Exploring contradictions in physical activity understanding, practice and opportunities between the home and the ECE settings

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Declaration or Signed Statement of Authorship and Sources

This thesis contains no material that has been extracted in whole or in part from a thesis that I have submitted towards the award of any other degree or diploma in any other tertiary institution.

No other person's work has been used without due acknowledgment in the main text of the thesis.

All research procedures reported in the thesis received the approval of the relevant Ethics/Safety Committees (where required).

The assistance provided in the preparation of this thesis is that it has been professionally proof-read and formatted.

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Firstly, I would like to acknowledge the parents and teachers who participated in my study and gave up their time to allow me to explore their understandings of everyday physical activity between the home and ECE setting.

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Abstract

With an increasing number of children attending early childhood education (ECE) settings full-time due to parent work commitments, the question of who is responsible for children's physical activity is crucial. This thesis raises the concern that, as the responsibility for young children's care shifts from the home to being shared between the home and the ECE settings, who is responsible for ensuring children are involved in regularly physical activity. What if parents are reliant on the ECE setting to provide their children's physical activity experiences, yet the ECE setting believes physical activity occurs regularly in the home setting. Who is providing physical activity for young children? Hence, this thesis explores physical activity understanding, practice and opportunities between the home and ECE settings.

This thesis uses the notion of contradictions as a framework to describe contradictions and tensions in physical activity understanding, practice and opportunity that are evident between the home and the ECE activity system. Contradictions are positioned within activity theory (Leont'ev, 1978; Engeström, 1987) as the basis for theoretical analysis. In this thesis, the home and ECE settings are viewed as the unit of analysis in which contradictions are identified.

The research demonstrates that parents and teachers in this study do not hold the same understanding as each other in terms of what physical activity looks like in the 'other' setting. This thesis found minimal evidence of physical activity ECE assessment documentation occurring between the home and ECE settings. It is argued that lack of assessment documentation of children's physical activity can lead to contradictions in understanding, practice and opportunities between the home and the ECE settings. Added to this, the study found that if parents or teachers are not aware of these contradictions in physical activity understanding, practice and opportunities, they could become institutionalised between the home and the ECE settings.

In a period when increased obesity and sedentary activity due to screen use is rising worldwide amongst children, the advance in knowledge this thesis provides will add to the current limited research exploring physical activity between the home and the ECE settings. By drawing on expansive learning theory (Engeström, 2001; Engeström and Sannino, 2011), this thesis goes one step further than identifying and analysing contradictions and provides a tool for innovation and change.

A *physical activity expansive learning framework* is introduced as an intervention review process that teachers can use to evaluate current physical activity understanding, practice and opportunities between the home and ECE settings. Within the physical activity expansive learning framework, assessment documentation practices are explored as an opportunity for increasing physical activity communication between the home and ECE settings.

The physical activity expansive learning framework provides the potential for development and transformation of physical activity between the home and ECE settings. It is suggested that if ECE teachers use the physical activity expansive learning framework as a regular review tool, it has the potential to increase young children's level of engagement in enriched physical activity experiences between the home and ECE settings.

Chapter One: Introduction and background

1.1: Introduction

This chapter establishes a coherent and logical framework for this study into physical activity between the home and the early childhood education (ECE) settings. The chapter states the research problem and research questions in terms of contradictions in physical activity understanding, practice and opportunities between the home and ECE settings. A discussion of related research aims, and overall supporting objectives supports the development of the research questions. An independent critique of other relevant research will be introduced relating to the field of study of physical activity for very young children within the home setting and the ECE settings. A brief overview is provided as to how this thesis is positioned within the context of current physical activity knowledge.

With children spending increased time in ECE settings, that is, an average of 15 hours per week in 2002 to 21.5 hours in 2018 (Statistics, New Zealand) it is essential that we understand how physically active they are within this time. Added to this, children are not just attending for longer, but more children are attending. In 2017 more two and three-year-old aged children were in some form of formal early childhood education in New Zealand than in 2009 (Statistics, New Zealand). The rise has grown from just over half (54 percent) of preschool children attending ECE in 2009, to two-thirds (64 percent) in 2017. These statistics demonstrate the growing need for research into physical activity in the ECE setting.

Children's physical dependence on adults is more intense during early childhood than at any other time. Therefore, parents and teachers need to understand what opportunities for physical activity engagement their child is involved in between the home and ECE settings. Without informed knowledge, parents and teachers run the risk of assuming opportunities are occurring in the other context, when in fact, they may not be. This research aims to explore contradictions in physical activity understanding, practice and opportunity between the home and ECE settings. This introductory chapter provides the background information as to why it is essential to explore parent and teacher understanding, practice and opportunity for physical activity between the home and ECE settings.

The chapter will begin with a discussion highlighting current physical activity recommendations for children under five years of age. The discussion will focus on the

increasing obesity concern related to young children. The chapter will finish by introducing gaps in the research that will be explored further in the literature review.

1.2: Background

1.2.1: Current understanding of physical activity literature

The New Zealand Annual ECE Data Summary Report 2015 (Ministry of Education, 2015) describes an increase in the number of children attending ECE settings for longer periods of time. The increase is partly due to a growing need for parents to work full-time to meet the commitments of maintaining a family home. It therefore becomes important for parents to find the right ECE setting for their needs. This thesis argues that due to the increase of full-time children in ECE settings, it is important to ascertain who exactly is responsible for children's physical activity. Is the home solely responsible? Is the ECE setting responsible due to the length of time children attend? Are both the home and the ECE settings responsible? These questions are important because literature suggests children are not sufficiently active in early childhood settings (McLachlan, 2016; Dowda, Russell, Trost, Almeida, & Sirard, 2004).

