understandings about cognition, while survey respondents did not identify opportunities for children to explore alternative perspectives as being an important aspect of peer learning. These findings have identified some complexities related to teachers'

beliefs about peer learning. Also some teachers' understandings of theoretical explanations for peer learning have been found to be unclear.

7.3 How do teachers form their beliefs about how children learn?

7.3.1 Teaching experiences in the field

Both phases of data collection identified the impact of teaching experiences in the field on beliefs and practice and this emerged as the most dominant and consistent theme in the data. This is despite evidence that early experiences form beliefs that are highly resistant to change (Kagan, 1992; Pajares, 1992; Vartuli, 2005). Although initial teacher education has been identified as an important source for forming teachers' 'theories of development' (Fein & Schwartz, 1982), results from this study suggests that the beliefs held by teachers evolved and changed as they became part of the setting they were teaching in. Other research has found teachers' beliefs are based on practical rather than theoretical knowledge (Fuligini, Howes, Lara-Cinisomo & Karoly, 2009; Spodek, 1988) and it was these theories of practice (Fein & Schwartz, 1982) which guided teachers as they promoted and supported opportunities for peer learning.

A dominant theme across phases was the impact of the setting teachers worked in on their beliefs and practices. In the case studies, aspects of teachers' current working environment such as colleagues, centre philosophies, curriculum decision making and day-to-day practices were found to have a fundamental role in shaping teachers' beliefs about children's learning. Consequently, peer learning was understood and enacted differently in each case study setting. When interviewed, teachers adopted the language of their early childhood centre philosophy when expressing their beliefs about peer learning. For example, schema learning theory was a key part of Centre B's philosophy statement and daily curriculum. The teachers at the centre explicitly referred to schemas when explaining children's patterns in their play and described the role of schema in peer interactions.

Similarly, the survey results provided evidence of a relationship between teachers' beliefs about peer learning and their experiences in the early childhood setting they taught in. Specifically, teachers ranked their own observations as a teacher as the most influential source of their beliefs about how children learn. Furthermore, colleagues and the early childhood centre

philosophy were identified as influences on teachers' practice related to supporting peer learning. The case studies explored the existence of theories of practice (Fein & Schwartz, 1982) in depth and the survey then confirmed the influence of theories of practice in a wider sample. Although the study demonstrated evidence that teachers had beliefs grounded in theories of development (as discussed in section 7.2), it was their theories of practice that dominated their thinking about peer learning and determined their role in supporting and promoting it. When answering this particular research question, the use of mixed methods helped to generate a comprehensive understanding of the factors that influenced teachers' beliefs and practices about peer learning.

These results support previous research which has drawn attention to the changing nature of teachers' belief systems once they enter the profession. Described as "filters through which new knowledge, ideas and experiences are perceived" (Zanting, Verloop & Vermunt, 2001, p. 726) and as 'intuitive screens' that create a context for acquiring new knowledge (Goodman, 1998), beliefs are said to be further shaped by teaching experiences. Both Wood and Bennett (2000) and Sakellariou and Rentzou (2012) claim that teachers' belief systems are dynamic and undergo change as they evaluate these beliefs against their experiences. Other studies have examined teachers' beliefs and found interventions can shift these over time (Hamre et al., 2012; McMullen, et al., 2005; Pianta et al., 2005; Spear-Swerling & Brucker, 2004). In the present study, teachers appeared to be enculturated by the setting they were working in. Their beliefs were influenced by various aspects of their centre milieu, such as their teaching colleagues, the centre philosophy, and the way curriculum was enacted. This finding was not surprising as communities of practice shape teachers' beliefs (Wenger, 1998) and the discourses operating in early childhood settings can influence teachers' practice (Foucault, 1980). Therefore, this finding underscores the importance of teachers working in settings where their colleagues have knowledge about peer learning and how best to promote this type of learning.

7.3.2 Communities of practice

Teachers interviewed in the case studies belonged to three different communities of practice (Lave & Wenger, 1991); consequently their beliefs about children's learning shifted in response to interactions with colleagues and as they enacted curriculum reflecting their local community. Within a community of practice, learning is an active process of meaning-making and

participation in the experiences and practices of knowledge communities (Wenger, 1998). Wood and Bennett (2000) identify that discourses generated within communities of practice have the potential to create shared ways of thinking and communicating and in doing so, build knowledge from an 'inside-out' perspective. Teachers in the present study were influenced by existing discourses that influenced the way they defined peer learning and the way they supported and promoted opportunities for it to happen. An example was the philosophy of a community of researchers adopted by teachers in Centre A. Teachers used concepts which portrayed children as active researchers to describe and discuss children's learning, with their colleagues and with children.

The existence of such discourses can be a positive factor or they can prevent teachers from experimenting with new ways of doing things. Wenger (1998) notes belonging to a community of practice can be a negative experience when existing discourses have the potential to stifle new ideas and practices. Indeed, Wilcox-Herzog and Ward (2004) draw attention to the notion that the contexts teachers work in can constrain teachers' ability to implement their own beliefs. They highlight colleagues, particularly those in a supervisory role, as exerting pressure on teachers to conform to established practices. Similarly, Nuttall (2003) found evidence of early childhood teachers interpreting the beliefs and practices of their colleagues in order to reshape their own beliefs and practices. In the present study, findings from the case study interviews showed that teachers adopted the practices of the settings they worked in and were influenced by their colleagues' beliefs about children's learning and how to support children to learn from each other. This finding was supported by the survey responses, which identified the centre philosophy as an important influence related to how teachers' foster peer learning.

One explanation for the influential role of the early childhood context on teachers' beliefs is the presence of 'regimes of truth', which operate within power relationships in the setting (Foucault, 1980). Foucault (1980, p. 131) describes 'regimes of truth' as conventions that organise everyday experience of the world and influence thoughts and actions, while putting boundaries around what is seen as the truth. They also exclude alternative ways of understanding and interpreting the world. As beliefs and ways of doing things become reified, they are no longer questioned; rather they become normalised and beyond critique. In this study, the discourses generated by the communities of practice teachers worked in were powerful means of shaping teachers' beliefs and practices. This finding highlights early childhood centres as communities that may

limit teachers' beliefs and practices related to peer learning and as Schepens et al. (2007) state, teachers' beliefs are based on their practical knowledge, which is closely related to the context they teach in.

7.3.3 Summary

This study has found evidence of a relationship between teachers' beliefs and practices related to peer learning and the early childhood setting that teachers worked in. Teachers' observations about how children learn as well as the beliefs and practices of their colleagues were important for shaping teachers' understandings of collaborative endeavour. The study found the existence of theories of practice and the different discourses, including the centre philosophies meant peer learning was supported in different ways. Participating in an existing community of practice was found to have a tangible influence on how teachers reconciled their beliefs and practice; including the language they adopted to articulate their practice. These findings have implications for teachers who seek to question established practices.

7.4 What do teachers understand is their role in peer learning?

7.4.1 Language strategies

Comparison of the interview and survey data highlighted the use of a range of language strategies for fostering group endeavour. When interviewed, teachers described their use of open-ended questions and active listening to scaffold children's involvement in group play. The observations revealed evidence of teachers supporting group entry, using physical positioning and modelling language to promote sustained group play and opportunities for peer learning. Similarly, survey results identified children needing help to communicate with their peers as the most common reason why some children needed support in their peer interactions and respondents used language to model sharing, turn taking and to encourage children to engage in peer talk. Despite acknowledgement of children's inability to effectively communicate with peers as the most frequent reason for teachers' involvement in peer interactions, survey respondents did not highly rank verbal interaction as an important means of how children learn. This contradiction in belief and practice is not entirely unexpected as research has shown inconsistencies between teachers' beliefs and practices (Harnett, 2012; Rivalland, 2007).

Previous studies have found teachers' use of language as an important means of assisting children to successfully collaborate with their peers (Brown, 2006; Stanton-Chapman & Hadden, 2011; Williams, et al., 2014). In particular, teachers' use of language has been found to develop joint attention between children (Rose & Rogers, 2012; Stanton-Chapman & Hadden, 2011), to model the use of language as a tool for collective thinking (Brown, 2006; Pantaleo, 2007) and to successfully enter group play (Gomez et al., 2013; Kultti, 2015; Petty, 2009). In addition, language is necessary for scaffolding (Wood, Bruner & Ross, 1976) and guided participation (Rogoff, 1990) to actively support children to pose questions, solve problems and successfully communicate with their peers.

In the present study, teachers in the case study did model specific language to support children to share and take turns in order to sustain play with their peers. This result is supported by Naerland's (2011) research that highlighted pragmatic rather than formal language skills as most important to attract peers and sustain ongoing peer interactions. Similarly, other studies have emphasised the important role of teachers in supporting children to develop effective communication and social skills if children are to understand other's perspectives and jointly construct new understandings (Barblett & Maloney, 2010; Kultti, 2015; Robson & Hargreaves, 2005; Williams et al., 2014). Importantly, participants articulated their deliberate use of language to foster peer collaboration whilst acknowledging the importance of effective communication with peers. This positive finding is in contrast with previous research, which found some teachers believed peer collaboration happened despite teachers' intentional involvement, even though they acknowledged the importance of children's language competence (Naerland, 2011; Williams et al., 2014).

7.4.2 Agency and empowerment

The notion of agency was a consistent theme with participants identifying their role as one of enabling children to have agency in their peer interactions. The interviews revealed that empowerment and creating an environment that gave children opportunities to work collaboratively, to problem solve and to negotiate as key teaching strategies. Likewise, survey respondents favoured allowing children to direct their learning with peers.

This finding supports previous research which highlights the teachers' role in promoting children's autonomy within peer interactions (Izumi-Taylor, 2008; Lee, 2006; Majorano, Corsano, & Triffoni, 2015; Mashford-Scott & Church, 2011; Tzuo, 2007). Furthermore, previous studies have emphasised the importance of opportunities for children to freely exchange their different points of view and ideas with peers as these experiences can result in children constructing new understandings with each other (Majorano, et al., 2015; Mashford-Scott & Church, 2011). The current participants also recognised the potential for children to construct new knowledge together if supported to do so. This study adds to existing research as it provides evidence of how teachers create these opportunities in New Zealand early childhood settings. The filmed observations revealed examples of teachers supporting children to have agency in their peer interactions. This finding provides evidence that teachers are actively encouraging and supporting children to learn from each other.

7.4.3 Responsive teaching presence

Being responsive to the needs of individual children to ensure they experienced successful peer interactions was a key finding. Survey respondents agreed some children needed more support than others to successfully interact and work collaboratively with their peers; they identified a range of reasons why they involved themselves in group endeavour. Similarly, the teachers interviewed described how it was important for there to be a supportive teaching presence that is able to respond reflexively to the needs of individual children. This was seen in practice as teachers often made decisions about the nature of their role in a spontaneous manner as play unfolded. Teachers utilised their knowledge of individual children such as their interests, dispositions, friends, and need for extra support, to make decisions about how they supported peer learning. The presence of particular children was often found to be a reason for teachers' presence in group play.

Previous research has emphasised the role teachers have in supporting young children to engage effectively with their peers (Bulotsky-Shearer, Bell, Carter & Dietrich, 2014; Petty, 2009). The importance of responsive practice and close involvement by teachers in children's collaborative play has been identified as an important factor in several studies (Gomez et al., 2013; Kultti, 2015; Singer, Nederend, Pennix, Tajik & Boom, 2014; Stanton-Chapman & Hadden, 2011). Teachers' close involvement in peer learning has been recognised in the notion of 'guided

participation' (Rogoff, 1990, p. 8) in which adults actively support children's thinking and problem-solving activities with their peers.

Despite participants expressing a belief in a responsive teaching presence, these findings revealed a tension as teachers sought to both empower children to be agents in their peer interactions, whilst ensuring their teaching presence was a responsive, active one. The complex nature of the teachers' role in children's learning is widely acknowledged (Rose & Rogers, 2012; Sherwood & Reifel, 2010; Stephenson, 2009). To be effective responsive practitioners, teachers need to know children well and therefore know when to intervene or involve themselves in play (Robson & Hargreaves, 2005). In this study, teachers were attempting to balance a belief in the empowerment of children, along with recognition of their role as vital in scaffolding children's peer interactions. The ability of teachers to be successful in achieving this balance has implications for children's experiences of peer learning in early childhood centres. However, the evidence that teachers are making the attempt is a positive finding in these data.

Furthermore, the deep-seated debate about child-led versus teacher-led learning was a constant theme throughout the findings across both phases of the study. The qualitative data revealed teachers valued the idea of children learning through play that was initiated by children, rather than by teachers. When viewing footage of their practice, teachers assessed their role in supporting peer learning based on whether the play episodes were teacher or child-led. They were most satisfied when what they were viewing in the clips were examples of peer learning that they defined as child-led. They were uncomfortable with the idea that they might have been driving the learning that was happening, and on occasions apologised for their practice, saying that they didn't like it as it was too 'teacher directed'. Similarly, survey respondents favoured children having agency in their peer interactions. When asked to select from a list of teaching strategies, respondents chose teaching strategies that reflected naturally occurring opportunities for peer learning such as letting children decide if they wanted to be role models for their peers, rather than the more deliberate strategies such as intentionally creating opportunities for children to direct their learning with their peers.

The existence of a strong belief in the importance of naturally occurring opportunities for children to experience peer learning seemed related to participants' preference for peer

interactions to be child-led rather than teacher-led. Clearly, teachers still valued historical ideas about learning through play that have their roots in the work of Rousseau, Pestalozzi and Froebel (Cleverley & Phillips, 1986). However, the belief that peer learning happens spontaneously and unconsciously raises questions about the role of the teacher in deliberately capitalising on opportunities for peer learning. Leggett and Ford (2013, p. 44) state that "clearly the relationship between the child as agent and the teachers as pedagogical driver is a very delicate one". Care needs to be taken to ensure that children are not being left to create their own opportunities for children to learn from each other, even though teachers believe and know that peer learning benefits children's cognitive growth.

Indeed, evidence suggests that the term 'teaching' has been somewhat silenced and that instead the terminology describes what teachers do, for example 'notice, recognise, respond' (Thomas, Warren & de Vries, 2011). A recent investigation of early childhood teachers' understandings of children's learning found that the role of the teacher in creating opportunities for peer collaboration was 'indistinct', and that the responsibility to collaborate constructively was placed on children, despite teachers knowing that collaborative play contains opportunities for children to gain cognitive knowledge (Williams et al., 2014). Similarly, Hedge's case study in New Zealand kindergartens (2011) found many learning and teaching interactions were spontaneous, rather than planned. An important implication of this study is for teachers to emphasise peer tutoring in their pedagogical practices.

7.4.4 Intentionality

Comparison of data from both phases of this study revealed contradictions centred on the intentional nature of teachers' practice. Evidence from both the initial interviews and the survey emphasised a belief in naturally occurring opportunities for peer learning during play. Contrastingly, teachers' explanations of their practice in the stimulated recall interviews contained clear evidence that teachers were often deliberate in the way they supported children to work together and learn from each other. Irregularities between teachers' theorising and their pedagogical practices have been defined as espoused theories and theories-in-use (Arygris & Schön, 1974) and other research has found similar evidence of such irregularities between teachers' beliefs and their practice (Fang, 1996; Harnett, 2012; McLachlan-Smith, 1996;

Rivalland, 2007). This study has found clear evidence of teachers espousing one set of beliefs and then practising another.

Furthermore, the case studies showed that teachers did not always seem to recognise nor clearly express what their role was in supporting peer learning. Despite this, the filmed observations contained examples of teachers utilising their knowledge of individual children to intentionally support peer interactions. Stimulated recall was an invaluable method for prompting teachers to articulate this aspect of their practice. Teachers said they found the process of viewing and discussing their practice meant they really had to think about what they were doing. Leggett and Ford (2013) and Kilderry's (2015) research has contributed to the debate about the relationship of play based learning and the role of early childhood teachers as intentional teachers. Their findings demonstrated that teachers struggled to articulate their role in children's learning. Leggett and Ford (2013) argued that a focus on intentional learning and teaching would create a deeper understanding of the teaching learning relationship. The results in the present study indicated that teachers were often engaging in intentional acts to support instances of peer learning, even though at times it took the use of stimulated recall for teachers to gain this realisation about this aspect of their practice. The use of stimulated recall offered teachers fresh insights into their own practice in relation to supporting peer learning.

7.4.5 Summary

Reasons for teachers' involvement in peer play were found to be complex and influenced by their knowledge of individual children. The study found that tensions were present as teachers made decisions about their involvement in peer learning. When teachers were involved in peer learning, their belief in children having agency meant they constantly negotiated their role to ensure children were empowered to share their knowledge with their peers. These results have provided positive evidence that teachers in New Zealand early childhood settings empower children to take on teaching roles amongst their peers and also evidence of how and why they do it. However, the results revealed contradictions between beliefs and practice in relation to intentionality. In addition, interviews highlighted teachers' difficulties in accepting and articulating intentional practices. Teachers' inability to take ownership of the teaching role related to this aspect of their practice was worrying, as it could mean they are possibly not

maximising the potential opportunities for children to teach and learn from each other or valuing the potential contribution they make to children's learning.

7.5 Do teachers promote opportunities for children to adopt expert roles with their peers and if so, how?

Teachers' positioning of children as experts and the promotion of children as leaders amongst their peers was the most common teaching strategy adopted across phases. In the case studies, teachers positioned children as experts by asking them to role model particular skills for their peers and the observations showed evidence of this across a number of different curriculum areas, from block play, puzzles and the monkey bars, to creating works of art and gardening. Observations showed teachers supported opportunities for children to share their expertise with their peers as these opportunities occurred spontaneously during play. However there was less intentional planning for these types of peer interactions; one instance when children were paired to do a gardening task in Centre B was the exception. Despite agreement among survey respondents that children are role models for their peers, the less intentional nature of teachers' practice was also evident in the survey results.