Literature shows that a growing number of children spend major parts of their day in early childhood settings, however, they are primarily involved in a high amount of sedentary activities (Copeland, Sherman, Kendeigh, Kalkwarf, & Saelens, 2012; Cliff & Janssen, 2011; Trost, 2011; McWilliams, Ball, Benjamin, Hales, Vaughn, & Ward, 2009). The literature chapter will expand on further research demonstrating limited physical activity in ECE settings.

1.2.2: Physical activity recommendations – guiding understanding and practice

Literature plays a key role in developing an evolving understanding of recommendations and guidance related to physical activity practice and opportunities. During the period that this research study has been carried out, there have been significant changes to guidelines for physical activity for children under five years of age, from a New Zealand perspective. When this study began, there were limited New Zealand guidelines in terms of physical activity for children under five years of age, and it was to American and Australian guidelines that the literature review needed to be steered to find any form of guidance. Physical activity guidelines from the United States (National Association for Sport and Physical Education, 2002) suggested that children should be involved in at least 60 minutes of structured and up to three hours of unstructured physical activity, spread throughout the day.

One reason that children may not be receiving 60 minutes of structured and up to three hours of unstructured physical activity daily might be the limited guidance New Zealand ECE parents and teachers had previously been provided. The New Zealand Ministry of Health guidance previously merely said that children under five years of age should move everyday.

It is encouraging to see that in 2017 the New Zealand Ministry of Health produced physical activity guidelines for children under five years of age, titled: *Sit Less, Move More, Sleep Well: Active play guidelines for under-fives* (Ministry of Health, 2017). Clear links can be seen between the title of the NZ Ministry of Health information for under-five year old children and their Australian counterparts. The Australian Department of Health website issued updated guidelines for physical activity for children under five. In a similar manner to New Zealand, the Australian guidelines recommend that children need to move more, be less sedentary and sleep well. Due to a lack of other New Zealand related physical activity guidance the Australian information on physical activity for under-fives serves to reaffirm the importance of the need for children to sit less, move more and sleep well.

The Australian and New Zealand physical activity guidelines draw from the United Nations Convention on the Rights of the Child, which recognises the importance of children sitting less, moving more and sleeping well. The physical activity guidelines from Australia and New Zealand also draw on the World Health Organisation (WHO). A WHO (2016) report discusses the importance of guidance to children and adults about body size, physical activity, sleep behaviours and appropriate use of screen-based entertainment. The report also states that physical activity needs to be part of children's daily routines and curricula in ECE settings.

Within the New Zealand Ministry of Health guidelines (Ministry of Health, 2017), active play is viewed as an essential element to both the health, and future well-being of children. These factors are said to be necessary for young children's holistic physical, mental, emotional and social well-being. The Australian Health Department's guidelines encourage children to be involved in physical activities within a variety of environments, including their home, the early childhood setting and in the community. Like the New Zealand recommendations (Ministry of Health, 2017), children in the Australian guidelines are also encouraged to be involved in individual as well as group physical movement experiences between the home and the ECE settings.

Concerning *sitting less*, the Ministry of Health (2017) guidelines recommend that a child has regular activity breaks, and the length of time they are sitting in equipment that restricts movement (for example, high-chairs, strollers) is limited. Concerning *screen time*, the recommendations suggest no screen time for under-two-year-olds and only a total of an hour for children over two (at the most). The Australian Government Health Department 'Guidelines for Healthy Growth and Development for your Child' (Australian Health Department, n.d.) make specific mention of how much physical activity is required to be physically active, that is, several times a day and in a variety of ways. Toddlers are encouraged to be involved in a variety of light-to-vigorous physical activities for at least 3 hours spread throughout a day, such as being active in the outside environment. Pre-schoolers are also recommended to have 3 hours of a variety of unstructured (for example, playing freely outside) and structured (for example, organised) physical activity spread over the day with an additional suggestion that they are involved in at least 60 minutes of that time being active play. The Australian Health Department (n.d.) discuss that infants, toddlers, and pre-schoolers should have limited amounts of time that they are restrained for more than an hour at a time. No screen time for under two-year-old aged children is recommended, and no more than 1 hour per day for children over two-year years of age, with less being better.

The Ministry of Health (2017) also recommends children have activities they will enjoy that support physical, social, emotional and spiritual development of at least 3 hours over the day. Individual and collaborative movement is encouraged where children gain competence and confidence, resilience, creativity and exploration both indoors and outside.

1.2.3: Understanding obesity as a concern

One of the reasons that health guidelines for under-five-year-old children have needed to become more specific over the last few years is in response to a steady increase in childhood obesity statistics. The World Health Organisation (WHO, 2016) says that childhood obesity is one of the most severe public health challenges of the 21st century, with an estimated 42 million children under the age of five being overweight or obese (WHO, 2016). Children's food preferences are established very early on; therefore parents need to be concerned about the amount of high-fat, high-sugar and high-salt foods their children are eating as this will act as a key habit-forming contributor to childhood obesity (WHO, 2016). Physical activity is seen as a key response to the reduction of obesity in children.

Obesity is a significant area of concern for young children's physical learning and development in New Zealand. Child health statistics in New Zealand point to nearly one-third of school-aged children as being either overweight or obese (Ministry of Health, 2002). For this reason, it is essential that more research is undertaken to explore parent and teacher understanding and practice related to physical activity experiences children are involved in between the home and ECE settings.

The Australian Child Health Poll (Rhodes, 2017) states that one-third of preschool-aged children now own their own tablet or smartphone, and 50 per cent of toddlers and preschoolers are using their screen-based device without adult supervision. As children are growing up in an increasingly digitalised world it becomes difficult to offer physical activity as a healthy play option (WHO, 2016). The impact that childhood obesity has is relevant for children during childhood and in their future as an adult.