Vygotsky's (1978) work provides a theoretical explanation for the finding that teachers see children as experts, as he emphasised the role of more capable children as scaffolding their peers within their zone of proximal development. More capable children have been recognised as actively assisting with problem-solving activities and have the potential to act as a resource for their peers (Tharp & Gallimore, 1991; Vygotsky, 1978). Rogoff's (1990) work has developed these ideas with her identification of an apprenticeship approach to learning. She identified more capable peers as resources who guide and challenge novices within an apprenticeship model; less experienced individuals are guided and supported by more capable peers. In the present study, teachers' positioning of children as experts and the provision of opportunities for them to be role models for their peers revealed teachers' understandings of the potential teaching role more capable children can adopt.

Participants across both phases of the study recognised that one way children learn from their peers is by observing them, and Bandura's (1977) social learning theory includes the importance of observational learning. Bandura describes observational learning as the process by which

people cognitively represent the behaviour of others. Competent peers are models for self-efficacy and through observing peers, children's self-efficacy is increased (Bandura, 1997). Despite extant research of children learning from others through imitation and modelling (De Haan & Singer, 2001; Di Santo, 2000; Fagan, 2009; Gauvain, 2001; Papandreou, 2014), little is known about teachers' understandings of the role of observation and modelling in peer learning. These results shed light on teachers' understandings of peers as role models and how they foster this type of learning.

Results from this study provide evidence that teachers supported children to share their expertise, take on leadership roles and be role models for their peers in play-based settings. These results confirm previous studies which identify the role of more capable children as experts for their peers (for example: Barnard, 2002; Brown, 2006; Garton & Pratt, 2001; Hagan, 2007; Park & Lee, 2015; Williams, 2007). There is also some evidence of peer tutoring in play based environments in New Zealand early childhood settings (Fagan, 2009; Haworth et al., 2006; Hayes, 2013; Hedges et al., 2011; Pohio, 2006; Smith, 2010). Although the present study confirms peers have an important teaching role, teachers did not intentionally plan these types of peer interactions, relying instead on naturally occurring opportunities during play. Deliberate planning would surely result in more instances of peer learning occurring and yet teachers believed these opportunities would present themselves naturally.

The use of intentional teaching practices in early childhood settings has been explored in a number of studies (Cohrssen, et al., 2014; Davis & Degotardi, 2015; Dennis & Stockall, 2015; Howe, et al., 2015; Thomas, Warren & de Vries, 2011). Leggett and Ford (2013, p. 44) state that "intentional teaching requires educators to make informed, thoughtful decisions regarding learning opportunities for children". This result identifies the need for teachers to consider how they can support the sharing of expertise amongst children in a more deliberate way. In addition, this result indicates teachers may need to view the discourse of play as one that sits alongside teachers' deliberate pedagogical acts. Thomas, Warren and de Vries' (2011, p. 74) research explored the discourses of play based pedagogy and intentional teaching. Their findings suggest that if teachers are able to see themselves as operating within these particular discourses then they are more likely to accept that they can "challenge and shift in their engagement with these discourses".

Results showed pairing children with different levels of expertise and deliberately teaching children how to give their peers feedback on their learning were not to the forefront of teachers' practice. These results are of concern because there is clear evidence that children's assessment of each other's behaviour is vital for the development of the mind (Tudge, et al., 1997). Effective feedback given during interactive moments has been found to impact on the quality of learning in early childhood settings (Siraj-Blatchford, Sylva, Mattock, Gilden & Bell, 2002). Inviting children to contribute their views and understandings of their peers' efforts and experiences can help generate meaningful discussion together (Rose & Rogers, 2012). The value of children contributing to the assessment of knowledge is promoted by Carr, Jones and Lee (2005, p. 140) who note that children who give others' feedback are "being perceived as confident and competent learners". These results clearly highlight the need for teachers to increase opportunities for inviting the contribution of children to the feedback process.

7.5.1 Summary

Participants afforded children opportunities to share their expertise and be leaders amongst their peers. Participants identified a preference to capitalise on spontaneous opportunities for children to work with peers who have different levels of skills rather than deliberately ensuring children did so. This preference for the spontaneous is tenuous, as it requires teachers to be constantly alert to these types of teaching encounters if children's experiences of peer learning are to be maximised. Encouraging and supporting children to give their peers feedback was not a common teaching practice. This finding was troubling, as it highlighted teachers did not value children's contribution related to giving peers feedback on their learning. In sum, these findings point to teachers' attempts to reconcile their belief in naturally occurring opportunities for peer play and their role as intentional agents in peer learning.

7.6 How does *Te Whāriki* guide teachers' practice in relation to peer learning?

7.6.1 The language of *Te Whāriki*

When interviewed, teachers identified a lack of specific strategies within *Te Whāriki* (Ministry of Education, 1996) to assist their practice related to fostering peer learning. Despite this, survey respondents and case study participants used the language of *Te Whāriki* when describing their

beliefs and practices related to peer learning. Specifically, participants referred to empowerment, and the notion of social learning in a community of practice. Evidence of empowerment was found in the observations as teachers gave children choices and supported them to seek out their peers in order to establish and engage in collaborative play. When interviewed, teachers referred to the social learning environment in their explanations of how children learn from each other. Similarly, survey respondents' defined peer learning as learning that occurs within a community of practice.

Although teachers claimed there is a lack of guidance in the curriculum document around supporting peer learning, participants consistently articulated beliefs and engaged in practices that reflected concepts central to *Te Whāriki*. In addition, participants' beliefs about peer learning strongly reflected the various theoretical discourses underpinning the curriculum document as previously discussed (section 7.2). Participants were found to espouse the social, participatory nature of children's learning; a belief that underpins *Te Whāriki's* notion of children learning through "reciprocal and responsive relationships…with people, places and things" (Ministry of Education, 1996, p. 9). Teachers surveyed defined peer learning as learning that occurs within a community of practice and those interviewed referred to the social learning environment in their explanations of how children learn from each other. *Te Whāriki* highlights the role of family and community in children's learning, emphasising the importance of relationships between home and early childhood programmes.

In spite of the participants' use of the language of *Te Whāriki*, teachers had to interpret their role with little guidance; the expectation that teachers were 'curriculum makers' (Alvestad et al., 2006) was very real. Despite claiming that the curriculum "is not intended to be a prescriptive menu for what and how to teach" (Smith, 2013, p. 2), Smith states many early childhood centres in New Zealand could improve their implementation of *Te Whāriki*. Blaiklock (2013) bemoans the lack of guidance for implementing the curriculum saying that it is vague and lacks clarity. The recent report from the Advisory Group on Early Learning (Ministry of Education, 2015) has also recommended improvements to curriculum implementation. At the time of writing, a revised version of *Te Whāriki* has just been released (Ministry of Education, 2017). There is further guidance on intentionality in the revised document, but it remains to be seen whether teachers change their practices as a result of the revision. This is an area for further research.

The results from this study revealed a deep-seated belief in the teachers' role as empowering children to have agency within their peer relationships. This was observed when teachers gave children choices, encouraging and supporting them to seek out their peers in order to establish and engage in collaborative play. Empowerment is a key tenet in the curriculum and the notion of curriculum that allows children to "contribute their own special strengths and interests" (Ministry of Education, 1996, p. 40) to peer interactions was espoused by participants. Despite participants' use of the language of *Te Whāriki*, participants were at times unsure of their own role in peer learning when enacting the concept of empowerment.

Other research conducted in early childhood settings (Nuttall, 2004; Stephenson, 2009) has identified complexities around the concept of empowerment. Stephenson's doctoral study identified the presence of deeply embedded assumptions about adults and children, which were reflected in the presence of a power imbalance between teachers and children. She identified a need to assist teachers to understand what positioning children as competent and capable looks like in practice; this included deeper understanding of the complex notion of empowerment. Nuttall (2004) emphasised that the successful implementation of *Te Whāriki* depends on teachers' exploration of concepts such as empowerment, which she termed a sophisticated, abstract concept. Evidence from the present study found teachers adopted the language of *Te Whāriki* to express beliefs about peer learning, although describing how they implemented such concepts particularly in relation to empowerment proved more difficult. Therefore these findings support the issues identified in these earlier studies (Nuttall, 2004; Stephenson, 2009), and suggest the need to further teachers' understandings about how they can articulate their teaching role within the discourse of empowerment that is expressed in *Te Whāriki.*

7.6.2 Interpreting and implementing the curriculum guidelines

Participants' interpretation of the relevant curriculum guidelines highlighted the role of peers as helping and empathising with each other. When interviewed, teachers identified the importance of peer relationships for supporting children's wellbeing and belonging. Wellbeing and belonging are two of the four strands within *Te Whāriki* (Ministry of Education, 1996). Also, the observations contained examples of teachers actively encouraging children to look after children who needed a friend or who were new to the early childhood setting. Likewise, survey respondents highly ranked the programme guidelines linked with wellbeing and belonging.

Respondents ranked the strand contribution within *Te Whāriki* as the most relevant to peer learning and yet children's contribution in terms of providing alternative perspectives and sharing ideas was not rated as highly as empathising and helping their peers was. Similarly when interviewed, teachers placed less importance on the role of peers as knowledge constructors and as having valid alternative viewpoints to share when reviewing their use of the curriculum guidelines. In sum, viewing peers as a source of knowledge and as offering valid, alternative perspectives was found to be less evident in both data sets.

Participants have interpreted the curriculum guidelines in a way that privileges the social benefits of peer interactions over the cognitive opportunities. Wellbeing and belonging are embedded in the curriculum document and their presence draws teachers' attention to social skills and social competence as being key aspects of learning for young children (Alvestad, et al., 2009). However, *Te Whāriki* also views children as knowledge constructors whilst acknowledging peer learning as an important opportunity for children to negotiate different perspectives and ideas with each other. However recognition of this benefit of peer learning was found to be less evident in teachers' responses. This particular result is worrying and raises questions about teachers' understandings of and use of the curriculum document.

An Education Review Office report (1998) on the use of *Te Whāriki* only two years after it had been released raised concerns about the lack of emphasis in the document on the cognitive domain, in addition to lack of guidance for teachers in their role in supporting children's learning. These concerns have been reiterated more recently in further commissioned reports (Education Review Office, 2013; Ministry of Education, 2011; Ministry of Education, 2015). In addition, Smith (2013) has been vocal about the need for robust research to support teachers to more effectively implement *Te Whāriki.* These findings have exposed a lack of professional knowledge and understanding about the contribution children can make to their peers' cognitive growth. The emphasis in the curriculum on relationships has dominated teachers' understandings and overshadowed possible understandings of children's identity as teachers amongst their peers.

New Zealand research on children's interests and teachers' engagement with these has concluded that in order to enrich peer interactions, teachers could "consciously encourage and highlight peer-tutoring in their pedagogical practices" (Hedges, Cullen & Jordan, 2011, p. 200).

This finding suggests that teachers were not being as deliberate as they could be in relation to this aspect of their practice. Fleer (2011) argues the need for new 'theoretical tools' to help teachers preserve play based learning whilst demonstrating the more academic outcomes of children's play. Fleer (2011) draws attention to the role of imagination in play, highlighting the role of 'conceptual play' and 'conceptual pedagogy' for recognising the important cognitive outcomes that children experience in play. These recent studies signal the need to conduct research that assists teachers to explicitly articulate the role of play and peers in children's knowledge construction. The present study confirms there is work to do if teachers are to successfully espouse pedagogies that uphold play based learning, whilst articulating the cognitive gains from experiences with peers.

The report of the Advisory Group on Early Learning (Ministry of Education, 2015) acknowledged the need for a re-engagement with *Te Whāriki* claiming that teachers' implementation of the curriculum has steadily drifted away from direct engagement with the document. The results from this study reinforce this claim, as teachers viewed the curriculum as a guide rather than a working tool. The Advisory Group noted the lack of robust evidence of outcomes from the implementation of *Te Whāriki and* a commissioned literature review found limited evidence of evaluation of the barriers and affordances related to implementing the curriculum document (Ministry of Education, 2015). The results from the present study correspond with the questions identified by the Advisory Group. Importantly, these particular results contribute to the current sector wide conversation about the implementation of *Te Whāriki*. How teachers use and interpret this curriculum document has real implications for children's experiences of peer learning.

7.7 Summary

This study has investigated early childhood teachers' beliefs about peer learning and how teachers support children to learn from each other. The findings showed that teachers balanced their beliefs in the collaborative, social nature of peer learning with their beliefs in the role of discovery and exploration in peer learning. This created a real tension for teachers as they sought to understand their role in supporting peer learning. The study found the centre milieu played a critical role in mediating teachers' existing beliefs about peer learning as teachers made sense of theory in a practical sense. Consequently participants were found to express different

understandings of peer learning and promote and support it in different ways. This finding identifies the possibility of variable experiences for children and this is of concern for those teachers who do not work in settings that actively promote and support peer learning.

Exploring teachers' practices related to peer learning was an objective of this study and evidence found children were empowered to have agency in their peer interactions. The promotion of children's expertise was the most commonly used strategy for supporting peer learning. Although participants' espoused beliefs about child-led learning, there was evidence of teachers' intentionally promoting and supporting opportunities for peer learning, which was a positive and encouraging finding. This finding however highlighted a major contradiction between teachers' beliefs and practices. Furthermore, the reluctance of teachers to take ownership of a teaching role when supporting peer learning was of real concern when the research evidence supports intentionality on the part of teachers.

Finally, the relationship between the early childhood curriculum *Te Whāriki* and teachers' beliefs and practices related to peer learning was investigated. Participants were critical about the lack of teaching strategies in the document to guide this aspect of their practice. This was despite their consistent articulation of the language of *Te Whāriki* when describing how they supported children's collaborative endeavour. Participants made close connections between the role of peers as supporting each other's wellbeing and sense of belonging and the curriculum guidelines; the role of peers as knowledge constructors was less closely aligned with the curriculum document. These particular results suggest a lack of understanding about the cognitive gains associated with peer learning, and support the current sector focus on examining how *Te Whāriki* is being implemented. In sum, this study has found that teachers' beliefs about peer learning and how they enact these beliefs are influenced by the early childhood settings they work in. The study has highlighted how teachers foster and support peer learning in early childhood environments and has revealed the somewhat problematic role of *Te Whāriki* as a framework for understanding the potential role of peers in children's learning.

In the following chapter, the methodology adopted in this study is reflected on, before implications for teachers' practice and further research are presented. Concluding comments summarise the key findings.

Chapter Eight: Conclusion

8.1 Study focus

This study focused on early childhood teachers' beliefs and practices related to peer learning in New Zealand early childhood settings. The study had four key objectives:

- to identify New Zealand early childhood teachers' commonly held beliefs about peer learning,
- to investigate how teachers form their beliefs about children's cognitive development,
- to investigate how teachers' beliefs about peer learning are enacted in their practice and,
- to discover how teachers promote peer learning within a sociocultural curriculum.

The relationship between teachers' beliefs and practices was an important factor for investigation. The study was centred on five research questions, which were:

- What beliefs and knowledge do teachers have about peer learning?
- How do teachers form beliefs about how children learn?
- What do teachers understand is their role in peer learning?
- Do teachers promote opportunities for children to adopt expert roles with their peers and if so, how?
- How does *Te Whāriki* guide teachers' practice in relation to peer learning?

To answer these questions, a sequential exploratory mixed method design was adopted (Creswell, 2015) and this comprised of two phases. In the first phase, three case studies consisting of interviews and filmed observations of teachers' practice were used to identify teachers' beliefs about peer learning and to explore how these beliefs were enacted in their practice. The case study findings were analysed in relation to previous research and these findings informed the development of a nationwide survey. The survey was administered to early childhood teachers across New Zealand as the second phase of the study. Once analyses of the survey were completed, further analyses compared and contrasted results from both phases to provide answers to research questions. The case studies provided in-depth data about teachers' beliefs and practices and the survey was used to investigate these patterns in a wider population.

The study found that teachers believed that children learn from each other in social settings. Teachers also believed that children discover things for themselves, but the idea that children construct knowledge both individually and in social contexts created conundrums for teachers about their involvement in children's peer play. Teachers were at times uncertain about whether they should actively scaffold children's collaborative learning or stand back as observers of peer play. Teachers' conflicted ideas about their role stemmed from their attempts to reconcile constructivist and social constructivist perspectives about how children learn. Furthermore, teachers devalued the cognitive gains associated with peer learning. Instead, teachers emphasised the social benefits of children working with their peers. This was particularly evident in the survey responses where teachers did not recognise the role of alternative perspectives in knowledge construction. In sum, teachers did not recognise the cognitive gains associated with peer learning which are described in the curriculum document *Te Whāriki* (Ministry of Education, 1996).

Teachers' beliefs about children's cognitive development and how children learn from their peers were found to be strongly influenced by the settings they worked in. The dominant discourses that existed in early childhood settings and teachers' own observations informed their beliefs and practices related to peer learning, in comparison to what they may have learnt in their initial teacher education. Teachers recognised the benefits of peer learning and understood the importance of their role in promoting and fostering this type of learning and there was clear evidence of teachers using a variety of teaching strategies to support peer learning. The study found that teachers empowered children to have agency in their peer interactions and they consistently promoted opportunities for children to be experts amongst their peers.