With children at increased risk of obesity, the early years are an important time for establishing healthy physical activity habits. It is important that the adults in children's lives are aware about children's opportunities for physical activity. As noted earlier in this chapter, with more children attending ECE settings, the term 'adults' involves both parents and teachers. Therefore, it is imperative for this study that parent and teacher understanding of physical activity in the home and ECE settings are explored. O'Dwyer, Fairclough, Knowles, and Stratton (2013) discuss how the 'early years are an ideal window to promote physical activity, as motor development at this life stage is more malleable than in later childhood and adolescence, and risk factors for being overweight can be more easily modified' (p. 2). For this reason, it is essential that research is undertaken to explore parent and teacher understanding of physical activity between the home and ECE settings.

1.2.4: Limited understanding of what physical activity practice occurs in ECE settings

It is crucial at this point, to draw on the literature related to levels of physical activity participation in the ECE setting. Research indicates (Trost, 2011; McWilliams et al., 2009; McLachlan, 2016; Dowda et al., 2004; Copeland et al., 2012) that there is little knowledge concerning what type of everyday physical experiences are occurring in ECE settings. The reason there is limited research conducted in ECE settings might be that physical activity for preschool-aged children is not viewed as a necessity, as children are viewed as being naturally fit. Not knowing what physical activity is occurring in ECE settings is of concern when the *Education Policy Outlook: New Zealand* (OECD, 2013) statistics demonstrate that

41 per cent of 0–2-year-old and 87 per cent of 3–4 year-old children attend some form of formal ECE in New Zealand. It is of concern that at a stage when children's physical dependence on adults is at its peak that there is limited knowledge of children's engagement in physical activity in the ECE setting.

It will be seen in the literature review chapter that understanding, practice and opportunity for physical activity between the home and the ECE settings should be explored more broadly. For the purposes of this research a definition of physical activity is stated on page 30 of the literature review and is repeated on page 35.

1.3: Introducing a statement of the problem or 'gap' in the research

Whilst there is some literature reviewing physical activity in the ECE setting, there is a significant gap in literature studying physical activity in the home setting. Considering the high number of children attending ECE settings full time, there is a definite need for research that explores physical activity in both the ECE setting *and* the home. A crucial gap in the literature is parent and teacher understanding of who is responsible for physical activity between the home and the ECE settings. While assessment documentation is viewed as a key tool for describing children's learning and development in the ECE setting, another gap in the literature is that there is limited research exploring the role of assessment documentation concerning physical activity between the home and ECE settings.

1.4: Introducing a theoretical framework for identifying contradictions in physical activity understanding, practice and opportunities

As there are limited theoretical models for exploring physical activity understanding, practice and opportunity between these two settings, this thesis uses the theoretical framework of cultural historical activity theory [CHAT] (Engeström, 1987, 1999) to position the ECE and home setting as the unit of analysis of the research. Therefore, the ECE setting and the home setting are considered different but related activity systems. Broadly, CHAT (Engeström, 1987, 1999) defines activity settings as units of analyses. The detail behind the theoretical underpinning of the ECE and home settings as the units of analyses is explained in Chapter Three. The site for this study was two not for profit early childhood centres and the homes of four children attending the services (2 children per service). Further details relating to details of the study sites (including participants and settings) are explained in Chapter Four, pages 89-92.

CHAT (Engeström, 1987, 1999) also uses the concept of contradictions, which is likewise detailed in Chapter Three. 'Contradictions' refers to tensions within and between *elements* of the activity systems. In the case of this research, the contradictions are within and between the elements of the home and the ECE activity systems.

1.5: Purpose of the research

The purpose of this thesis is to determine contradictions in parent and teachers understanding, practice and opportunities for physical activity between the home and ECE settings. One area that needs to be explored within this research study is *who* parents and teachers believe is responsible for physical activity practices between the home and the ECE settings. While it is important to identify similarities in understanding, practices and opportunity between the home and the ECE settings, for this thesis it is the *contradictions* that are of interest.

If parents and teachers come from an informed place, they can make sound decisions about how to counterbalance the level of required physical activity in the home or ECE settings. One ECE tool that has the potential to highlight physical activity practices and promote further opportunity between the home and the ECE settings is assessment documentation of children's learning. For this study, the terminology of assessment documentation refers to the writing of Learning Stories (Carr, 2001) as a planning tool that is carried out by the ECE setting.

1.6: Research questions

Having identified the gaps in literature, there are three research questions that guide this thesis study. The three questions move through the process of identifying contradictions in *understanding*, the effect that physical activity contradictions have on *practice*, and identifying how increased *opportunities* for physical activity can occur.

Firstly, it is essential to identify:

1. *What are the contradictions in parent and teacher understanding of physical activity between the home and the ECE settings?*

Secondly, having ascertained what the contradictions are between the home and the ECE activity systems, the next aspect to the research is to analyse:

2. *How do contradictions in understanding of physical activity influence practices in the home and ECE settings?*

This thesis is not just about identifying and analysing contradictions in physical activity understanding and practice between the home and ECE settings, it is also about considering:

3. *What teacher practices would strengthen opportunities for physical activity between the home and ECE settings?*

1.7: Thesis structure

Chapter Two is the review of literature that explores physical activity between the home and the ECE settings. Continued links to the literature build on the notion that there is insufficient physical activity in ECE settings for building children's health outcomes and contributing to a reduction in childhood obesity. The literature review is framed from the perspective of physical activity understanding, practice and opportunity.