Despite these positive findings, there is evidence that teachers did not own the role of the teacher; in fact they consciously avoided acknowledging the deliberate act of teaching. Furthermore, the study found teachers had a strong belief in the tradition of play-based learning and the importance of children initiating peer learning, rather than teachers doing so. However, the study identified contradictions between teachers' beliefs and practices across the phases. Although teachers espoused the importance of supporting naturally occurring opportunities for peer learning in the initial interviews and the survey, there was evidence from the filmed observations that teachers also intentionally and regularly supported opportunities for children

to learn from each other. Finally, teachers had difficulty articulating their role as intentional teachers in relation to this aspect of their practice. Teachers were reluctant to claim ownership of this part of their role.

8.2 Strengths and limitations of the methodology

Any research design has both strengths and weaknesses. However, in this study the use of quantitative and qualitative methods together provided a more comprehensive answer to the research questions than if either approach was used on its own (Creswell & Plano Clark, 2011). Case studies were the most suitable method for exploring teachers' beliefs and practices about peer learning as they allowed for in-depth exploration of the research questions. Spending time in early childhood settings was an important part of data gathering as each centre had its own way of supporting children to collaborate and share their knowledge with each other. The interviews were vital for gaining insight into teachers' understandings about how children learn and what role peers have in this process. Semi structured interviews create moments for discussion and for the social negotiation of meaning between researcher and participants (Mojtahed, Nunes, Martins & Peng, 2014).

It was a privilege to film the teachers as they worked with children; it allowed an up close perspective about this particular aspect of teachers' practice. The stimulated recall interviews provided opportunities to discuss the observations of teachers' practice and these allowed deep insights into teachers' thinking and intentions at that moment. Meijer, Verloop and Beijaard (2002, p. 148) have used stimulated recall to examine teachers' 'interactive cognitions' which are described as the thoughts teachers have when teaching. Teachers' interactive cognitions are closely related to teachers' behaviours and they "reconcile knowledge and beliefs of teachers with teachers' actions" (Schepens, Aelterman & Van Keer, 2006, p. 459). During this group of interviews, the use of open-ended questions and in-depth discussion of teachers' practice resulted in a rich exploration of teachers' thinking about their role in supporting peer learning and helped to identify some of the conflicts between espoused beliefs and practice.

The use of mixed methods was a strength of the study as it allowed for overall analyses across both data sets and the drawing of inferences that assess how the evidence answered the research questions (Teddlie & Tashakkori, 2009). In particular, use of an exploratory, sequential

design meant a nationwide survey predominantly confirmed and in some cases contradicted the case study findings. The survey itself was a useful tool for learning about the beliefs held by a wider population, which in this study was New Zealand early childhood teachers (Creswell, 2014). As well as assisting to interpret the qualitative findings, the survey results made it possible to draw wider conclusions about teachers' beliefs and practices related to peer learning. Random stratified sampling ensured the different early childhood education service types were represented and this increased confidence and reliability regarding the conclusions drawn from this data set (Denscombe, 2014).

Although the methodology had these identified strengths, both the case studies and the survey posed specific challenges which need to be acknowledged. When designing the research and making decisions about data analysis, the intention was to utilise the statistical programme SPSS to draw inferences about the patterns in the survey responses. But the results often revealed conflicting patterns and in some instances it was difficult to make sense of the contradictions evident. This was despite piloting the survey to address ambiguity and other considerations (Fraenkel et al., 2012). The conflicting patterns could have been partly due to the complex nature of the research topic, as teachers' beliefs have been termed a 'messy construct' (Pajares, 1992, p. 307). In addition, translation of qualitative findings into items for measurement has been identified as challenging for researchers using a mixed methods research design (Creswell, 2015). As the patterns did not lend themselves to further statistical testing, the decision was made to use descriptive statistics to report the results. In support of this decision, Creswell (2014) writes about the reporting of trends as a useful function of surveys.

Another possible limitation was the number of respondents who answered the survey (220), and of those, the number who held positions of responsibility in early childhood settings. The majority of respondents (76.60%) held some type of management or leadership role and were possibly the person that received the email invitation to respond to the survey. It is likely that those teachers who have roles that require them to have a broad understanding of policy enactment, curriculum implementation and assessment practices may have different beliefs about peer learning than those teachers who hold teaching roles. It is important to note that the survey sample was therefore slightly different to the case study sample in which the majority of participants held teaching roles. A request for those in predominantly teaching roles to answer the survey may have resulted in a different sample and potentially different results.

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8.3 Implications for practice

The study found teachers had complicated beliefs about their role in promoting and supporting peer learning. Importantly, the study found evidence of teachers supporting children's collaborative endeavour, whilst empowering children to be experts and to share their knowledge with their peers. However, teachers did not take ownership of their role, rather they privileged child initiated peer learning experiences over their own involvement in this type of learning. This finding raises concerns about how ITE programmes develop teachers' understandings about the act of teaching, and the critical role teachers play in children's knowledge construction alongside their peers. The content of initial teacher education programmes needs to support teachers to understand and articulate intentional practices within a play-based discourse. There is a need for teachers to consider how they can intentionally create opportunities for children to share different perspectives within a play based curriculum. Teachers also need to be aware of the importance of intentionally creating opportunities for children to give each other feedback on their learning until this becomes a normal part of practice.

Professional development programmes also have a role to play in growing teachers' understandings of a more intentional teaching role. To optimise peer learning, teachers need to deliberately capitalise on teachable moments when peers rather than adults share their knowledge. Pairing or grouping children deliberately is another effective strategy for maximising the potential for peer learning. If professional development programmes are available to teachers and effectively designed, then they have the potential to challenge teachers' thinking and this can result in shifts in practice (Hamre et al., 2012; Hartnett, 2012). This study has identified an important area for such programmes to engage with.

Teachers' beliefs and practices associated with peer learning were shaped by the early childhood settings they found themselves in. Teachers' colleagues and the centre philosophy and practices influenced how teachers understood and supported children's collaborative endeavour. This finding was of concern because it raises the possibility that children may have varied experiences of and opportunities for peer learning. It is therefore vital that teachers are challenged about their practice in supporting peer learning to ensure they understand the critical nature of their role in this aspect of children's learning. However, the discourses which exist in early childhood

settings can be a powerful means of shaping understandings and practices and this may have implications for teachers who seek to question established beliefs and practices in an early childhood centre. Consequently this study has identified a need for professional development programmes which disrupt existing discourses in New Zealand early childhood centres so teachers have opportunities to reflect on how they are fostering children's collaborative endeavour.

The relationships' discourse that is central to *Te Whāriki* was found to dominate teachers' beliefs and understandings about the role of peer learning in the curriculum, and therefore teachers focused on the social and relational aspects of peer learning. The study found teachers did not engage with the guidelines in *Te Whāriki* (Ministry of Education, 1996) that recognise the cognitive benefits of peer learning (such as presenting alternative points of view and challenging thinking) to the same extent as the social benefits, such as peers supporting children's sense of belonging and wellbeing. This finding highlights the need for active engagement with the revised version of *Te Whāriki* (Ministry of Education, 2017), to support teachers to place a greater emphasis on the cognitive benefits of peer learning for young children. The professional development programmes that accompany the release of the revised curriculum document have an important role to play in growing teachers' understandings in this area. Teacher educators also need to think critically about how well prepared beginning teachers are to understand different approaches to supporting children's learning.

8.4 Implications for further research

These findings have implications for future research in the area of peer learning in early childhood settings. This study indicated a lack of specific guidance in *Te Whāriki* (Ministry of Education, 1996) for teachers to support peer learning. In particular, participants did not place as much value on the cognitive gains associated with peer interactions compared to the social benefits which are discussed in the document. Therefore, there needs to be ongoing investigation into how teachers support and assess the cognitive benefits of peer learning in response to the recently released, revised version of *Te Whāriki* (Ministry of Education, 2017). It will be important to research whether teachers' engagement with the revised version of the curriculum leads to teachers having a better understanding of the cognitive benefits of peer learning.

This study has emphasised the need for research into teachers' engagement in intentional pedagogical practices that promote and support peer learning. The initial interviews and the survey identified beliefs in naturally occurring opportunities for peer learning, and yet the filmed observations found consistent evidence of teachers intentionally fostering peer learning. When interviewed, teachers were reluctant to recognise and express the deliberate nature of this aspect of their practice. These contradictions that have been identified across the two phases of the study are worthy of further investigation. In addition, future research needs to provide opportunities for teachers to articulate their practices as at times this was found to be difficult for the participants in this study. The revised version of *Te Whāriki* (Ministry of Education, 2017) emphasises the importance of intentional teaching practices and it remains to be seen whether teachers adopt a more deliberate interpretation of their practice. In sum, it will be important to investigate whether teachers express stronger ownership of their teaching role as promoted in the revised curriculum document.

Finally, the compelling evidence of the influence of existing discourses in early childhood settings on teachers' beliefs and practices suggests this as an area for future investigation. There needs to be more research about what students are learning in initial teacher education about peer learning and what happens to this body of knowledge when they enter the teaching profession. It would be useful to understand the effects of communities of practice on teachers' beliefs about peer learning as this study has suggested there is a relationship between the centre milieu and teachers beliefs' and practices.

The use of a mixed methods approach to conduct this study has provided a deeper understanding of the research problem than if just qualitative or quantitative methods had been adopted. Further use of this type of research design would be beneficial for the early childhood sector which seems to have a prevalence of qualitative methodologies. In a neo liberalist environment, researchers need to think beyond qualitative methodologies if we are to move the teaching profession along. Different types of data speak to different audiences and mixed methods has the potential to have relevance to a wider range of audiences such as funding bodies and policy makers. A key purpose of research is to make a difference in our communities,

local and national. Therefore it is important to consider the best type of methodology to achieve this purpose.

8.5 Concluding comments

There is no denying the importance of children's social knowledge and the ability of children to develop effective relationships with each other. Indeed this study has shown that teachers understand and value the social and emotional benefits of peer relationships and this is to be celebrated. However, the study has found that the cognitive benefits of peer learning are not well understood. Teachers are overlooking the potential of peer learning as an important means of children learning how to negotiate different perspectives and understandings. Children need to know how to work together in a way that stretches their thinking and results in the construction of new knowledge, and it is teachers who have a critical role to play in scaffolding children's peer interactions to maximise this type of learning.

I undertook this study to understand more about how teachers support peer learning in New Zealand early childhood settings, as little is known about this aspect of the teachers' role. The study has added evidence to my previous investigations into peer learning (Smith, 2008; Smith, 2010) and raised further questions for future research, as well as identifying challenges for teachers, researchers and professional development providers in the early childhood sector. This thesis challenges initial teacher education and professional development providers to support teachers to understand and confidently express their teaching role as fundamental to children's cognitive growth. Furthermore, professional development providers have an important role to play in challenging and disrupting the discourses which influence teachers' beliefs and practices related to peer learning. Finally, continuing to conduct research about children's experiences of peer learning in New Zealand early childhood settings will provide evidence about this aspect of teachers' practice as they work with the revised version of *Te Whāriki* (Ministry of Education, 2017).

References

Ahnert, L., Pinquart, M., & Lamb, M. (2006). Security of children's relationships with non-parental care providers: a meta-analysis. *Child Development, 77*, 664-679.

Ajzen, I. (1989). Attitude structure and behaviour. In A. Pratkanis, S. Breckler, & A. Greenwald (Eds.), *Attitude structure and function* (pp. 210-274). Hillsdale, NJ: Erlbaum.

Alcock, S. (2005). *A socio-cultural interpretation of young children's playful and humorous communication* (Unpublished doctoral dissertation). Massey University, Palmerston North, New Zealand.

Alcock, S. (2007). Playing with rules around routines: children making mealtimes meaningful and enjoyable. *Early Years, 27*(3), 281-293.

Aldemir, J., & Sezer, O. (2009). Early childhood education pre-service teachers' images of teacher and beliefs about teaching. *Inonu University Journal of the Faculty of Education, 10*(3), 105-122.

Alvestad, M., & Duncan, J. (2006). "The value is enormous – it's priceless I think!" New Zealand preschool teachers' understandings of the early childhood curriculum in New Zealand – a comparative perspective. *International Journal of Early Childhood, 38*(1), 31-45.

Alvestad, M., Duncan, J., & Berge, A. (2009). New Zealand ECE teachers talk about Te Whāriki. *New Zealand Journal of Teachers' Work, 6*(1), 3-19.

Angelova, M., Gunawardena, D., & Volk, D. (2006). Peer teaching and learning: Co-constructing language in a dual language first grade. *Language and Education, 20*(3), 173-190.

Anning, A., Cullen, J., & Fleer, M. (Eds.). (2009). *Early Childhood Education, Society and Culture* (2nd ed.). London: Sage Publications.

Aras, S. (2016). Free play in early childhood education: a phenomenological study. *Early Child Development and Care, 186* (7), 1173-1184.

Argyris, C., & Schön, D. (1974). *Theory in practice: Increasing professional effectiveness*. San Francisco, CA: Jossey Bass.

Aries, P*. Centuries* of Childhood; *a Social History of Family Life. Translated from the French by Robert Baldick.* New York, Knopf [1970], 1962.

Aspden, K. (2014). *Illuminating the assessment of practicum in New Zealand early childhood initial teacher education* (Unpublished doctoral dissertation). Massey University, Palmerston North, New Zealand.

Babbie, E. R. (2013). *The basics of social research*. Belmont, CA: Cengage Learning.

Bandura, A. (1977). *Social Learning Theory.* Engelwood Cliffs, N.J: Prentice Hall.

Bandura, A. (1986). The explanatory and predictive scope of self-efficacy theory. *Journal of social and clinical psychology, 4*(3), 359-373.

Bandura, A. (1997). *Self-efficacy: the exercise of control*. New York: W.H. Freeman.

Barblett, L., & Maloney, C. (2010). Complexities of assessing social and emotional competence and wellbeing in young children. *Australasian Journal of Early Childhood, 35*(2), 13-18.

Barnard, R. (2002). Peer tutoring in the primary classroom: A sociocultural interpretation of classroom interaction. *New Zealand Journal of Educational Studies, 37* (1), 57-72.

Basit, T. N. (2010). *Conducting research in educational contexts.* New York: Continuum International Publishing Group.

Beilinson, J., & Olswang, L. (2003). Facilitating peer-group entry in kindgartners with impairments in social communication*. Language, Speech, and Hearing Services in Schools, 34,* 154-166.

Belsham, S. (2000). *A comparison of the effects of two peer tutoring programmes on the reading ability of children with reading difficulties in the regular classroom:* (Unpublished master's thesis). Massey University, Palmerston North, New Zealand.

Bennett, J. (2005). Curriculum issues in national policy-making. *European Early Childhood Education Research Journal, 13*(2), 5-23.

Berthelsen, D., & Brownlee, J. (2007). Working with toddlers in child care: Practitioners' beliefs about their role. *Early Childhood Research Quarterly, 22,* 347-362.

Bhatia, P. (2014). Mind over matters: contributing factors to self-efficacy in Montessori teachers. *National Teacher Education Journal, 7*(3), 45-52.

Bjartveit, C., & Panayotidis, E. (2014). The rise of the house of Rousseau. Historical consciousness in the contemporary ECE teacher education classroom. *Journal of Curriculum Theorising, 30(*1), 15-29.

Bjorkland, D. (2012). *Children's thinking: Cognitive development and individual differences* (5th ed.). Belmont, CA: Wadsworth.

Blaiklock, K. (2010). Te Whāriki, the New Zealand early childhood curriculum: is it effective? *International Journal of Early Years Education, 18*(3), 201-212.

Blaiklock, K. (2013). *Yes we do need evidence to show whether Te Whāriki is effective: A reply to Anne Smith's discussion paper, "Does Te Whāriki need evidence to show it is effective?"* Department of Education, Unitec Institute of Technology, Auckland, 19 December, 2013.

Blay, J., & Ireson, J. (2009). Pedagogical beliefs, activity choice and structure, and adult-child interaction in nursery classrooms. *Teaching and Teacher Education, 25*(8), 1105-1116.

Bodrova, E., & Leong, D. (2007). *Tools of the mind, the Vygotskian approach to early childhood education* (2nd ed.). Upper Saddle River, NJ: Pearson.

Bodrova, E., & Leong, D. (2015). Vygotskian and Post-Vygotskian views on children's play. *American Journal of Play, 7*(3), 371-388.

Borg, M. (2004). The apprenticeship of observation. *English Language Teaching Journal, 58,* 274-276.

Boyd, W. (1956). *Émile for Today. The Émile of Jean Jaques Rousseau selected, translated and interpreted by William Boyd*, London: Heinemann.

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

Briggs, F., & Nichols, S. (2001). Pleasing yourself and working for the teacher: Children's perceptions of school. *Early Child Development and Care, 170* (1), 13-30.

Bromfield, R. (2010). *Playing for real: exploring child therapy and the inner worlds of children.* New York: Dutton/Penguin.

Bronfenbrenner, U. (1979). *The ecology of human development*. Cambridge, Mass: Harvard.

Bronfenbrenner, U., & Morris, P. A. (2006). The bioecological model of human development. *Handbook of child psychology,* 1:14.

Brown, A. (1994). The advancement of learning. *Educational Researcher, 23* (8), 4-12.

Brown, K. (2004). Assessing preservice leaders' beliefs, attitudes, and values regarding issues of diversity, social justice and equity: A review of existing measures. *Equity and Excellence in Education, 37*, 332-342.

Brown, S. (2006). Investigating classroom discourse surrounding partner reading. *Early Childhood Education Journal, 34*(1), 29-36.

Bruce, T. (2011). *Early childhood education.* London: Hodder Education.

Bruner, J. (1983). *Child's talk: Learning to use the language*. New York: Norton.

Bruner, J. (1986). *Actual minds, possible worlds*. Cambridge, MA: Harvard University Press.

Brunton, P., & Thornton, L. (2005). *Understanding the Reggio approach.* London: David Fulton Publishers.

Bulotsky-Shearer, R., Bell, E., Carter, T., & Dietrich, S. (2014). Peer play interactions and learning for low-income preschool children: The moderating role of classroom quality. *Early Education and Development, 25*, 815-840.

Burnard, P., Craft, A., Cremin, T., Duffy, B., Hanson, R., Keene, J., Haynes, L., & Burns, D. (2006). Documenting 'possibility thinking': a journey of collaborative enquiry. International *Journal of Early Years Education, 14*(3), 243-262.

Bushouse, B. (2008). *Early Childhood Education Policy in Aotearoa/New Zealand: The Creation of the 20 Hours Free Programme.* Wellington, New Zealand: Fulbright.

Calderhead, J. (1981). Stimulated recall: A method for research on teaching. *Educational Psychology, 51,* 211-217.

Cannella, G. (1993). Learning through social interaction: Shared cognitive experience, negotiation strategies and joint concept construction for young children. *Early Childhood Research Quarterly, 8,* 427-444.

Carr, M. (2011). Young children reflecting on their learning: teachers' conversation strategies. *Early Years: An International Journal of Research and Development, 31*(3), 257-270.

Carr, M., Jones, C., & Lee, W. (2005). Beyond listening: can assessment practice play a part? In A. Clark, A. T. Kjorholt and P. Moss (Eds.), *Beyond listening: Children's perspectives on Early Childhood services* (pp. 129-151). Bristol: Policy Press.

Carr, M., & Peters, S. (2005). *Te Whāriki and links to the NZ curriculum research projects. Final report.* New Zealand: University of Waikato.

Case, R. (1991). *The mind's staircase: exploring the conceptual underpinnings of children's thought and knowledge*. Hillsdale, NJ: Erlbaum associates.

Catalano, A. (2015). *A global history of child death: mortality, burial and parental attitudes.* New York, NY: Peter Lang.

Caudle, L., & Moran, M. (2012). Changes in understandings of three teachers' beliefs and practices across time: moving from teacher preparation to in-service teaching. *Journal of Early Childhood Teacher Education, 33* (1), 38-53.

Cederman, K. (2008). Not weaving but drowning? The child.com in New Zealand Early Childhood pedagogies. *International Journal of Early Childhood, 40*(2), 119-130.

Cekaite, A., Blum-Kulka, S., Grover, V., & Teubal, E. (Eds.). (2014). *Children's peer talk. Learning from each other.* New York, NY: Cambridge University Press.

Chang-Kredl, S. (2015). Teachers conceptualising childhood: conversations around fictional childhood texts. *Teachers and Teaching, 21*(2), 203-220.

Chen, J., McCray, J., Adams, M., & Leow, C. (2014). A survey study of early childhood teachers' beliefs and confidence about teaching early math. *Early Childhood Education, 42*, 367-377.

Cherrington, S. (2011). *Early childhood teachers' thinking and reflection within their communities of practice* (Unpublished doctoral dissertation). Victoria University, Wellington, New Zealand.

Cheung, R. (2012). Teaching for creativity: examining the beliefs of early childhood teachers and their influence on teaching practices. *Australasian Journal of Early Childhood, 37*(3), 43-51.

Chung, Y., & Walsh, D. (2006). Constructing a joint story-writing space. The dynamics of young children's collaboration at computers. *Early Education and Development, 17* (3), 373-420.

Clark, B. (2005). *Private speech: A window in the self-talk of kindergarten children from diverse language background* (Unpublished doctoral dissertation). Auckland University, Auckland, New Zealand.

Claxton, G., & Carr, M. (2004). A framework for teaching learning: The dynamics of disposition. *Early Years, 24* (1), 87-97.

Cleverley, J., & Phillips, D.C. (1986). (Rev. ed.). *Visions of childhood. Influential models from Locke to Spock.* New York, NY: Teacher's College Press.

Cohen, P. A., Kulik, J. A., & Kulik, C. C. (1982). Educational outcomes of tutoring: A meta-analysis of findings. *American Educational Research Journal, 19*,237-248.

Cohen, L., Manion, L., & Morrison, K. (2011). *Research methods in education* (7th ed.). New York, NY: Routledge.

Cohrssen, C., Church, A., & Tayler, C. (2014). Purposeful pauses: teacher talk during early childhood mathematics activities. *International Journal of Early Years Education, 22*(2), 169-183.

Colasante, M. (2011). Using video annotation to reflect on and evaluate physical pre-service teaching practice. *Australasian Journal of Educational Technology, 27* (1), 66-88.

Cole, M., & Scribner, S. (1978). Introduction. In L. Vygotsky. *Mind in society: The development of higher psychological processes* (pp. 1-14). Cambridge, MA: Harvard University Press.

Cooper, M., Hedges, H., & Dixon, H. (2014). Weaving RIE with Te Whāriki: re-thinking family involvement in assessment of learning dispositions*. Early Child Development and Care, 184*(5), 733-748.

Coplan, R., Bullock, A., Archbell, K., & Bosacki, S. (2015). Preschool teachers' attitudes, beliefs, and emotional reactions to young children's peer group behaviours. *Early Childhood Research Quarterly, 30,* 117-127.

Coppens, A., Silva, K., Ruvalcaba, O., Alcala, L., Lopez, A., & Rogoff, B. (2014). Learning by observing and pitching in: benefits and processes of expanding repertoires. *Human Development, 57,* 150-161.

Corrales, M. (2012). *Young children's leadership: A comparison between New Zealand and Honduras* (Unpublished master's thesis). Victoria University, Wellington, New Zealand.

Corsaro, W. (2011). *The sociology of childhood* (3rd ed.). Thousand Oaks, CA: Pine Forge.

Creswell, J. (2014). *Educational research: Planning, conducting and evaluating quantitative and qualitative research* (4th ed.). Essex, England: Pearson Education.

Creswell, J. (2015). *A concise introduction to mixed methods research*. Thousand Oaks, CA: Sage.

Creswell, J., & Plano-Clark, V. (2011). *Designing and conducting mixed methods research* (2nd ed.).Thousand Oaks, CA: Sage.

Cross, A., & Conn-Powers, M. (2014). Making the intentional decision to use an effective curriculum to promote children's learning. *Early Childhood Education Journal, 42*, 361-366.

Crotty, M. (1998). *The foundations of social research: meaning and perspective in the research process.* St Leonards, NSW: Allen & Unwin.

Cullen, J. (2001). An introduction to understanding learning. In V. Carpenter, E. Rata & C. Rawlinson (Eds.), *Theory in practice for educators* (pp. 47-69). Palmerston North: Dunmore Press.

Cullen, J., Hedges, H., & Bone, J. (2005). *Planning, undertaking and disseminating research in early childhood settings: An ethical framework.* Porirua, NZ: Retrieved from http://www.childforum.com/

Dahlberg, G., Moss, P., & Pence, A. (2006). *Beyond quality in early childhood education and care: Postmodern perspectives* (2nd ed.). Philadelphia, PA: Falmer Press.

Dalli, C. (2011). A curriculum of open possibilities: A New Zealand kindergarten teacher's view of professional practice. *Early Years, 31* (3), 229-243.

Damon, W., & Phelps, E. (1989). Strategic uses of peer learning in children's education. In T. Berndt and G. Ladd (Eds.), *Peer relationships in child development* (pp. 135-156). New York, NY: John Wiley and Sons.

Davis, B., & Degotardi, S. (2015). Educators' understandings of, and support for, infant peer relationships in early childhood settings. *Journal of Early childhood research, 13* (1), 64-78.

Dawson, G.E., & Fischer, K.W. (1994). *Human behaviour and the developing brain.* Guilford Press.

Degotardi, S. (2008). Looking out and looking in: Reflecting on conducting observational research in a child-care nursery. *The First Years Nga Tua Tuatahi: New Zealand Journal of Infant and Toddler Education 10*(2), 15-19.

De Hann, D., & Singer, E. (2001). Young children's language of togetherness. International *Journal of Early Years Education, 9*(2), 117-124.

De Lisi, R., & Golbeck, S. (1999). Implications of Piagetian theory for peer learning. In A. O'Donnell & A. King. (Eds.), *Cognitive perspectives on peer learning* (pp. 3-38). Mahwah, NJ: Lawrence Erlbaum.

De Smet, M., Van Keer, H., De Wever, B., & Valcke, M. (2009). Studying thought processes of online tutors through stimulated-recall interviews. *High Education, 59*, 645-661.

de Waal, F. B. M. (2000). The first kiss. In F. Aureli & F. B. M de Waal (Eds.), *Natural conflict resolution* (pp. 13–33). Berkeley: University of California Press.

Dempsey, N. (2010). Stimulated recall interviews in ethnography. *Qualitative sociology, 33,* 349-367.

Dennis, L., & Stockall, N. (2015). Using play to build the social competence of young children with language delays: practical guidance for teachers. *Early Childhood Education Journal, 43*, 1-7.

Denscombe, M. (2014). *The good research guide for small scale social research projects* (5th ed.). Buckingham, UK: Open University Press.

Department of Education (1988). *Before Five. Early Childhood Care and Education in New Zealand.* Wellington, New Zealand: Department of Education.

Department of Education (1998). *Education to be More: Report of the Early Childhood Care and Education Working Group.* Wellington, New Zealand: Department of Education.

DeVries, R., Edmiaston, R., Zan, B., & Hildebrandt, C. (2002). What is constructivist education? Definition and principles of teaching. In R. DeVries, B. Zan, C. Hildebrandt, R. Edmiaston, & C. Sales (Eds.), *Developing constructivist early childhood curriculum: Practical principles and activities* (pp. 35-51). New York: Teachers College Press.

Dewey, J. (1916). *Democracy and education*. United States: MacMillan.

Di Santo, A. (2000). *Multi-age groupings in early childhood education: The affordances and opportunities of a multi-age child care model.* University of Toronto, Toronto, Canada.

Doise, W. (1978). *Groups and individuals: explanations in social psychology*. Cambridge: Cambridge University Press.

Donaldson, M. (1978). *Children's minds.* London: Fontana.

Drummond, M.J. (1993). *Assessing children's learning.* London: David Fulton Publishers.

Drummond, M.J. (2000). Susan Issacs: Pioneering work in understanding children's lives. In M. Hilton and P. Hirsch (Eds.). *Practical visionaries. Women, education and social progress 1790-1930* (pp. 221-234). Essex: Pearson.

Duhn, I. (2006). The making of global citizens: traces of cosmopolitanism in the New Zealand early childhood curriculum Te Whāriki. *Contemporary issues in early childhood, 7* (3), 191-202.

Duncan, J., Eaton, S., & Te One, S. (2013). The golden thread: Rethinking learning outcomes in early childhood education. *New Zealand Journal of Teachers' Work, 10*(2), 196-208.

Dwyer, S., & Buckle, J. (2009). The space between: on being an insider-outsider in qualitative research. *International Journal of Qualitative methods, 8* (1), 54-63.

Education Review Office. (1998). *Use of Te Whāriki.* Wellington: Education Review Office.

Education Review Office. (2013). *Working with Te Whāriki.* Wellington: Education Review Office.

Education Review Office (2016). *Early mathematics: a guide for improving teaching and learning.* Wellington: Education Review Office.

Edwards, S. (2005). Constructivism does not only happen in the individual: sociocultural theory and early childhood education. *Early Child Development and Care, 175*(1), 37-47.

Edwards, S., & Nuttall, J. (2005). Getting beyond the "what" and the "how". Problematising pedagogy in early childhood education. *Early Childhood Folio, 9,* 34-38.

Ely, M. (2014). Effective strategies for preschool peer group entry: considered applications for children with visual impairments. *Journal of Visual Impairment and Blindness,* July-August, 287-297.

Engels, F. (1883). *Dialects of nature*. John Burdon Sanderson (JBS) Haldane (wrote preface – unfinished work). International Publishers.

Epstein, A. (2014). *The intentional teacher: Choosing the best strategies for young children's learning* (Rev. ed.). Washington, DC: National Association for the Education of Young Children.

Epstein, A. (2008). Teaching students to think. *Educational Leadership, 65*(5), 38-42.

Epstein, A., & Willhite, G. (2015). Teacher efficacy in an early childhood professional development school. *International Journal of Elementary Education, 7*(2), 189-198.

Erdiller Akin, Z. (2013). Examining the beliefs of Turkish preservice early childhood teachers regarding early childhood curriculum. *Journal of Research in Childhood Education, 27*, 302-318.

Errington, E. (2004). The impact of teacher beliefs on flexible learning innovation: Some practices and possibilities for academic developers. *Innovations in Education and Teaching International, 41*(1), 39-47.

Evers, W.M. (1998). From progressive education to discovery learning. In W.M. Evers (Ed.), *What's gone wrong in America's classrooms?* (pp. 1-29). Stanford, CA: Hoover Institution Press.

Fagan, T. (2009). *Younger and older together: Children's interactions in a mixed age early childhood centre* (Unpublished master's thesis). Victoria University, Wellington, New Zealand.

Fair, C., Vandermaas-Peeler, M., Beaudry, R., & Dew, J. (2005). 'I learned how little kids think': Third-graders' scaffolding of craft activities with pre-schoolers. *Early Child Development and Care, 175* (3), 229-241.

Fang, Z. (1996). A review of research on teacher beliefs and practices. *Educational Research, 38*(1), 47-65.

Farver, J. (1992). Communicating shared meaning in social pretend play. *Early Childhood Research Quarterly, 7,* 501-516.

Fawcett, L., & Garton, A. (2005). The effect of peer collaboration on children's problem-solving ability. *British Journal of Educational Psychology, 75,* 157-169.

Feimen-Nemser, S. (2001). From perception to practice: Designing a continuum to strengthen and sustain teaching. *Teachers College Record, 103*, 1013-1055.

Fein, G., & Schwartz, P. (1982). Developmental theories in early education. In B. Spodek (Ed.), *Handbook of research in early childhood education* (pp. 82-104). New York, NY: Free Press.

Fenstermacher, G.D. (1994). The knower and the known: the nature of knowledge in research on teaching. In L. Darling-Hammond (Ed.), *Review of research in education*, vol. 20 (pp. 3- 56). Washington: AERA.

File, N., & Gullo, D. (2002). A comparison of early childhood and elementary education students' beliefs about primary classroom teaching practices. *Early Childhood Research Quarterly, 17*(1), 126-137.

Fischer, K. (1980). A theory of cognitive development: The control and construction of hierarchies of skills. *Psychological Review, 87* (6), 477-531.

Fitzgerald, A., Hackling, M., & Dawson, V. (2013). Through the viewfinder: reflecting on the collection and analysis of classroom video data. *International Journal of Qualitative Methods, 12*, 52-64.

Flavell, J. (1977). *Cognitive development.* Englewood Cliffs, NJ: Prentice-Hall.

Flavell, J., Miller, P., & Miller, S. (2002). *Cognitive development* (4th ed.). Upper Saddle River, NJ: Pearson.

Fleer, M. (2010). *Early Learning and Development: Cultural-historical concepts in play.* Cambridge: Cambridge University Press.

Fleer, M. (2011). 'Conceptual play': foregrounding imagination and cognition during concept formation in early years education. *Contemporary Issues in Early Childhood, 12*(3), 224-239.

Fleer, M., & Hoban, G. (2012). Using 'Slowmation' for intentional teaching in early childhood centres: Possibilities and imaginings. *Australasian Journal of Early Childhood, 37*(3), 61-70.

Fletcher, J., Price, B., & Branen, L. (2010). Videotaping children and staff in natural environments: gathering footage for research and teaching. *Contemporary Issues in Early Childhood, 11* (2), 219-226.

Flewitt, R. (2005). Is every child's voice heard? Researching different ways 3-year-old children communicate and make meaning at home and in a pre-school playgroup. *Early Years, 25(3*), 207-222.

Foucault, M., & Gordon, C. (1980). *Power/knowledge: Selected interviews and other writings, 1972-1977.* Brighton, Sussex: Harvester Press.

Fowler Jr, F. J. (2013). *Survey research methods.* Thousand Oaks, CA: Sage publications.

Fraenkel, J., Wallen, N., & Hyun, H. (2012). *How to design and evaluate research in education* (8th ed.). New York, NY: McGraw-Hill.

Freud, S. (1938). *The basic writings of Sigmund Freud* (Ed. A. Brill). New York: The Modern Library.

Frost, J. L. (2010). *A History of children's play and play environments.* New York, NY: Routledge.

Fuligini, A. S., Howes, C., Lara-Cinisomo, S., & Karoly, L. (2009). Diverse pathways in early childhood professional development: An exploration of early educators in public preschools, private preschools, and family child care homes. *Early Education and Development, 20*(3), 507-526.

Gallimore, R., & Tharp, R. (1990). Teaching mind in society: Teaching, schooling, and literate discourse. *Vygotsky and education: Instructional implications and applications of sociohistorical psychology,* 175-205.

Garton, A., & Pratt, C. (2001). Peer assistance in children's problem-solving. British Journal of *Developmental Psychology, 19,* 307-318.

Garvis, S., Fluckiger, B., & Twigg, D. (2011). Exploring the beliefs of commencing early childhood education graduate students: providing insights to improve teacher education programs. *Australian Journal of Teacher Education, 31*(1), 93-105.