Chapter Three presents the theoretical framework that shapes the analysis of the study. An examination of the three generations of activity theory (Vygotsky, 1978; Leont'ev, 1978; Engeström, 1987, 1999) describes the notion of the unit of analysis. Consequently, the home and the ECE settings highlight two co-evolving activity systems. As the three generations of activity theory are described, clear links are made to the theoretical underpinnings of *understanding, practice* and *opportunity*. The complex and dynamic nature of interaction between the home and ECE activity systems is explored in this third chapter. A contradictions-based approach (Engeström, 1987, 1999) provides a framework for analysing the contradictions in understanding, practice and opportunity between the home and ECE settings. Engeström's (1987, 1999) four types of contradiction (primary, secondary, tertiary and quaternary) frame the contradictions analysis.

In Chapter Four the methodology is provided that underpins the research study. The framing of understanding, practice and opportunity continues through the methodology chapter. A qualitative methodology underpins how this thesis approach is *understood*. The research design describes the *practice* of carrying out the research. The research consists of two data collection phases. Semi-structured parent and teacher interviews, physical activity template and photographs formed the basis of Phase One, and un-structured parent and teacher interviews, and teachers ECE assessment documentation in the form of Learning Stories (Carr, 2001) formed the basis of Phase Two data collection. [NB: Learning Stories are a type

of assessment documentation used in ECE]. Links are made between assessment documentation as a method of data collection and Engeström's (1987, 1999) expansive learning approach. The methodology of this thesis is not just a process of recording findings but also a process of offering *opportunities* for development.

Chapters Five to Eight form the four 'findings' chapters. Each of the findings chapters consists of a framework. Firstly, the data is provided and linked to the literature. Secondly the data is analysed from a theoretical perspective. Finally, it is stated how the chapter contributes towards closing the previously identified gaps in knowledge.

Chapter Five picks up on the notion of contradictions in parent and teacher understanding of physical activity between the home and ECE settings. The overall query as to who parents and teachers understand to be responsible for physical activity between the home and the ECE settings is explored. This chapter discusses parents' high trust, un-evidenced understanding in the ECE setting providing for physical activity experiences. It then draws on activity theory to provide a theoretical understanding of who is responsible for physical activity. Chapter Five begins to provide knowledge on who parents and teachers understand to be responsible for physical activity between the home and the ECE activity systems. This chapter establishes the understanding that the responsibility for physical activity defaults to the ECE setting due to the number of hours of children's attendance.

Chapter Six explores parent and teachers' understanding of how physical activity is defined. The chapter also explores the physical activity practices teachers believe occur in the home setting. An activity theory perspective is also provided as to how physical activity is defined. The second section of Chapter Six describes how the ECE activity system understands everyday physical activity practice in the home setting. A theoretical activity theory understanding is provided for how teachers view physical activity in the home setting. The end of Chapter Six closes the gap concerning how parents and teachers understand physical activity is defined and the physical activity practices that teachers believe occur in the home setting.

Chapter Seven starts to bring practice and opportunity together as it explores what role assessment documentation plays as a practice in providing physical activity opportunities between the home and ECE settings. The role that documentation plays concerning physical learning and development is then theorised from an activity theory understanding. The end

of Chapter Seven creates knowledge as how assessment documentation can be a tool for providing for physical activity opportunities between the home and ECE settings.

Chapter Eight concerns an inquiry into excursion rules from an ECE perspective and how they can be seen to limit physical activity within the ECE setting. It provides an example of how new teachers' knowledge relating to excursion rules can mediate tension and act as a provocation for opportunities for development and change in practice. The chapter looks at current understanding in terms of excursion ratios and how this links to physical activity, and then describes how new understanding can mediate tension in physical activity practice and act as an opportunity for transformation and development. Engeström's (1987) four types of contradictions are explicitly discussed concerning excursions as a physical activity.

Chapter Nine progresses from describing to analysing contradictions in physical activity understanding, practice and opportunity. The chapter then analyses potential contradictions in physical activity. It is at this point that the discussion describes that this research is more than reporting on the contradictions, but also offers a physical activity expansive learning framework as an opportunity for development and transformation of physical activity. Links are made between Engeström's (1987, 1999, 2001) expansive learning stages and the assessment documentation terminology of 'noticing, recognising, responding, reporting and revisiting' (Cowie, 2000; Carr, 2001; Ministry of Education, 2004). This second section of Chapter Nine promotes assessment documentation as increasing opportunities for physical activity communication between the home and the ECE settings.

Chapter Ten draws together the discussion on understanding, practice and opportunity. Key contributions are discussed in terms of understanding, practice and opportunity for young children's physical activity between the home and ECE settings. Limitations of the scope of the research are described. Implications for parent and teacher understanding, practice and opportunity for physical activity are highlighted.

1.8: Chapter summary

Having briefly introduced the structure of this thesis, this chapter has set the scene for exploring the literature, presenting the findings and discussion on the following key aspects of the study. The key area this study will explore are: how parents and teachers define children's everyday physical experiences in the home and ECE settings; who parents and teachers view as being responsible for young children's physical learning; what role

assessment and documentation play in relation to communicating children's everyday physical experiences within and between the home and the ECE settings; and what role the notions of intentional teaching and domain knowledge might play in enhancing teacher confidence in assessing everyday physical experiences between the home and ECE settings. The potential for assessment documentation to act as a tool for informing parents and teachers of physical activity understanding, practices and opportunity will also be explored. As well as identifying contradictions, this thesis will demonstrate how a physical activity expansive learning framework has the potential to act as a tool for physical activity development and transformation between the home and ECE settings.

Chapter Two: A literature review of physical activity understanding, practice and opportunity between the home and ECE settings

2.1: Introduction

This literature review chapter provides an analysis of the related literature in the field of physical activity for children under five years of age. The critical review of relevant physical activity literature will identify current gaps in knowledge in parent and teacher physical activity understanding, practice and opportunities between the home and ECE settings. The relationship between the literature and proposed thesis will be articulated. This chapter focuses on the literature central to the under-researched area of physical activity for children under five years of age between the home and the ECE settings. More specifically, the literature explores physical activity understanding, practices and opportunities between their homes and the ECE settings they attend. The purpose of this chapter is to provide an account of the existing knowledge linked to physical activity understanding, practices and opportunity for preschool-aged children between the home and the ECE settings. The literature review will identify the gaps in knowledge relating to physical learning for children under five years of age.

The structure of this literature review starts with a section describing the literature collection process. The literature is then ordered into three overarching themes that build from the general to the specific knowledge of physical activity understanding, practice and opportunity between the home and ECE settings.

The first overarching theme explores how physical activity for children under five years of age is *understood*. To gain clarity on how physical activity is understood, a working definition of how physical activity is developed from the literature and offered to the reader. Physical activity guidelines are then referred to developing understanding of physical activity further from a guidance perspective.

The second overarching theme in the literature review is how physical activity for children under five years of age is *practiced*. It becomes evident in this section of the review that the physical activity practices that currently occur in the ECE setting do not meet the physical activity requirements and recommendations as highlighted in the first theme of the review. It will become evident that very limited research is available in the home setting about how

physical activity is practiced. Therefore, the review has to refer to turns to the thoughts of teachers who discussed their views of physical activity in the home setting.

The third overarching theme in the literature review is *opportunities* for strengthening physical activity for children between the home and ECE settings. It is in this final theme that assessment documentation practices between the home and the ECE settings are viewed as an important physical activity communication source for parents and teachers. However, tensions exist in the area of assessment documentation in New Zealand ECE settings. A lack of teacher confidence in identifying physical activity is clearly stated in the literature. The literature review demonstrates how tensions are compounded further when physical activity practices are not communicated between the home and the ECE settings. The later part of this third and final theme draws on possibilities for strengthening physical activity opportunities between the home and ECE settings by linking to the updated New Zealand early childhood education curriculum document *Te Whāriki: He Whāriki Mātauranga mō ngā Mokopuna o Aotearoa: Early Childhood Education* [*Te Whāriki*] (Ministry of Education, 2017) and the kaiako responsibilities that are highlighted in it.

In the conclusion, the key themes are drawn on in terms of how they link to contradictions in physical activity understanding, practice and opportunity between the home and the ECE settings. The tensions and gaps in the literature are clearly identified.

2.2: How the literature was collected

This first section demonstrates the methodology that underpins how literature was collected for this review. The criteria were developed by identifying keywords and terms that related to the four key areas of literature (Hewitt, 2009). This process allowed for a broader search of the literature to occur. If these keywords proved unsuccessful parts of the keywords were revisited and new terms were identified in relation to the research question (Hewitt, 2009).

A review of the literature was undertaken that linked to the research questions. Initially, at the beginning of the literature review process, it was important to break the three research questions into key areas for the review of the literature. After identifying these four key areas in relation to the research question, a list of criteria was formulated which helped identify the required literature (Siddaway, 2014).

It will be demonstrated in this section how the three overarching themes of: 1) How physical activity for children under five years of age is understood; 2) How physical activity for

children under five years of age is practised, and 3) Opportunities for strengthening physical activity for children between the home and ECE settings, link to self-generated themes from reading the literature.

The initial literature search included the criteria (as listed below). It can also be seen that at this initial stage the self-generated themes are evident.

- **How is physical activity defined?** *(How physical activity for children under five years of age is understood?)*

- **What physical activities experiences look like within the home setting?** *(How physical activity for children under five years of age is practiced?)*

- **What physical activity experiences look like within the ECE setting?** *(How physical activity for children under five years of age is practiced?)*

- **How physical activity experiences are assessed?** *(Opportunities for strengthening physical activity for children between the home and ECE settings)*

Key search words included: physical activity; defining physical activity; physical activity for children under five years of age; physical activities experiences; physical activity in the home setting; physical activity in the ECE setting; physical activity practices; physical wellbeing; assessing physical activity; strengthening physical activity.

Both scholarly and policy documents were canvassed in the review of the literature on physical activity between the home and ECE setting. The literature search included material from various disciplines, notably education, early childhood, sport science, as well as from governmental and non-governmental reports.

If there was a need to search literature that was not current (i.e. within the last ten years of the author searching the literature) it was ensured that the studies contained original research data and were peer-reviewed.

The Australian Catholic University library and New Zealand Open Polytechnic library search bases were used as the main two library sources for searching literature. The search started by using education-based search engines. The initial search for ‘physical activity in ECE’ did not yield a high number of relevant sources that linked to the research question. Using the term ‘physical wellbeing’ (a physical activity related term used in early childhood education) yielded even less literature. The limited literature in *physical activity* or *physical*

wellbeing in early childhood education was an early indication that this thesis topic was delving into an area of *new knowledge*.

As the library searches were not yielding a high number of related literature open source searches (for example using Google) started to produce a plethora of medical-related literature, as physical activity was being linked to obesity as a health (rather than education) related issue. Due to the lack of empirical literature on physical activity in ECE almost as many medical journals were searched as ECE and education related sources (see below):

ECE and Education related sources
European Early Childhood Education Research Journal
Centre of Excellence for Early Childhood Development.
Journal of Early Childhood Research
Australasian Journal of Early Childhood
Play
Early Education
Early Child Development and Care
Encyclopedia on Early Childhood Development [online]
Early Childhood Research Quarterly
Early Childhood Education Journal
Journal of Adventure Education and Outdoor Learning
National Association for Sport and Physical Education Publications.
Health Education Research
The Elementary School Journal

The education-based online search engines that were utilised included (but was not limited to) ProQuest, ERIC (Online Ebsco), SAGE, Education Source, Research Starters, and Google Scholar. At times Google was used to initiate a review and from there the full report would be sought from more reputable academic search engines.