Gauvain, M. (2001). *The social context of cognitive development.* New York: Guilford Press.

Genishi, C. (1992). Looking forward: towards stories of theory and practice. In C. Genishi (Ed.), *Ways of assessing children and curriculum: stories of early childhood practice.* New York: Teachers College Press.

Ghafouri, F., & Wien, C. (2005). "Give us privacy": Play and social literacy in young children. *Journal of Research in Childhood Education, 19* (4), 279-291.

Gibbons, A. (2013). In the pursuit of unhappiness: The 'measuring up' of early childhood education in a seamless system. *Educational Philosophy and Theory, 45*(5), 502-508.

Gomez, F., Nussbaum, M., Weitz, J., Lopez, X., Mena, J., & Torres, A. (2013). Co-located single display collaborative learning for early childhood education. *Computer-supported Collaborative Learning, 8,* 225-244.

Goncu, A. (1993). Development of intersubjectivity in the dyadic play of preschoolers. *Early Childhood Research Quarterly, 8,* 99-116.

Goodfellow, J., & Sumsion, J. (2003). Transformative pathways in becoming an early childhood teacher. In O. Saracho & B. Spodek (Eds.). *Studying teachers in early childhood settings* (pp. 59-77). Greenwich, Con: Information Age.

Goodman, J. (1998). Constructing a practical philosophy of teaching: a study of preservice teachers' professional perspectives. *Teaching and Teacher Education, 4* (2), 121-137.

Gosselin, M., & Forman, D. (2012). Attention-seeking during caregiver unavailability and collaboration at age 2. *Child Development, 83*, 712-727.

Gray, P. (2011). The special value of children's mixed age play. *American Journal of Play, 3*(4), 500-522.

Greene, J. C. (2007). *Mixed methods in social inquiry* (Vol. 9). San Francisco: Jossey Bass.

Greenfield, C. (2002). The visibility and the role of intersubjectivity and peer collaboration in young children's play and cognitive development. *New Zealand Research in Early Childhood Education, 5,* 49-65.

Hagan, B. (2007). Case studies from the new entrant classroom: Children's developing repertoires of participation. *New Zealand Research in Early Childhood Education, 10*, 95-104.

Haggerty, M. (2003). Reconceptualising notions of curriculum: The case of Te Whāriki. *New Zealand Research in Early Childhood, 6,* 35-50.

Hamre, B., Pianta, R., Burchinal, M., Field, S., LoCasale-Crouch, J., Downer, J., Howes, C., LaParo, K., & Scott-Little, C. (2012). A course on effective teacher-child interactions: Effects on teacher beliefs, knowledge and observed practice. *American Educational Research Journal, 49*(1), 88-123.

Han, H. (2012). Professional development that works: shifting preschool teachers' beliefs and use of instructional strategies to promote children's peer social competence. *Journal of Early Childhood Teacher Education, 33,* 251-268.

Harcourt, D., & Conroy, H. (2005). Informed assent: ethics and processes when researching with young children. *Early Child Development and Care, 175* (6), 567-577.

Hartas, D. (2010). Survey research in education. In D. Hartas. (Ed.), *Educational Research and Inquiry; Qualitative and Quantitative Approaches* (pp. 257-269). New York: Continuum Publishing.

Hartnett, J. (2012). Reducing discrepancies between teachers' espoused theories and theories-in-use: an action research model of reflective professional development. Educational Action Research, 20 (3), 367-384.

Haworth, P., Cullen, J., Simmons, H., Schimanski, L., McGrava, P., & Woodhead, E. (2006). *The flight of our kite – the Wycliffe Nga Tamariki kindergarten story.* Wellington: Ministry of Education.

Hay, D. (2006). Yours and mine: Toddlers' talk about possessions with familiar peers. British *Journal of Developmental Psychology, 24,* 39-52.

Hayes, J. M. (2013). *Becoming a school child: the role of peers in supporting new entrant transitions* (Unpublished master's thesis). Massey University, Palmerston North, New Zealand.

Hedges, H. (2007). *Funds of knowledge in early childhood communities of inquiry.* (Unpublished doctoral dissertation). Massey University, Palmerston North, New Zealand.

Hedges, H. (2011). Connecting 'snippets of knowledge': teachers' understandings of the concept of working theories. *Early Years: An International Journal of Research and Development, 31* (3), 271-284.

Hedges, H., & Cooper, M. (2017). Collaborative meaning-making using video footage: teachers and researchers analyse children's working theories about friendship. *European Early Childhood Education Research Journal, 25* (3), 398-411.

Hedges, H., Cullen, J., & Jordan, B. (2011). Early Years Curriculum: funds of knowledge as a conceptual framework for children's interests. *Curriculum studies, 43* (2), 185-205.

Hedges, H., & Jones, S. (2012). "Children's Working Theories: The Neglected Sibling of Te Whāriki's Learning Outcomes." *Early Childhood Folio 16* (1): 34–39.

Hesse-Biber, S. (2010). *Mixed methods research – merging theory with practice.* New York, NY: Guilford Press.

Hobson, A., & Townsend, A. (2010).Interviewing as educational Research Methods. In D. Hartas (Ed.), *Educational Research and Inquiry; Qualitative and Quantitative Approaches* (pp. 223-238). New York: Continuum Publishing.

Hoffnung, M., Hoffnung, R., Seifert, K., Burton Smith, R., & Hine, A. (2010). *Childhood*. Milton, Queensland: John Wiley and Sons.

Hogan, D., & Tudge, J. (1999). Implications of Vygotsky's theory of peer learning. In A. O'Donnell and A. King (Eds.), *Cognitive perspectives on peer learning* (pp. 39-65). Mahwah, NJ: Erlbaum.

Horsley, M., & Bauer, K. (2010). Preparing early childhood educators for global education: implications of prior learning*. European Journal of Teacher Education, 33* (4), 421-436.

Hoskins, K., & Smedley, S. (2016). Life history insights into the early childhood and education experiences of Froebel trainee teachers 1952-1967. *Journal of the History of Education Society, 45*(2), 206-224.

Howard, J., Jenvey, V., & Hill, C. (2006). Children's categorisation of play and learning based on social context. *Early Child Development and Care, 176*, (3-4), 379-393.

Howe, N., Jacobs, E., Vukelich, G., & Recchia, H. (2012). In-service professional development and constructivist curriculum: effects on quality of child care, teacher beliefs, and interactions. *Alberta Journal of Educational Research, 57*(4), 353-378.

Howe, N., Porta, S., Recchia, H., Funamoto, A., & Ross, H. (2015). *Journal of Cognition and Development, 16(*2), 314-332.

Howes, C., Sanders, K., & Lee, L. (2008). Entering a new peer group in ethnically and linguistically diverse childcare classrooms. *Social Development, 17*(4), 922-939.

Hughett, K., Kohler, F. W., & Raschke, D. (2013). The effects of a buddy skills package on preschool children's social interactions and play. *Topics in Early Childhood Special Education, 32*(4), 246-254.

Hyun, E., & Davis, G., (2005). Kindergarteners' conversations in a computer-based technology classroom. *Communication Education, 54* (2), 118-135.

Isikoglu, N. (2008). The effects of a teaching methods course on early childhood preservice teachers' beliefs. *Journal of Early Childhood Teacher Education, 29,* 190-203.

Issacs, S. (1930). *Intellectual growth in young children.* London: Routledge and Kegan Paul.

Izumi-Taylor, S. (2008). Sunao (cooperative) children. How Japanese teachers nurture autonomy. *Young Children* May 2008, 76-79.

Johnson, B., & Christensen, L. (2012). *Educational research: quantitative, qualitative, and mixed approaches.* Thousand Oaks, CA: Sage Publications.

Johnson-Pynn, J., & Nisbet, V. (2002). Preschoolers effectively tutor novice classmates in a block construction task. *Child Study Journal, 32* (4), 241-255.

Jones, V. (2007). 'I felt like I did something good' – the impact on mainstream pupils of a peer tutoring programme for children with autism. *British Journal of Special Education, 34* (1), 3-9.

Jordan, B. (2009). Scaffolding learning and co-constructing understandings. In A. Anning, J. Cullen & M. Fleer (Eds.), *Early childhood education, society and culture* (2nd ed.). (pp.39-52). London: Sage Publications.

Kagan, D. (1992). Professional growth among preservice and beginning teachers. *Review of Educational Research, 62*(3), 33-42.

Kaler, A., & Beres, M. (2016). *Essentials of field relationships*. Walnut Creek, CA: Left Coast Press.

Kemple, K., Hysmith, C., & David, G. (1996). Early childhood teachers' beliefs about promoting peer competence. *Early Child Development and Care, 120* (1), 145-163.

Kilderry, A. (2012). *Teacher decision making in early childhood education* (Unpublished doctoral dissertation). Queensland University of Technology, Queensland, Australia.

Kilderry, A. (2015). Intentional pedagogies: Insights from the past. *Australasian Journal of Early Childhood, 40*(3), 20-28.

Kim, H., & Han, H. (2015). Understanding early childhood teachers' beliefs and self-stated practices about social competence instructional strategies in the context of developmentally appropriate practice: a comparison of preservice and in-service teachers in the United States. *European Early Childhood Research Journal, 23* (4), 476-496.

Kincheloe, J., & Tobin, K. (2015). Doing research in a complex world. In K. Tobin and S. Steinberg (Eds.), *Doing educational research* (2nd ed., pp. 3-14). Rotterdam: Sense Publishers.

King, A. (1999). Discourse patterns for mediating peer learning. In A. O'Donnell and A. King. *Cognitive perspectives on peer learning* (pp. 87-115). Mahwah, NJ: Erlbaum.

Klopper, C., & Dachs, N. (2008). Meeting the goals of Te Whāriki through music in the early childhood curriculum. *Australian Journal of Early Childhood, 33*(1), 1-8.

Koelsch, L. (2013). Reconceptualising the member check interview. *International Journal of Qualitative methods, 12,* 168-179.

Krogh, S., & Slentz, K. (2001). *Early childhood education: Yesterday, today and tomorrow.* London: Lawrence Erlbaum associates.

Kultti, A. (2015). Adding learning resources: a study of two toddlers' modes and trajectories of participation in early childhood education. *International Journal of Early Years Education, 23* (2), 209-221.

Kvale, S., & Brinkmann, S. (2009). *InterViews. Learning the craft of Qualitative Research Interviewing.* (2nd ed.). Thousand Oaks, CA: Sage Publications.

La Paro, K., Siepak, K., & Scott-little, C. (2009). Assessing beliefs of preservice early childhood teachers using Q-sort methodology. *Journal of Early Childhood Teacher Education, 30*, 22-36.

Lara-Cinisomo, S., Fuligni, A., Daugherty, L., Howes, C., & Karoly, L. (2009). A qualitative study of early childhood educators' beliefs about key preschool classroom experiences. *Early childhood research and practice, 11* (1) retrieved from http://ecrp.uiuc.edu/v11n1/lara.html.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation.* Cambridge: Cambridge University Press.

Leaupepe, M. (2009). Changing student teachers' beliefs: Experiences from Pasifika early childhood teacher education in New Zealand. *Journal of the Pacific Circle Consortium for Education, 21*(2), 55-63).

Lee, J. (2006). Preschool Teachers' shared beliefs about appropriate pedagogy for 4 year olds. *Early Childhood Education Journal, 33* (6), 433-441.

LeFrancois, G. (2000). *Psychology for teaching* (10th ed.). Belmont, CA: Wadsworth.

Leggett, N., & Ford, M. (2013). A fine balance: Understanding the roles educators and children play as intentional teachers and intentional learners within the Early Years Learning Framework. *Australasian Journal of Early Childhood, 38*(4), 42-50.

Leont'ev, A. (1978). *Activity, consciousness, and personality*.

Leung, C., Marsh, H., & Craven, R. (2005). *Are peer tutoring programmes effective in promoting academic achievement and self-concept in educational settings: A meta-analytical review.* AARE 2005 International Education Research Conference: UWS Parramatta.

Little, H., Sandseter, E. B. H., & Wyver, S. (2012). Early childhood teachers' beliefs about children's risky play in Australia and Norway. *Contemporary Issues in Early Childhood, 13*(4), 300-316.

Loveridge, J. & McLachlan, C. (2014). Accountability and compliance versus diversity and democracy in early childhood education. In A. St George, S. Brown, & J. O'Neill (Eds.), *Facing the big questions in teaching: Purpose, power and learning* (2nd ed., pp.22-30). North shore, NZ: Cengage Learning.

MacNaughton, G., Rolfe, S., & Siraj-Blatchford, I. (2001). *Doing early childhood research*. Crows Nest: Allen & Unwin.

Majorano, M., Corsano, P., & Triffoni, G. (2015). Educators' intervention, communication and peers' conflict in nurseries. *Child Care in Practice, 23*(2), 98-113.

Mashford-Scott, A., & Church, A. (2011). Promoting children's agency in early childhood education. *Research on Youth and Language, 5*(1), 15-38.

Matusov, E., & Hayes, R. (2000). Sociocultural critique of Piaget and Vygotsky. *New Ideas in Psychology, 18*, 215-239.

Mawson, B. (2011). Can I play? Children's participation strategies in early childhood settings. *Early Childhood Folio, 15*(1), 12-16.

May, H. (2000). *The discovery of early childhood*. Auckland, New Zealand: Auckland University Press/Bridget Williams books.

May, H. (2005). *School beginnings: A nineteenth century colonial story*. NZCER Press.

May, H. (2009). *Politics in the playground. The world of early childhood in New Zealand* (Rev. ed.). Dunedin: Otago University Press.

Maynard, A. (2002). Cultural teaching: The development of teaching skills in Maya sibling interactions. *Child Development, 73*, 969-982.

McClintic, S., & Petty, K. (2015). Exploring early childhood teachers' beliefs and practices about preschool outdoor play: A qualitative study. *Journal of Early Childhood Teacher Education, 36(*1), 24-43.

McGaha, C., Cummings, R., Lippard, B., & Dallas, K. (2011). Relationship building: Infants, toddlers, and 2-year olds. *Early Childhood Research and Practice, 13*(1), 1-12.

McInnes, K., Howard, J., Miles, G., & Crowley, K. (2011). Differences in practitioners' understanding of play and how this influences pedagogy and children's perceptions of play. *Early Years: An International Research Journal 31*, (2), 121-133.

McLachlan, C. (2006). Literacy in early childhood settings in New Zealand: An examination of teachers' beliefs and practices. *Australian Journal of Early Childhood, 33*(2), 31-41.

McLachlan-Smith, C. (1996). *Emergent literacy in New Zealand kindergartens: An examination of policy and practices* (Unpublished doctoral dissertation). Massey University, Palmerston North, New Zealand.

McLachlan, C., Fleer, M., & Edwards, S. (2013). *Early childhood curriculum: Planning, assessment and implementation* (2nd ed.). Cambridge: Cambridge University Press.

McMullen, M., Elicker, J., Wang, J., Erdiller, Z., Lee, S. M., Lin, C. H., & Sun, P. Y. (2005). Comparing beliefs about appropriate practice among early childhood education and care professionals from the US, China, Taiwan, Korea and Turkey. *Early Childhood Research Quarterly, 20*(4), 451-464.

Mead, G.H. (1925). The genesis of self and social control. *International Journal of Ethics 35* (3), 251-277.

Meade, A., Robinson, L., Smorti, S., Stuart, M., & Williamson, J. (2012). *Early Childhood Teachers' Work in Education and Care Centres: Profiles, patterns and purposes Te mahi a ngā kaiako kōhungahunga i ngā pokapū mātauranga, manaaki hoki.* Wellington: Te Tari Puna Ora o Aotearoa.

Meadows, S. (2006). *The child as thinker. The development and acquisition of cognition in childhood* (2nd ed.). New York, NY: Routledge.

Meadows, S., & Cashdan, A. (1988). *Helping children learn: contributions to a cognitive curriculum.* London: Fulton Publishers.

Meijer, P., Verloop, N., & Beijaard, D. (1999). Exploring language teachers' practical knowledge about teaching reading comprehension. *Teaching and Teacher Education, 15*, 59-84.

Meijer, P., Verloop, N., & Beijaard, D. (2001). Similarities and differences in teachers' practical knowledge about teaching reading comprehension. *The Journal of Educational Research, 94* (3), 171-184.

Meijer, P., Verloop, N., & Beijaard, D. (2002). Multi-method triangulation in a qualitative study on teachers' practical knowledge: An attempt to increase internal validity. *Quality and Quantity, 36*(2), 145-167.

Merriam, S. (2009). *Qualitative research: A guide to design and implementation*. San Francisco: Jossey Bass.

Miller, E., & Almon, J. (2009). *Crisis in the kindergarten: Why children need to play in school.* College Park, MD: Alliance for Childhood.

Ministry of Education (1990). *Statement of Desirable Objectives and Practices.* Wellington: Ministry of Education.

Ministry of Education (1996). *Te Whāriki. He Whāriki Mātauranga mo ngā Mokopuna o Aotearoa. Early Childhood Curriculum.* Wellington: Learning Media.

Ministry of Education (2004). *Kei tua o te pae: assessment for learning exemplars*. Wellington: Learning Media.

Ministry of Education (2011). *ECE Taskforce report.* Wellington: Ministry of Education.

Ministry of Education (2014a). *Education Counts.* Retrieved from

https://www.educationcounts.govt.nz/statistics

Ministry of Education (2014b). *Education in New Zealand*. Retrieved from

http://www.education.govt.nz/ministry-of-education/our-role-and-our-people/education-in-nz/#Early

Ministry of Education (2015). *Report of the Advisory Group on Early Learning*. Wellington: Ministry of Education.