The types of literature included in this review are mainly primary source (empirical) research studies (Pasek, 2012). Secondary literature, such as reports, also needed to be used due to the limited research on physical activity between the home and the ECE settings. It was essential that the report-based literature that was sourced consisted of sound interpretations and evaluations derived from the primary source literature (Pasek, 2012). Secondary source literature was only used if peer-reviewed.

Due to the length of time that it takes to carry out PhD research the literature needed to be revisited near the end to ensure that current material was being used, especially related to

physical activity guidelines. The updated New Zealand ECE curriculum *Te Whāriki* (Ministry of Education 1996, 2017) was also a source for this review due to its link to teaching responsibilities.

Having described the process as to how literature was sourced, the remaining sections of the review identify the literary themes and end by highlighting gaps in research of physical activity between the home and the ECE settings.

2.3: How physical activity for children under five years of age is understood

In this first theme it is important to ascertain from the literature how physical activity is understood. As the meaning of physical activity is defined, it firstly makes links to how physical activity is understood more broadly through the literature. The focus then becomes more defined as it explores the holistic nature of physical activity as viewed from an ECE perspective. Links are also made to physical activity for children under five years of age, from the perspective of physical activity guidelines.

A definition of physical activity is provided (as below) that has been developed from the review of literature. The newly developed definition of physical activity for children under five years of age is:

> Physical activity experiences are when children under five years of age are regularly engaged in light, and moderate-to-vigorous intensity physical experiences which are spontaneous and planned and facilitated holistically by adults and children, within the home, ECE setting, and broader community.

2.3.1: A broad understanding of physical activity

The Ministry of Education (2007) discusses how ‘terms such as physical activity can mean different things to different people. It is important that people planning school-based physical activities have a common understanding of the relevant language’ (p. 6). This is not just the case for teachers planning school-based physical activities, but also for those planning ECE and home-related physical activity experiences.

It is important for teachers and parents to share an understanding of what is meant by physical activity. Livingstone, Robson, Wallace, and McKinley (2003) describe physical activity as ‘all locomotor everyday physical experiences, which involve large muscle groups to move the body around and to apply force to objects’ (p. 682).

Brady, Gibb, Henshall, and Lewis (2008) refer to *physically active play* as, 'any physical activity where the child is doing what they want to do for their own reasons' (p. 6). Emberson (2016) refers to physically active play as any play that exerts and exercises the body. If Brady et al. (2008) and Emberson's (2016) definitions were to be combined it would be seem that physically active play is when children exert and exercise their bodies when involved in physical activities of their own choice. Early childhood education has a strong emphasis on self-choice.

The Ministry of Education (2007) describes how children should be provided with opportunities for physical activity so they can use large and small muscles to gain control over their bodies. When this literature review was first compiled there was limited discussion about physical activity on the New Zealand Ministry of Health website (2007). Whilst some links were made on the website to physical activity for children under five, the guidance was very minimal for parents and teachers. The Ministry of Health site discussed the importance of physical activity to promote mental and emotional health as well as children's physical well-being. A number of areas of physical learning were discussed: the development of large muscles, strength and balance; flexibility and coordination including hand-eye coordination; and skills such as throwing, catching, hopping, skipping, climbing and balancing.

Fortunately, the physical activity guidelines for children's physical activity (New Zealand Ministry of Health, 2017; Australian Health Department, n.d) are now more informative. The New Zealand and Australian guidelines indicate that adults have responsibilities to ensure that children have regular activity breaks. Adults need to limit how long children are sitting in equipment that restricts movement, and limit children's screen time. The guidelines also recommend that children need to be involved in physical activities within a variety of environments, including their home, early childhood settings and in the community (New Zealand Ministry of Health, 2017; Australian Health Department, n.d). The reference to children needing to be involved in physical activities within a variety of environments, including the home and the ECE settings, links to the definition of physical activity as developed from this literature.

In providing a definition of physical activity it is important to review the literature on structured and unstructured physical activity experiences. Do parents and teachers have the same understanding around these two terms? Goodway and Robinson (2006) claim that *structured* physical activity is when young children (that is, children five years of age and

under) are assisted by an adult to learn how to develop their gross motor skills. Within this approach, it is viewed that young children need to be taught, given feedback, and offered appropriate opportunities to practise physical activity.

If structured physical activity is seen as being reliant on adult assistance (Goodway & Robinson, 2006) then this has repercussions for children's engagement in physical activity within the ECE setting. If ECE teachers do not see structured physical activity as beneficial for children's learning, they may not be providing these types of experiences for children within the ECE setting. Emberson (2016) found that some teachers in her study observed there were benefits to structured physical activity. Emberson (2016) stated how teachers 'expanded their beliefs in free play to encompass values found in some structured physical activity play activities, which they incorporated into their teaching pedagogies' (p. 269). However, it was only through physical activity intervention practices that Emberson (2016) noticed that a minimum of teachers used some form of structured physical activity. However, whilst physical activity professional development is important, it may not be a resource available for all ECE teachers.

The majority of the teachers in the Emberson (2016) study generally tended to favour offering *unstructured* physical activity play experiences. The free physical play was revealed as the dominant value espoused by teachers in the Emberson (2016) study. Within all five of the Emberson (2016) ECE settings studied, it was evident that there was a teacher understanding that children set their own physical goals and adapted the resources to their needs. Similarly, Brockman, Fox, and Jargo (2011) discuss *unstructured* physical experiences as being when children are freely engaged in physical activities of their choice, which generally occurs in the outdoor environment.