Ministry of Education (2017*). Te Whāriki. He Whāriki Mātauranga mo ngā Mokopuna o Aotearoa. Early Childhood Curriculum* (Rev. ed.). Wellington: Ministry of Education.

Mojtahed, R., Nunes, M., Martins, J., & Peng, A. (2014). Equipping the constructivist researcher: the combined use of semi-structured interviews and decision making maps. *The Electronic Journal of Business Research methods, 12* (2), 87-95.

Moran, F. (2010). *The paradoxical legend of Sigmund Freud.* London: Karnac books.

Morris, B. (1983). *Understanding children.* Auckland, New Zealand: Playcentre Federation.

Mortlock, A. (2015). Toddlers' use of peer rituals at mealtime: symbols of togetherness and otherness. *International Journal of Early Years Education, 23*(4), 426-435.

Muijs, D. (2006). Measuring teacher effectiveness: Some methodological reflections. *Educational Research and Evaluation, 12*(1), 53-74.

Mutch, C. (2005). *Doing educational research: A practitioner's guide to getting started.* Wellington: NZCER Press.

Naerland, T. (2011). Language competence and social focus among preschool children. *Early Child Development and Care, 181*(5), 599-612.

Nespor, J. (1987). The role of beliefs in the practice of teaching. *Journal of Curriculum Studies, 19,* 317-328.

Nikolopoulou, K., & Gialamas, V. (2015). ICT and play in preschool: early childhood teachers' beliefs and confidence. *International Journal of Early Years Education, 23*(4), 409-425.

Nutbrown, C. (1987). '*A case-study of the development and implementation of a nursery curriculum based on schematic theory*' (Unpublished BEd dissertation). Sheffield City Polytechnic.

Nutbrown, C. (2011).*Threads of Thinking: Schemas and young children's learning* London: Sage.

Nuttall, J. (2003a). Influences on the co-construction of the teacher role in early childhood curriculum: some examples from a New Zealand childcare centre. *International Journal of Early Years Education, 11*(1), 24-31.

Nuttall, J. (2003b). Exploring the role of the teacher within Te Whāriki: some possibilities and constraints. In J. Nuttall (Ed*.), Weaving Te Whāriki. Aotearoa New Zealand's early childhood curriculum document in theory and practice* (pp. 161-186). Wellington: NZCER Press.

Nuttall, J. (2004). *Why don't you ask someone who cares? Teacher identity, intersubjectivity, and curriculum negotiation in a New Zealand childcare centre* (Unpublished doctoral dissertation). Victoria University, Wellington, New Zealand.

Nuttall, J. (2005). Looking back, looking forward: Three decades of early childhood curriculum development in Aotearoa New Zealand. *Curriculum Matters, 1*, 12-28.

Nuttall, J. (2013). Curriculum concepts as cultural tools: Implementing Te Whāriki. In J. Nuttall (Ed.), *Weaving Te Whāriki. Aotearoa New Zealand's early childhood curriculum document in theory and practice* (2nd ed., pp. 177-191). Wellington: NZCER Press.

Nuttall, J., & Edwards, S. (2004). Theory, context, and practice: Exploring the curriculum decision-making of early childhood teachers. *Early Childhood Folio, 8*, 14-18.

Nyland, B., & Alfayez, S. (2012). Learning stories – crossing borders: introducing qualitative early childhood observation techniques to early childhood practitioners in Saudi Arabia. *International Journal of Early Years Education, 20*(4), 392-404.

Odegaard, E. (2006). What's worth talking about? Meaning-making in toddler-initiated co-narratives in preschool. *Early Years, 26*(1), 79-92.

Onwuegbuzie, A., & Collins, K. (2007). A typology of mixed methods sampling designs in social science research. *The Qualitative Report, 12* (2), 281-316.

Orme, N. (2001).Child's play in medieval England. *History Today, 51*(10). Retrieved from http://www.historytoday.com/nicholas-orme/childs-play-medieval-england

Pajares, M. (1992). Teachers' beliefs and educational research: Cleaning up a messy construct. *Review of Educational Research, 62* (93), 307-332.

Palinscar, A. (1998). Social constructivist perspectives on teaching and learning. *Annual Review of Psychology, 49*, 345-375.

Pantaleo, S. (2007). Interthinking: Young children using language to think collectively during interactive read-alouds. *Early Childhood Education Journal, 34*(6), 439-447.

Papadopoulou, K., Tsermidou, L., Dimitrakaki, C., Agapidaki, E., Oikonomidou, D., Petanidou, D., Tountas, Y., & Giannakopoulos, G. (2014). A qualitative study of early childhood educators' beliefs and practices regarding children's socioemotional development. *Early Child Development and Care, 184*(12), 1843-1860.

Papalia, D. E., Olds, S. W., & Feldman, R. D. (2001). *Human development* (8th ed.). New York: McGraw-Hill.

Papandreou, M. (2014). Communicating and thinking through drawing activity in early childhood. *Journal of Research in Childhood Education, 28*, 85-100.

Paradise, R., & Rogoff, B. (2009). Side by side: Learning by Observing and Pitching In. *Journal of the Society for Psychological Anthropology, 37*(1), 102-138.

Park, J., & Lee, J. (2015). Dyadic collaboration among preschool age children and the benefits of working with a more socially advanced peer. *Early Education and Development, 26*(4), 574-593.

Parry, J. (2014). Making connections and making friends: social interactions between two children labelled with special educational needs and their peers in a nursery setting. *Early Years: An International Research Journal, 34*(3), 301-314.

Pere, R. (1982). *AKO: Concepts and learning in the Māori Tradition*. New Zealand: Department of Sociology University Waikato.

Perret-Clermont, A.N. (1980). *Social interaction and cognitive development in children*. London: Academic Press.

Petty, K. (2009). Using guided participation to support young children's social development. *Young Children*, July, 80-85.

Phillips, D.C. (1995). The good, the bad and the ugly: the many faces of constructivism. *Educational Researcher, 24*(7), 5-12.

Piaget, J. (1926). *The language and thought of the child.* London: Kegan Paul.

Piaget, J. (1952). *The origins of intelligence in children*. New York: International Universities Press.

Piaget, J. (1961). The genetic approach to the psychology of thought. *Journal of Educational Psychology, 52,* 275-281.

Piaget, J. (1965). The stages of the intellectual development of the child*. Educational psychology in context: Readings for future teachers*, 98-106.

Piaget, J. (1967). *Six psychological studies.* New York: Vintage Books.

Piaget, J. (1969). *Science of Education and the Psychology of the Child.* Harlow: Longman.

Piaget, J. (1970). *Science of education and the psychology of the child*. New York: Orion Press.

Piaget, J. (1977). *The development of thought: Equilibration of cognitive structures*. New York, NY: Viking Press.

Pianta, R., Howes, C., Burchinal, M., Bryant, D., Clifford, R., Early, D., & Barbarin, O. (2005). Features of pre-kindergarten programs, classrooms, and teachers: Do they predict observed classroom quality and child-teacher interactions*? Applied Developmental Science, 9(*3), 144-159.

Pohio, L. (2006). Visual art. A valuable medium for promoting peer collaboration in early childhood contexts. *Early Education, 40*, 7-10.

Prendergast, L. (2002). Quality care through multi age grouping of children. *Child Care Information Exchange, 148,* 70-74.

Prochner, L., May, H., & Kaur, B. (2009). "The blessings of civilisation": nineteenth-century missionary infant schools for young native children in three colonial settings–India, Canada and New Zealand 1820s–1840s. *Paedagogica Historica, 45*(1-2), 83-102.

Punch, K. (2003). *Survey research – the basics.* London: Sage.

Rayna, S. (2001). The very beginnings of togetherness in shared play among young children. *International Journal of Early Years Education, 9*(2), 109-115.

Richardson, Y. (1996). The role of attitudes and beliefs in learning to teach. In J. Sikula (Ed.), *Handbook of research on teacher education* (2nd ed., pp. 102-119). New York: MacMillan.

Rinaldi, C. (2001a). Reggio Emilia: The image of the child and the child's environment as a fundamental principle. In L. Gandini & C. Edwards (Eds.), *Bambini: The Italian approach to infant-toddler care* (pp. 49-54). New York: Teachers College Press.

Ritchie, J. (2005). Implementing Te Whāriki as Postmodernist Practice: A Perspective from Aotearoa/New Zealand. In S. Ryan, S. Grieshaber (Eds.). Practical transformations and transformational practices: Globalisation, postmodernism and early childhood education (pp. 109-136). *Advances in Early Education and Day Care, 14.* Amsterdam, Oxford: Elsevier.

Rivalland, C. (2007). When are beliefs just 'the tip of the iceberg'? Exploring early childhood professionals' beliefs and practices about teaching and learning. *Australian Journal of Early Childhood, 32* (1), 30-37.

Robson, S., & Hargreaves, D. (2005). What do early childhood practitioners think about young children's thinking? *European Early Childhood education Research Journal, 13* (1), 81-96.

Rogoff, B. (1984). Thinking and learning in a social context. In B. Rogoff & J. Lave (Eds.). *Everyday cognition – its development in social context* (pp. 1-8). Cambridge, Massachusetts: Harvard University Press.

Rogoff, B. (1990). *Apprenticeship in thinking: Cognitive development in social context.* New York, NY: Oxford University Press.

Rogoff, B. (1995). Observing sociocultural activity on three planes: Participatory appropriation, guided participation, and apprenticeship. In J.V. Wertsch, P. del Rio, & A. Alvarez (Eds.), *Sociocultural studies of mind* (pp. 139-164). Cambridge: Cambridge University Press.

Rogoff, B. (1998). Cognition as a collaborative process. In D. Huhn & R. Siegler (Eds.), *Handbook of child psychology* (pp. 679-744). New York, NY: Wiley.

Rogoff, B. (2014). Learning by observing and pitching in to family and community endeavours: an orientation. *Human Development, 57,* 69-81.

Rogoff, B., Paradise, R., Arauz, M.B., Correa-Chavez, M.C., & Angelillo, C. (2003). Firsthand learning through intent participation. *Annual Review of Psychology, 54,* 175-203.

Rohrbeck, C., Ginsburg-Block, M., Fantuzzo, J., & Miller, T. (2003). Peer-assisted learning interventions with elementary school students: A meta-analytic review. *Journal of Educational Psychology, 95*(2), 240-257.

Rose, J., & Rogers, S. (2012). *The role of the adult in early years settings.* Berkshire: Open University Press.

Rosenthal, M., & Gatt, L. (2010). 'Learning to live together': training early childhood educators to promote socio-emotional competence of toddlers and pre-school children. *European Early Childhood Education Research Journal, 18* (3), 223-240.

Rowe, K. (2002). *Collaborative learning and peer tutoring in mathematics* (Unpublished master's thesis). Massey University, Palmerston North, New Zealand.

Sakellariou, M., & Rentzou, K. (2012). Greek pre-service kindergarten teachers' beliefs and intensions about the importance of teacher-child interactions. *Early Child Development and Care, 182* (1), 123-135.

Salamon, A., & Harrison, L. (2015). Early childhood educators' conceptions of infants' capabilities: the nexus between beliefs and practice. *Early Years, 35*(3), 273-288.

Santrock, J. (2000). *Children* (6th ed.). United States: McGraw-Hill Higher Education

Saracho, O., & Spodek, B. (1995). Children's play and early childhood education: insights from history and theory. *Journal of Education, 177* (3), 129-148.

Saracho, O., & Spodek, B. (2007). *Contemporary perspectives on social learning in Early Childhood Education.* Charlotte, NC: Information Age.

Schaffer, H.R. (1996). Joint involvement episodes as context for development. In H. Daniels (Ed.), *An introduction to Vygotsky.* New York: Routledge.

Schepens, A., Aelterman, A., & Van Keer, H. (2007). Studying learning processes of student teachers with stimulated recall interviews through changes in interactive cognitions. *Teaching and Teacher Education, 23*, 457-472.

Schreiber, J., & Asner-Self, K. (2011). *Educational Research: The interrelationship of Questions, Sampling, Design and Analysis.* Hoboken, NJ: Wiley.

Schunk, D. H. (1995). Self-efficacy and education and instruction. In J. E. Maddux (Ed.), *Self-efficacy, adaptation, and adjustment: Theory, research, and application* (Chapter 9, pp. 281-303). New York: Plenum Press.

Scafton, E., & Whitington, V. (2015). The accessibility of socio-dramatic play to culturally and linguistically diverse Australian pre-schoolers. *European Early Childhood Education Journal, 23*(2), 213-228.

Sherwood, S. & Reifel, S. (2010). The multiple meanings of play: exploring preservice teachers' beliefs about a central element of early childhood education. *Journal of Early Childhood Teacher Education, 31,* 322-343.

Sherwood, S., & Reifel, S. (2013). Valuable and unessential: the paradox of preservice teachers' beliefs about the role of play in learning. *Journal of Research in Childhood Education, 27,* 267-282.

Shin, M. (2012). The role of joint attention in social communication and play among infants. *Journal of Early Childhood Research, 10* (3), 309-317.

Siegler, R., & Alibali, M. (2005). *Children's thinking* (4th ed.). Upper Saddle River, New Jersey: Prentice Hall.

Simpson, M., & Williams, T. (2011). Te tuangi (the clam). A metaphor for teaching, learning and the key competencies. *Early Childhood Folio, 15*(2), 4-9.

Singer, E., Nederland, M., Pennix, L., Tajik, M., & Boom, J. (2014). The teacher's role in supporting young children's level of play engagement. *Early Child Development and Care, 184*(8), 1233-1249.

Siraj-Blatchford, I. (2009). Conceptualising progression in the pedagogy of play and sustained shared thinking in early childhood education: A Vygotskian perspective. *Educational & Child Psychology, 26*(2), 77-89.

Siraj-Blatchford, I., Sylva, K., Mattock, S., Gilden, R., & Bell, D. (2002). *Researching effective pedagogy in the early years* (REPEY). London: HMSO.

Smith, A. (2013). *Does Te Whāriki need evidence to show that it is effective?* A discussion paper. University of Otago College of Education. 15 November, 2013.

Smith, P. (2008). Buddy class: A rich context for peer tutoring. *Early Education, 43*, 8-11.

Smith, P. (2010). *The role of peers in children's learning* (Unpublished master's thesis). Massey University, Palmerston North, New Zealand.

Soler, J., & Miller, L. (2003). The struggle for early childhood curricula: a comparison of the English foundation stage curriculum, Te Whāriki and Reggio Emilia. *International Journal of Early Years Education, 11*(1), 57-67.

Spear-Swerling, L., & Brucker, P. (2004). Preparing novice teachers to develop basic reading and spelling skills in children. *Annals of Dyslexia, 54*(2), 332–364.

Spodek, B. (1987). Thought processes underlying preschool teachers' classroom decisions. *Early Child Development and Care, 29*, 197-208.

Spodek, B. (1988). The implicit theories of early childhood teacher. *Early Childhood Development and Care, 38,* 13-32.

Spodek, B., & Saracho, O. (2003). "On the shoulders of Giants": Exploring the traditions of early childhood education. *Early Childhood Education Journal, 31*(1), 3-10.

Springer, K. (2010). *Educational Research: A contextual approach.* Hoboken, NJ: John Wiley & Sons.

Stacey, S. (2009a). *Emergent curriculum in early education settings: From theory to practice.* St. Paul: Redleaf Press.

Stake, R. (2006). *Multiple case study analysis.* New York, NY: Guilford Press.

Stanton-Chapman, T., & Hadden, S. (2011). Encouraging peer interactions in preschool classrooms: the role of the teacher. *Young Exceptional Children, 14* (1), 17-28.

Stephen, C. (2010). Pedagogy: the silent partner in early years learning. *Early Years, 30* (1), 15-28.

Stephenson, A. (2009). *Skirmishes on the border: How children experienced, influenced and enacted the boundaries of curriculum in an early childhood centre setting* (Unpublished doctoral dissertation). Victoria University, Wellington, New Zealand.

Stoffels, N. T. (2005). "Sir, on what page is the answer?" Exploring teacher decision-making during complex curriculum change, with specific reference to the use of learner support material. *International Journal of Educational Development, 25*, 531-546.

Stover, S. (2011). *Play's progress? Locating play in the educationalisation of early childhood in Aotearoa New Zealand* (Unpublished doctoral dissertation). AUT University, Auckland, New Zealand.

Sullivan, F., & Wilson, N. (2015). Playful talk: Negotiating opportunities to learn in collaborative groups. *Journal of the Learning Sciences, 24*(1), 5-52.

Sylva, K., Melhuish, E., Sammons, P., Siraj-Blatchford, I., & Taggart, B. (2010). *Early childhood matters: Evidence from the effective pre-school and primary education project.* Routledge.

Te One, S. (2013). Te Whāriki: Historical accounts and contemporary influences 1990-2012. In J. Nuttall (Ed.), (2nd ed.). *Weaving Te Whāriki. Aotearoa New Zealand's early childhood curriculum document in theory and practice* (pp. 7-29). Wellington: NZCER Press.

Teddlie, C., & Tashakkori, A. (2009). *Foundations of mixed methods research: Integrating quantitative and qualitative approaches in the social and behavioural sciences.* Thousand Oaks, CA: Sage.

Tharp, R., & Gallimore, R. (1988). *Rousing minds to life. Teaching, learning and schooling in social context.* Cambridge: Cambridge University Press.