In four of the five ECE settings in the Emberson (2016) study both unstructured and structured physical play were utilised and led to the ultimate outcome of a quality physical programme underpinned by *Te Whāriki* (Ministry of Education, 1996). Through both structured and unstructured everyday physical experience opportunities, children were being supported with a great deal of agency and flexibility in the way they chose to participate or engage in their own physically active play (Emberson, 2016).

Yet still, other terms can be used when relating to physical activity. Brockman, Fox and Jargo (2011) used the term *active play* to describe how children are motivated to engage in physically active play for many reasons, one of these being the recognition that physically

active play is good for the development of their physical skills. Carlson (2011) argues for the importance of *big body play* to encourage children's gross motor physical development. Carlson (2011) discusses how such activities as rolling, running, climbing, chasing, pushing, banging, tagging, falling, and tumbling are examples of big body activities.

Tannock (2011) investigated rough-and-tumble play of children in ECE settings, where an increased understanding of the forms of rough-and-tumble play was developed. Rough-and-tumble play was non-gender specific. Tannock (2011) found that rough-and-tumble play appears to evolve as children develop in age. Children tend to move into quite complex play behaviours as they mature. In her earlier work, Tannock (2009) discussed the importance of teachers providing opportunities for rough-and-tumble play, and for developing strategies to successfully incorporate it into the children's daily play within the ECE setting.

When considering young children's physical activity, it is also important to discuss intensities of physical activity. Cliff and Janssen (2011) describe different levels of physical activity. Firstly, there is *sedentary* physical activity, which includes activities such as sitting, reading, drawing and screen use. Secondly, Cliff and Janssen (2011) describe *light intensity* physical activity, which includes standing and slow walking and using technologies, such as the Wii, for movement. Finally, Cliff and Janssen (2011) describe *moderate-to-vigorous* physical activities, which include running, jumping, and playing ball games. Cliff and Janssen (2011) also discuss how children display these patterns of physical activity intermittently. Children's physical activity consists of cycles of short intense bursts of *moderate-to-vigorous* activity, followed by periods of rest or *lower intensity* physical activity. This thesis draws on Cliff and Janssen's (2011) explanation of the different intensities of physical activity in the developed definition of physical activity.

2.3.2: A holistic understanding of physical activity

As well as this literature review providing an understanding of physical activity, this section focuses on a holistic understanding of physical activity common in New Zealand ECE settings. A holistic approach to learning and development is embedded within *Te Whāriki* (Ministry of Education, 1996, 2017). *Te Whāriki* is the national curriculum for ECE in New Zealand. It is based on the principles of empowerment, holistic development, family and community, and relationships. It would be expected that this same holistic approach to learning would be linked more specifically to physical learning and development.

It can be seen in the New Zealand physical activity guidelines for children under five years of age (Ministry of Health, 2017) that language such as competence, confidence, resilience, creativity, and exploration provide for a holistic approach to physical learning and development. Additionally, the Australian Health Department (n.d.) also links the holistic nature of physical learning to social, emotional and cognitive development.

A holistic approach to physical activity can be understood both from a dispositional as well as a developmental perspective. From a developmental perspective, Hinkley, Crawford, Salmon, Okely, and Hesketh (2008) describe the holistic nature of physical activity as being linked to the child's cognitive, social, and emotional growth and development. The notion of physical activity being viewed holistically is promoted further in the New Zealand Health Strategy (Ministry of Health, 2016b) which links to wider cultural and social health benefits. The holistic approach to health underpins an indigenous Māori worldview that considers the connectedness of physical activity and sleep and how this links to spiritual and mental health development. Physical activity is understood as beneficial for the physical health of the child and the family (Ministry of Health, 2017).

From a societal perspective, it can also be seen that in New Zealand *health equity* is linked to people's ability to earn, and to provide quality housing, childcare, education, and healthy food. From a societal perspective, it can be seen that these social determinants of health directly impact the growing under five-year-old child 'since a child's access to these resources is known to impact their long-term health and wellbeing as an adult' (Ministry of Health, 2017, p. 3).

The Australian and the New Zealand physical activity guidelines demonstrate a strong holistic approach to physical health for children under five years of age. In contrast, international recommendations, such as the Irish health recommendations for children (The National Guidelines on Physical Activity for Ireland, 2009), take a less holistic look at children's physical development and instead make specific links to how much time and to what nature the physical activity itself should look like.

In summary, a holistic approach to physical activity is understood from the perspective of the individual as well as the cultural and societal community within which the individual lives. From an individual perspective, a holistic perspective on physical learning considers the dispositional and developmental perspective of the individual, whereas a broader cultural and societal understanding of the child's physical activity encompasses notions of well-being

and how the child's well-being links to their family and the greater community. Health equity or well-being makes links between the physical health of the providers of the family and the ability for that child to readily access the basic requirements of living. A holistic approach to physical activity means it is the responsibility of everyone to look after the physical well-being of the child. In this thesis, the holistic approach as expressed in *Te Whāriki* (Ministry of Education, 2017) and the New Zealand physical activity guidelines (Ministry of Health, 2017) is important because it suggests both teachers and parents are responsible for the physical activity of young children.

A broad range of literature has supported the development of the definition of physical activity. The definition is repeated at this point to remind the reader of the context in which the term *physical activity* is set for the remainder of the thesis.

> Physical activity experiences are when children under five years of age are regularly engaged in light, and moderate-to-vigorous intensity physical experiences which are spontaneous and planned and facilitated holistically by adults and children, within the home, ECE setting, and broader community.

2.4: How physical activity for children under five years of age is practiced

So far this literature search has provided a definition of how physical activity is *understood*. Physical activity is viewed as a spontaneous unplanned experience that occurs holistically within the home, ECE setting, and the wider cultural and societal community. It has also been discussed from a recommendations perspective that children should be engaging in physical activities *regularly* between the home and ECE settings. In other words, the literature review has demonstrated what is required for children to remain physically active between the home and ECE settings.