Tharp, R., & Gallimore, R. (1991). *The instructional conversation: Teaching and learning in social activity research report: 2.* Santa Cruz, CA: National Centre for Research on Cultural Diversity and Second Language Learning.

Thomas, L., Warren, E., & deVries, E. (2011). Play-based learning and intentional teaching in early childhood contexts. *Australasian Journal of Early Childhood, 36* (4), 69-75.

Thornton, S. (2002). *Growing minds, an introduction to cognitive development*. New York, NY: Palgrave Macmillan.

Topping, K. (2005). Trends in peer learning. *Educational Psychology, 25* (6), 631- 645.

Tschannen-Moran, M., & Woolfolk Hoy, A. (2001). Teacher efficacy: capturing an elusive construct. *Teaching and Teacher Education, 17,* 783-805.

Tudge, J. (2000). Theory, method and analysis in research on the relations between peer collaboration and cognitive development. *Journal of Experimental Education, 69* (1), 98-112.

Tudge, J., Gray, J., & Hogan, D. (1997). Ecological perspectives in Human development: A comparison of Gibson and Bronfenbrenner. In J. Tudge, M. Shanahan, and J. Valsiner

(Eds.) *Comparisons in Human Development, Understanding Time and Context* (pp. 72-105). Cambridge: Cambridge University Press.

Tudge, J., & Rogoff, B. (1989). Peer influences on cognitive development: Piagetian and Vygotskian perspectives. In M. Bornstein & J. Bruner (Eds.). *Interaction in human development* (pp. 17-40). Hillsdale, NJ, US: Lawrence Erlbaum Associates.

Tudge, J., and Winterhoff, P. (1999). Vygotsky, Piaget and Bandura: perspectives on the relations between the social world and cognitive development. In P. Lloyd and C. Fernyhough (Eds.), *Lev Vygotsky Critical Assessments* (pp. 311- 331). New York, NY: Routledge.

Tzuo, P. (2007). The tension between teacher control and children's freedom in a child-centred classroom: resolving the practical dilemma through a closer look at the related theories. *Early Childhood Education Journal, 35*(1), 33-39.

Van Meter, P., & Stevens, R. (2000). The role of theory in the study of peer collaboration. *Journal of Experimental Education, 69*(1), 113-127.

Varol, F. (2013). What they believe and what they do. *European Early Childhood Education Research Journal, 21*(4), 541-552.

Vartuli, S. (2005). Beliefs: The heart of teaching. *Young Children, 60,* 76-86.

Vartuli, S., & Rohs, J. (2009). Early childhood prospective teacher pedagogical belief shifts over time. *Journal of Early Childhood Teacher Education, 30,* 310-327.

Verdonik, F. (1988). Co-constructing cognitive challenges: Their emergence in social exchanges. In J. Valinser (Ed.), *Child development within culturally structured environments: Social co-construction and environmental guidance in development.* Vol. 2 (pp. 111-136). Norwood, NJ: Ablex Publishing.

Verloop, N., Van Driel, J., Meijer, P. (2001). Teacher knowledge and the knowledge base of teaching. *International Journal of Educational Research, 35,* 441-461.

Vygotsky, L. (1962). Piaget's Theory of Child Language and Thought. In L. Vygotsky, E. Hanfmann, G. Vakar. (Eds), *Thought and Language* (pp. 9-24). Cambridge, MA: MIT Press.

Vygotsky, L. (1978). *Mind in society: The development of higher psychological processes.* Cambridge, MA: Harvard University Press.

Vygotsky, L. (1981). The instrumental method in psychology. In J.V.Wertsch (Ed.), *The concept of activity in Soviet psychology.* Armonk, NY: M.E. Sharpe.

Vygotsky, L. (1986). *Thought and language* (revised and edited by A. Kozulin). Cambridge, MA: MIT Press.

Wadsworth, B. (1996). *Piaget's theory of cognitive and affective development*. (5th ed.). New York, NY: Longman.

Waith-McDonnell, A. (2004). Te Whāriki in action in a new entrant classroom. *Early Education, 37,* 33-38.

Walsh, G., Sproule, L., McGuiness, C., Trew, K., Rafferty, H., & Sheehy, N. (2006). An appropriate curriculum for 4-5 year old children in Northern Ireland: Comparing play-based and formal approaches. *Early Years 26*(2), 201-221.

Wang, L., & Hyun, E. (2009). A study of sociolinguistic characteristics of children's peer talk in a Mandarin English-speaking preschool. *Journal of Early Childhood Research, 7* (3), 3-26.

Wen, X., Elicker, J., & McMullen, M. (2011). Early Childhood Teachers' Curriculum Beliefs: Are they consistent with observed classroom practices? *Early Education and Development, 22* (6), 945-969.

Wenger, E. (1998). *Communities of practice: learning, meaning and identity.* Cambridge: Cambridge University Press.

Wertsch, J. (1991). *Voices of the mind. A sociocultural approach to mediated action.* Cambridge, MA: Harvard University Press.

Wertsch, J. (1994). The primacy of mediated action in sociocultural studies. *Mind, Culture and Activity, 1*(4), 202-208.

Westerveld, M., Gillon, G., van Bysterveldt, A., & Boyd, L. (2015). The emergent literacy skills of four-year-old children receiving free kindergarten early childhood education in New Zealand. *International Journal of Early Years Education, 23(*4), 339-351.

White, J., O'Malley, A., Toso, M., Rockel, J., Stover, S., & Ellis, F. (2007). A contemporary glimpse of play and learning in Aotearoa New Zealand. *International Journal of Early Childhood, 39* (1), 93-105.

White, E. (2011). Dust under the whāriki: Embracing the messiness of curriculum. *Early Childhood Folio, 15*(1), 2-6.

Wilcox-Herzog, A., & Ward, S. (2004). Measuring teachers' perceived interactions with children: A tool for assessing beliefs and intensions. *Early Childhood Research and Practice, 6* (2), 1-14.

Wilkinson, I., Hattie, J., Parr, J., & Townsend, M. (2000). *Influence of peer effects on learning outcomes: A review of the literature.* Wellington: Ministry of Education.

Willan, J. (2009). Revisiting Susan Issacs – a modern educator for the twenty-first century. *International Journal of Early Years Education, 17* (2), 151-165.

Williams, P. (2001). Children's ways of experiencing peer interaction. *Early Child Development and Care, 168* (1), 17-38.

Williams, P. (2007). Children teaching children. *Early Child Development and Care, 177* (1), 43-70.

Williams, P., Sheridan, S., & Sandberg, A. (2014). Preschool – an arena for children's learning of social and cognitive knowledge. *Early Years, 34*(3), 226-240.

Williams, S., Ontai, L., & Mastergeorge, A. (2010). The development of peer interaction in infancy: exploring the dyadic processes. *Social Development, 19*(2), 348-368.

Wilson, D. (2007). *Peer and self-assessment in written language: Strategies of motivation and achievement* (Unpublished master's thesis). Massey University, Palmerston North, New Zealand.

Wood, D. (1998). *How children think and learn* (2nd ed.). Oxford, UK: Blackwell.

Wood, D., Bruner, J., & Ross, G. (1976). The role of tutoring in problem solving. *Journal of Child Psychology and Psychiatry, 17,* 89-100.

Wood, E., & Attfield, J. (2005). *Play, Learning and the Early Childhood Curriculum* (2nd ed.). Thousand Oaks, CA: Sage.

Wood, E., & Bennett, N. (2000). Changing theories, changing practice: exploring early childhood teachers' professional learning. *Teaching and Teacher Education, 16*, 635-647.

Wood, K., & Frid, S. (2005). Early Childhood Numeracy in a multiage setting. *Mathematics Education Research Journal, 16* (3), 80-99.

Woolfolk Hoy, A., Davis, H., Pape, S. (2006). Teacher knowledge and beliefs. In P. Alexander and P. Winne, *Handbook of Educational Psychology* (2nd ed., pp. 715- 737). Mahwah, NJ: Lawrence Erlbaum.

Yin, R. (2014). *Case study research design and methods* (5th ed.). Thousand Oaks, California: Sage.

Young, S. (2008). Collaboration between 3- and 4-year-olds in self-initiated play on instruments. *International Journal of Educational Research, 47,* 3-10.

Young, T., & Morgan, A. (2015). Show me what you know. Creating classroom projects. *The Reading Teacher 68(*5), 388-392.

Youniss, J. (1980). *Parents and peers in social development*. Chicago: University of Chicago Press.

Zanting, A., Verloop, N., & Vermunt, J. (2001). Student teachers eliciting mentors' practical knowledge and comparing it to their own beliefs. *Teaching and Teacher Education, 17,* 725-740.

Zaporozhets, A. V. (1977). The development of logical thinking in the preschool-age child. *Soviet Psychology, 15*(4), 45-59.

Appendices

Appendix A: Letter of invitation to early childhood centres

My name is Penny Smith and I am writing to invite your early childhood centre to become involved in a research study entitled ***"Peer learning: An investigation of early childhood teachers' beliefs and practices"***. This research is part of my doctoral study through Massey University.

The main aim of the study is to explore early childhood teachers' beliefs about peer learning and to discover how teachers enact these beliefs in their day to day practice. Specifically, I wish to talk with teachers to explore their understanding of peer learning and their role in promoting opportunities for children to work collaboratively with their peers. I also aim to observe how teachers support peer learning and to identify the particular strategies they use to promote peer tutoring. This study will provide useful data for teachers who wish to foster a collaborative environment where children can learn from their peers.

I anticipate that the study would entail about six weeks of involvement for your centre. At the beginning of the study, I would meet with your teaching team in order to outline the research aims and answer any questions you might have. I would then arrange to visit your centre twice in order to familiarise myself with your centre routines, staff and children. After these two visits, I would like to make a time to interview a small number of teachers at a time which suits them. The time of the interviews would be negotiated with the teachers and centre management. The interviews could take place during non-contact times or outside of work hours. The purpose of the interviews is to explore the knowledge that teachers have about how children learn from each other. After these initial interviews, I would like to come in over a period of a week at a mutually convenient time, to carry out five two hour observations of the teachers I have interviewed as they support children to work together with their peers. I am going to use a video camera to record these observations of the teachers' practice specifically related to peer learning. The observations would be used to gather data related to the strategies that teachers use to promote and support peer learning.

After the observations have been completed, I would like to make a time to re-interview the same teachers I observed at a time which suits them. The purpose of these second interviews is to discuss particular episodes of peer learning using video clips to stimulate the teachers' recall of their practice. These interviews would be used to gather data about the particular play episodes which I have observed in which that teacher has been involved. After the observations and interviews are complete and the information has been written up, I will make a time to report back to your centre, asking you to comment on the data that I have gathered before it is written up in its final form. This data will be analysed and used to develop a survey which will validate the results of the interviews and observations. I will give you a copy of the final research report at the completion of the study.

I have attached the information sheets for teachers and for parents, which provide further information about the study. If you are interested in taking part in this study, can you please contact me as soon as possible, so that we can discuss it further. I can be contacted on (06) 3551418 or by email p.j.smith@massey.ac.nz

I look forward to your reply.

Yours sincerely

Penny Smith

Please do not hesitate to contact one of my supervisors if you have questions about the project. Their contact details are as follows:

Professor Claire McLachlan

Professor, Childhood Education

School of Arts, Development and Health Education

Massey University Institute of Education

Private Bag 11 222

Palmerston North

Phone (06) 356 9099, ext 84390

Email: c.j.mclachlan@massey.ac.nz

Dr Alison Arrow

Senior Lecturer

School of Educational Studies

Massey University Institute of Education

Private Bag 11 222

Palmerston North

Phone (06) 356 9099, ext 84460

Email: a.w.arrow@massey.ac.nz

This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern B, Application 13/26. If you have any concerns about the conduct of this research, please contact Dr Nathan Matthews, Chair, Massey University Human Ethics Committee: Southern B, telephone 06 350 5799 x 80877, email humanethicsouthb@massey.ac.nz

Peer learning: An investigation of early childhood teachers' beliefs and practices

PARTICIPANT CONSENT FORM – TEACHERS

This consent form will be held for a period of five (5) years

- I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

- I agree/do not agree to the interviews being sound recorded.

- I agree/do not agree to the observations being image recorded.

- I agree to participate in this study under the conditions set out in the Information Sheet.

Signature: .... **Date:** ....

Full Name - printed ....

Peer learning: An investigation of early childhood teachers' beliefs and practices

INFORMATION SHEET FOR PARENTS

Researchers' Introduction

My name is Penny Smith and I am conducting research in early childhood centres to understand more about what teachers know about how children work together with their peers to explore new ideas and challenge each other's thinking. I have previously lectured in the early years team at Massey University College of Education and this research is for my doctoral study through Massey University. This project will be supervised by Professor Claire McLachlan and Dr Alison Arrow. Both Claire and Alison have extensive experience and expertise in conducting research in early childhood settings.

Participant Recruitment

I am asking teachers in three early childhood centres to take part in this study. The centres will be local early childhood centres with children from a range of ages. My purpose is to investigate teachers' beliefs about peer learning and to find out how teachers support children's collaborative play.

Project Procedures

To find out more about the teachers' role in peer learning, I will be visiting your centre to interview some of the teachers about their beliefs and understandings of what happens when children work together. I will then come into the centre to conduct a series of five two hour observations of the same teachers I have interviewed as they promote and support opportunities for children to work together with their peers. I will use a video camera to observe the teachers' practice. While I am visiting the centre I hope not to influence the teachers' practice and the children's play, but to observe it as it happens. After I have completed these observations, I will re-interview the same teachers using the video clips to discuss aspects of their practice related to peer learning. It is hoped that the knowledge gained from this study will add to our understanding of teachers' beliefs about peer learning and how teachers support this important aspect of children's learning.

I hope not to disturb the children in their play when videoing the teachers' practice. I will however interact with them if they approach me and ask me questions about what I am doing. Your child may or may not be filmed during the observations as this depends on whether they are involved in play with the teacher I am filming at a particular time. I will only film your child if you give me written consent to do so. If you do not give consent for your child to be filmed and they are inadvertently captured on the video (they may run in front of the camera), then I will wipe this footage off the portable filming device. I am going to be focused on what the teachers are doing when I am videoing and the footage will only be used as a prompt during the interviews with teachers and therefore will only be seen by myself and the teachers. I will also write an analysis of the video footage and in this written analysis, any children captured on video will be given pseudonyms. The video footage itself will not be included in the write up of this study.

Data will be stored in a locked drawer in my office at home for a period of five years and then will be shredded and destroyed. The video footage will only be used as interview prompts with the teachers; the footage will not be used in any publications, will not go beyond the early childhood centre and will not be used in any other way other than for the purposes of analysis. A copy of the project findings will be made available to teachers and parents on completion of the project. I will provide a summary of the findings in

written form to the teachers who will distribute this to you after the project is completed. The identities of all teachers and children will be kept confidential in any reporting of the data collected.

Participant's Rights

You are under no obligation to accept this invitation.   If you decide to participate, you have the right to:

- withdraw your child from the study up until the data is all collected;
- ask any questions about the study at any time during participation;
- provide information on the understanding that your name will not be used unless you give permission to the researcher;
- be given access to a summary of the project findings when it is concluded.

Project Contacts

Please do not hesitate to contact me or one of my supervisors at any time if you have questions about the project. Our contact details are as follows:

Penny Smith

Phone (06) 3551418

Email: p.j.smith@massey.ac.nz

Professor Claire McLachlan

Professor, Childhood Education

School of Arts, Development and Health Education

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Email: a.w.arrow@massey.ac.nz

Appendix D: Interview questions

Begin by thanking participant, clarifying rights and permission to tape record.

- How do you believe children learn?
- How have you developed your beliefs about children's learning?
- What has had the most influence on your beliefs about children's learning?

- What do you understand by the term peer learning?
- Do you think it is important to provide children with opportunities to learn from their peers? If so, why?
- Do you believe that peer interactions are important for children's cognitive growth and if so, why?
- What do you believe children learn from their peers?
- What has influenced your own beliefs about peer learning?
- Have you had any pre-service or in-service training about peer learning? Did this include your role in supporting peer learning?

- What do you see as your role in peer learning?
- Do you see fostering children's peer interactions as an important aspect of your role as a teacher and if so, why?
- Do you deliberately incorporate peer learning into your practice and if so, how?
- What strategies do you use to support children's collaborative efforts?

- Has Te Whāriki guided your teaching practice in this area and if so, how?
- Have you used any other curriculum or policy documents to guide and support your practice in this area?
- Is peer learning referred to in any of your policies? If so, which ones and how are these policies put into practice in your centre?
- Do you record episodes of peer learning in your observations/learning stories?

- As a teaching team, how do you promote and support peer learning?
- Is the idea of children learning from their peers an important part of your centre philosophy?
- Do the beliefs of your teaching colleagues influence you practice in this area and if so, how?
- Are there any constraints that prevent or make it difficult for you to put into practice your beliefs about peer learning? If so, what are these?

Early childhood teacher beliefs about peer learning

Personal information

1. What is your gender?

◯ Male

◯ Female

2. How old are you?

◯ 18-20 years ◯ 41-50 years

◯ 21-30 years ◯ 51-60 years

◯ 31-40 years ◯ 60+ years

3. How many years teaching experience do you have?

[   ]

4. What teaching position do you currently hold?

◯ Teacher

◯ Head teacher

◯ Centre supervisor

◯ Centre manager

◯ Other (please specify)

[   ]

5. Which type of service are you currently working in?

○ Education and care centre

○ State kindergarten

○ Private kindergarten

○ Playcentre

○ Te Kohanga Reo

○ Other (please specify)

[   ]

6. What is your highest teaching qualification?

○ None

○ Certificate ECE

○ Diploma of Teaching ECE

○ Bachelor of Education/Bachelor of Teaching ECE

○ Grad Dip ECE

○ Other (please specify)

[   ]

7. What is your highest academic qualification?

○ NCEA levels 1-3

○ Diploma

○ Degree

○ Masters

○ Doctorate

○ Other (please specify)

[   ]

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Early childhood teacher beliefs about peer learning

Beliefs about peer learning

8. Please indicate the definition that is closest to your understanding of peer learning

○ An experienced peer assisting an inexperienced peer in completing a task

○ Children learning from their peers and from adults within a community of learners

○ Children learn as they engage in cognitive conflict with their peers

○ Children working alongside peers who share a common interest/purpose

○ Other (please specify)

[   ]

9. For each question about what can influence children's learning, indicate the best option from the choices below

	No influence	Little influence	Some influence	Very influential	Always influential
How much influence do peers have on children's learning?	○	○	○	○	○
How much influence do teachers have on children's learning?	○	○	○	○	○

10. For each statement about how children learn, indicate the extent to which you agree or disagree by selecting the option that best represents your views

	Disagree	Don't know	Agree	Somewhat agree	Strongly agree
Children are more likely to try something if they see their peer doing it	○	○	○	○	○
Children have similar life experiences to their peers	○	○	○	○	○
Children think differently to adults	○	○	○	○	○
Children see themselves as being at the same level of learning as their peers	○	○	○	○	○

11. How important do you think mixed age settings are for peer learning?

○ Not important   ○ A little bit important   ○ Quite important   ○ Very important   ○ Always important

12. Rank in order of importance the following statements about how you believe children learn (1 being most important and 5 being least important). Please note that as you select your most important statement it will move to the top of the list and so on.

	Learning occurs through a process of social participation
	Children construct knowledge as they interact with the physical environment
	Children learn through trial and error
	Children learn through verbal interaction
	Children learn through cognitive conflict, as they explore alternative viewpoints with their peers

13. Rank in order of importance the most influential sources of your beliefs about how children learn (1 being most important and 9 being least important). Please note that as you select your most important statement it will move to the top of the list and so on.

	Pre-service study
	Teaching colleagues (past and present)
	Your own childhood experiences
	In-service professional development
	Being a parent
	Your own observations as a teacher
	Cultural/family values
	Reading on the subject
	Service philosophy

Teaching strategies to support peer learning

14. For each statement about peer learning select the extent to which you agree or disagree by indicating the best option

	Strongly disagree	Disagree	Don't know	Agree	Strongly agree
I let peer learning happen naturally	◯	◯	◯	◯	◯
I intentionally create opportunities for peer learning	◯	◯	◯	◯	◯

15. Do you find that some children need more support to engage positively with their peers?

◯ Yes

◯ No

16. If you answered yes to question 15 then please rate the possible reasons why in terms of frequency (1 being the least frequent and 5 being the most frequent)

	1	2	3	4	5
Child has difficulty sharing	◯	◯	◯	◯	◯
Child has difficulty entering play	◯	◯	◯	◯	◯
Child has difficulty communicating with peers	◯	◯	◯	◯	◯
Child exhibits challenging behaviours	◯	◯	◯	◯	◯
Child has special educational needs	◯	◯	◯	◯	◯

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17. Please indicate how often you use the following strategies to support peer learning

	Never	Occasionally	Often	Very often	Always
I deliberately pose questions to extend children's thinking in group play	◯	◯	◯	◯	◯
I use physical positioning to support children's group play, eg enforce boundaries	◯	◯	◯	◯	◯
I model specific strategies, eg teaching children how to enter play and how to share	◯	◯	◯	◯	◯
I group children together who have different skill levels	◯	◯	◯	◯	◯
I actively participate in the co-construction of knowledge with children	◯	◯	◯	◯	◯
I talk to children about my own thinking	◯	◯	◯	◯	◯
I encourage children to give their peers feedback on their learning	◯	◯	◯	◯	◯
I use language to model thinking out loud to children	◯	◯	◯	◯	◯
I use language to model sharing and turn taking	◯	◯	◯	◯	◯
I use language to scaffold children's learning	◯	◯	◯	◯	◯
I provide opportunities for peer talk	◯	◯	◯	◯	◯

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18. Do you provide children with opportunities to adopt expert roles amongst their peers?

◯ Not at all　　◯ Sometimes　　◯ Frequently　　◯ Very frequently　　◯ Always

19. Please indicate on the scale the point at which you feel most accurately represents how you foster children's expertise

	Strongly disagree	Disagree	Don't know	Agree	Strongly agree
I ask children to role model specific skills for their peers	◯	◯	◯	◯	◯
I let children decide if they want to be role models for their peers	◯	◯	◯	◯	◯
I intentionally create opportunities for children to direct their learning with their peers	◯	◯	◯	◯	◯
I let children direct their own learning with their peers	◯	◯	◯	◯	◯
I deliberately pair older children with younger children for play	◯	◯	◯	◯	◯
I let children of different ages decide if they want to play together	◯	◯	◯	◯	◯

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Early childhood teacher beliefs about peer learning

Centre influences

20. Does your centre philosophy have a statement about peer learning?

◯ Yes

◯ No

21. Please indicate the definition of peer learning that most closely resembles your centre philosophy

◯ An experienced peer assisting an inexperienced peer in completing a task

◯ Children learning from their peers and from adults within a community of learners

◯ Children learn as they engage in cognitive conflict with their peers

◯ Children working alongside each other who share a common purpose/interest

22. For each statement about centre influences, indicate the best response from the choices below

	No influence	Little influence	Some influence	Often influential	Very influential
My centre philosophy influences my understanding of peer learning	◯	◯	◯	◯	◯
My centre philosophy influences how I support peer learning	◯	◯	◯	◯	◯
My teaching colleagues influence how I support peer learning	◯	◯	◯	◯	◯

Peer learning and Te Whaariki

23. Is Te Whaariki a useful tool for helping you to understand how to support peer learning?

◯ No relevance   ◯ Some relevance   ◯ Extremely relevant

24. Which of the strands within Te Whaariki are most relevant to peer learning?

	No relevance	Little relevance	Some relevance	Very relevant	Extremely relevant
Wellbeing	◯	◯	◯	◯	◯
Belonging	◯	◯	◯	◯	◯
Communication	◯	◯	◯	◯	◯
Exploration	◯	◯	◯	◯	◯
Contribution	◯	◯	◯	◯	◯

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25. Rate your use of the following programme guidelines for supporting peer learning from Te Whaariki

	Never	Occasionally	Often	Very often	Always
Provide opportunities for children to take another's point of view	◯	◯	◯	◯	◯
Provide opportunities for children to empathise with their peers	◯	◯	◯	◯	◯
Provide opportunities for children to see themselves as a help for other children	◯	◯	◯	◯	◯
Provide opportunities for children to discuss or explain their ideas to their peers	◯	◯	◯	◯	◯

Early childhood teacher beliefs about peer learning

Concluding questions

26. Is there anything else you want to say about peer learning in your centre?

27. Any other comments?

Thank you very much for your participation in this survey

MASSEY UNIVERSITY
TE KUNENGA KI PUREHUROA

10 May 2013

Penelope Smith
104 Long Melford Road
PALMERSTON NORTH

Dear Penelope

Re: HEC: Southern B Application — 13/26

> Peer Learning: An investigation of early childhood teachers' beliefs and practices

Thank you for your letter dated 8 May 2013.

On behalf of the Massey University Human Ethics Committee: Southern B I am pleased to advise you that the ethics of your application are now approved. Approval is for three years. If
this project has not been completed within three years from the date of this letter, reapproval must be requested.

If the nature, content, location, procedures or personnel of your approved application change, please advise the Secretary of the Committee.

Yours sincerely

Dr Nathan Matthews, Chair
Massey University Human Ethics Committee: Southern B

cc Prof Claire McLachlan   Dr Alison Arrow
   Institute of Education   Institute of Education
   PN500   PN500

Mrs Roseanne MacGillivray
Institute of Education
PN500

Prof Sally Hansen, Interim Director
Institute of Education
PN500

Peer learning: An investigation of early childhood teachers' beliefs and practices

INFORMATION SHEET FOR TEACHERS

Researchers' Introduction

My name is Penny Smith and I am conducting research in early childhood centres to understand more about what teachers know about how children work together with their peers to explore new ideas and challenge each other's thinking. I have previously lectured in the early years team at Massey University College of Education and I am passionate about the learning that happens in the early years. This research is for my doctoral study through Massey University. This project will be supervised by Professor Claire McLachlan and Dr Alison Arrow. Both Claire and Alison have extensive experience and expertise in conducting research in early childhood settings.

Project Description and Invitation

The aims of the project are to investigate teachers' beliefs about peer learning and to discover how these beliefs are enacted in their practice. I aim to explore teachers' understandings of their role in peer learning and to investigate how teachers promote and support opportunities for collaborative endeavour in an early childhood setting. I invite your involvement with this project.

Participant Identification and Recruitment

I am writing to early childhood centres where there are many opportunities for children to engage in sustained play (rather than a curriculum focused around teacher led routines) so teachers' practice can be observed relatively uninterrupted. I will only be visiting three early childhood centres and interviewing a small number of teachers who are qualified at each centre to keep the project manageable. I will interview those qualified teachers who express an interest in the research. I will work within the context of each centre, negotiating with the team about whom I will interview. There is no direct payment for participation in this project, however at the conclusion of the research I will share my findings with the teaching team and a copy of the findings will be given to the centre. I do not forsee that there are any potential risks to the centre from the research and it is hoped that the knowledge gained will add to our understanding of how teachers promote and support peer learning.

Project Procedures

The research involves:

- An initial information sharing session with the teachers to outline the aims of the research and to answer any questions which the staff may have
- Two initial two hour visits to your centre in which I will familiarise myself with the teachers, children and the centre routines. This will also be an opportunity for informal conversations with staff who may have further questions.

- One hour interviews with a small number of teachers in your team. These interviews will explore the teachers' beliefs about peer learning and how they see their role in promoting and supporting children to work together with their peers.
- Five two hour visits where I will carry out full observations using a video camera to record teachers' practice related specifically to peer learning. I will focus the observations on the teachers I have previously interviewed. The purpose of these observations is to gather data related to the specific strategies which teachers use to support children's collaborative endeavour. While conducting the observations, I hope not to influence teachers' practice but to observe it as it happens. Once I have parental consent, I will know who the children are that I do not have consent to film and I will avoid filming these children. If recording of these children occurs inadvertently then I will wipe this footage from the portable recording device.
- A follow up interview of no more than one hour with the same teachers previously interviewed and observed. The purpose of these interviews will be to share video clips with the teachers using this footage to stimulate recall of their practice related to peer learning. These second interviews will be useful for exploring the connections between the teachers' understandings of peer learning and their teaching practice.
- A report back session where I will share my findings and invite comment on these. The findings will then be analysed and used to develop a survey which will validate the results of the interviews and observations. A final summary of the findings will be given to the centre at the conclusion of my research.

What will be asked of teachers?

Requests of the teachers may include time for the following activities:

- Reading information about the research and signing consent
- Attending an initial information sharing session
- Passing on information sheets and permission forms to parents
- Communication via phone or email (your preferred method) regarding details of visits to your centre. This contact would continue over the course of the data collection phase
  Possible participation in two interviews about beliefs and practices in the area of peer learning. The interviews will be undertaken at times which will be negotiated with you and centre management. The interviews may take place during non-contact time or outside of work hours.
- Possible participation in a series of observations related to their role in supporting peer learning
- Attend a reporting back session to view and comment on the results before they are written up in their final form

It is expected that these required activities would take about fourteen hours in total.

What will be asked of parents?

- Reading information about the project and signing consent for their child to be possibly filmed during the observations

Data Management

I want to use the data from the initial interviews with teachers to identify teachers' commonly held beliefs about peer learning. I want to find out how teachers form beliefs about children's learning and to explore teachers' understandings of their role in supporting opportunities for children to work together. These initial interviews will provide an opportunity for teachers to explain their beliefs about peer learning and to talk about how they enact these beliefs in their day to day practice.

The observations of teachers' practice will provide an opportunity for gathering data which identifies the specific strategies used by teachers to support and extend children's collaborative play with their peers. This particular data will be useful for illuminating the role of the teacher in children's joint play.

The data from the follow up interviews will be useful for exploring the possible relationships between teachers' beliefs and teachers' practice in relation to peer learning. The video clips of particular play episodes will stimulate teachers' recall of their practice and will be used to explore their reflections on various aspects of their practice related to promoting and supporting peer learning. At the conclusion of the project, I will give each centre a copy of the final report.

No identifying information such as the name of the centre or the children and teachers will be used in the final report. The video footage will only be used as interview prompts with the teachers; the footage will not be used in any publications, will not go beyond the early childhood centre and will not be used in any other way other than for the purposes of analysis. During the project, electronic files will be kept on a dedicated memory stick and kept safe by me. After five years, the records will be shredded and electronic files deleted.

Participant's Rights

You are under no obligation to accept this invitation.   If you decide to participate, you have the right to:

- decline to answer any particular question;
- withdraw from the study up until the data is collected and being analysed;
- ask any questions about the study at any time during participation;
- provide information on the understanding that your name will not be used unless you give permission to the researcher;
- be given access to a summary of the project findings when it is concluded;
- ask for the recorder to be turned off at any time during the interview;
- ask for the video camera to be turned off at any time during the observations

Project Contacts

Please do not hesitate to contact me or one of my supervisors at any time you have questions about the project. Our contact details are as follows:

Penny Smith

Phone (06) 3551418

Email: p.j.smith@massey.ac.nz

Professor Claire McLachlan

Professor, Childhood Education

School of Arts, Development and Health Education

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Email: a.w.arrow@massey.ac.nz

Peer learning: An investigation of early childhood teachers' beliefs and practices

CONSENT FORM – PARENTS

This consent form will be held for a period of five (5) years

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I agree/do not agree to my child being filmed and understand that my child will also be asked for their assent.

I understand that the video footage will only be used for the purposes of this research and that the video data will be kept confidential.

Signature: ……………………………………………………………………………………… **Date:** …………………………………………

Full Name - printed ………

Relationship to child: ……………………………………………………………………………..........

Child's name: ……………………………………………………………………………………….

Peer learning: An investigation of early childhood teachers' beliefs and practices

EMAIL INVITATION FOR SURVEY PARTICIPANTS

My name is Penny Smith and I am a PhD student at Massey University. I would like to invite you to participate in an online questionnaire about your beliefs relating to how young children learn from their peers. I would really appreciate your contribution to this research as it is hoped that the knowledge gained will add to our understanding of how teachers promote and support peer learning.

Please find attached an information sheet which outlines the nature of this research, as well as your rights as a participant.

If you wish to complete the survey please click on the following link………..

The survey will be open from …….. to ………..

Many thanks for your contribution

Kind regards

Penny

Peer learning: An investigation of early childhood teachers' beliefs and practices

INFORMATION SHEET FOR SURVEY PARTICIPANTS

Researcher(s) Introduction

My name is Penny Smith and I am a PhD student at Massey University, currently undertaking my doctoral research. I am conducting research in early childhood centres to understand more about what teachers know about how children work together with their peers to explore new ideas and challenge each other's thinking. This research is being supervised by Professor Claire McLachlan and Dr Alison Arrow; both of whom have extensive experience and expertise in conducting research in early childhood settings.

Project Description and Invitation

The aims of the project are to investigate teachers' beliefs about peer learning and to discover how these beliefs are enacted in their practice. I aim to explore teachers' understandings of their role in peer learning and to investigate how teachers promote and support opportunities for collaborative endeavour in an early childhood setting. I invite your involvement with this project.

This research is being conducted in two phases:

- Phase one: Case studies in three early childhood centres. The case studies comprise of interviews with a small number of teachers in each centre and observations of their practice.

- Phase two: Online survey for early childhood teachers across New Zealand.

I ask for your contribution to the online questionnaire component of this research (phase two) as I am investigating early childhood teachers commonly held beliefs about peer learning. I have chosen a survey to allow the opportunity to gather a breadth of data from a large number of teachers to gain as full an understanding as possible of teachers' beliefs and understandings of peer learning in early childhood settings.

Participation in this component of the research will involve completing an online questionnaire. It is expected that this questionnaire will take approximately twenty minutes to complete. This online survey is entirely anonymous and you are not required to provide any identifying information in relation to yourself or the early childhood centre where you teach.

All data gathered for this project will be kept in a secure, confidential place and only used for the purposes of the doctoral research and the publications that arise from this. Confidentiality and anonymity of individual participants will be maintained, with pseudonyms used throughout any documentation and any

identifying factors excluded. A summary of findings will be provided to each case study centre at the completion of the doctoral research.

Please note that you are under no obligation to accept this invitation. If you decide to participate, please be aware that completion and return of the questionnaire implies consent. You have the right to decline to answer any particular question. As the questionnaire is anonymous, it is not possible for individual responses to be withdrawn from the study once the questionnaire is submitted.

Please do not hesitate to contact me or one of my supervisors at any time you have questions about the project. Our contact details are as follows:

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Peer learning: An investigation of early childhood teachers' beliefs and practices

AUTHORITY FOR THE RELEASE OF TRANSCRIPTS

I confirm that I have had the opportunity to read and amend the transcript of the interviews conducted with me.

I agree that the edited transcript and extracts from this may be used in reports and publications arising from the research.

Signature: .... **Date:** ....

Full Name - printed ....