2.4.1: Very young children are involved in insufficient physical activity practices in the ECE setting

Within this second theme the literature describes what physical activity practices currently look like for preschool-aged children, both from an ECE and a home perspective. Because there is minimal research undertaken of physical activity in the home setting, the focus of the review is primarily on research studies in ECE settings. Some of the reported information about physical activity in the home setting is from the assumptions of ECE teachers. What the literature is clearly demonstrating is that many young children under the age of five are

participating in insufficient regular light, and moderate-to-vigorous intensity physical activity experiences, facilitated by adults and children, within the home, broader community and ECE setting.

In the introduction chapter it was described that 41 per cent of children up to the age of 2 and 83 per cent of children aged 2–5 attend ECE settings in New Zealand (Ministry of Health, 2013). That is a relatively high percentage of children in the care of ECE settings for extended periods of time. Indeed, Dowda, Russell, Trost, Almeida, and Sirard (2004) discuss that with growing numbers of children spending major parts of their day in early childhood centres an increased focus on their physical activity is required.

In a study by Olsen and Smith (2017) it was indicated that ECE settings are providing a variety of physical activity equipment, including fixed and loose resources. Olsen and Smith's (2017) study found that three quarters of outdoor play spaces at ECE settings had a playground structure that included a place for children to climb and slide. The ECE programmes within the study also provided adequate safe fall surfaces for children's active outdoor play. Opportunities for loose part play, for example with toys or balls, were also provided in the ECE settings. Olsen and Smith (2017) demonstrated in their study that the outdoor environments provide for abundant opportunities to support the children's physical activity.

Research studies (Active Healthy Kids Canada, 2010; Cliff & Janssen, 2011; Ministry of Health, 2013; New Zealand Children's Nutrition Survey, 2002) demonstrate that, primarily, children are involved in a high number of sedentary activities within the ECE setting and are not meeting recommended levels of physical activity (Copeland et al., 2012; McWilliams et al, 2009; Trost, 2011).

McClintic and Petty (2015) discuss how the ECE setting has a responsibility to provide for children's outdoor physical play experiences, due to a limitation of physical activity in the home setting. McClintic and Petty (2015) discuss a conflict between teachers' philosophical belief that children should freely experience the outdoor play space and the strict rules that they imposed on children. Teachers in the study discussed a belief in their role being purely supervisory. McClintic and Petty (2015) conclude by discussing a lack of understanding by teachers as to the physical learning that occurs when children are involved in outdoor play.

Additionally, Tucker (2008) suggests that children at preschools are physically inactive for significant amounts of time during the day (Dyment & Coleman, 2012). International and national research also argue that there is little known about what type of everyday physical experiences are occurring in ECE setting (Copeland et al., 2012; Dowda et al., 2004; McLachlan, 2016). Instead of the recommended guidelines of 'sitting less and moving more' (Ministry of Health, 2017) evidence is showing that quite the opposite is occurring in ECE settings.

2.4.2: What role teacher practice might play in children's insufficient physical activity in the ECE setting

McLachlan (2016) sheds some light on why New Zealand ECE teachers may be offering limited physical activity practices. McLachlan (2016) states that the ECE curriculum *Te Whāriki* (Ministry of Education, 1996) aspired for children to 'grow up as competent and confident learners and communicators, healthy in mind, body, and spirit, secure in their sense of belonging and in the knowledge that they make a valued contribution to society' (p. 9). However, when young children's physical competence and confidence is concerned, McLachlan (2016) argues that there is a lack of New Zealand evidenced-based research to confirm that this is occurring.

With children's physical dependence on adults being more intense in early childhood than at any other time in children's lives (Ministry of Education, 1996), it is important that teachers are adequately informed through their teacher training of how to develop children's physical activity and attributed physical well-being. However, McLachlan (2016) reiterates that there needs to be a stronger emphasis made in Initial Teacher Education (ITE) programmes in terms of physical-activity-related learning. Added to this limited knowledge development of physical activity in teachers' initial training, is a lack of in-service professional learning once teachers are qualified and working in the ECE sector.

However, all guidelines and/or professional development that is provided to New Zealand early childhood education teachers is done so with the 'implicit assumption that ECE teachers will understand motor skill development and will know how to set up an appropriate play environment to encourage it' (McLachlan, 2016, p. 21). However, as McLachlan (2016) discusses, teachers not only state that they are not confident with physical activity teaching, but they attribute their lack of confidence to their ITE programmes.

Added to the lack of direct teaching at the ITE level is an unspoken teacher understanding that children are naturally fit and therefore do not require adult assistance (McLachlan, 2016; Dyment & Coleman, 2012). An example of this belief is evident in the way teachers perceived children's level of physical activity within the Dyment and Coleman (2012) study. Even though it was evident that within the research investigation the children were sedentary in more than 50 per cent of the observations, the ECE teachers held the belief the children were physically active.

Dyment and Coleman (2012) report, therefore, that teachers need to dispel the notion that children are naturally fit and naturally active. Instead teachers need to become more accurate in their understanding of children's involvement in physically related activities. Whilst teachers thought the children were naturally fit, Dyment and Coleman (2012) demonstrated that children were failing to meet the physical activity guideline requirements of a minimum of 60 minutes per day physical activity.

Due to the issues raised around teachers' assumptions and lack of specific physical activity knowledge, attending an ECE setting is not a guarantee that children will be involved in sufficient physical activity. Whilst some studies demonstrate that there is a link between teachers' presence and physical activity, others show there is no connection between teacher's presence and children's engagement in physical activity (Dowda, et al., 2004; Lawlis, Mikhailovich, & Morrison, 2008; O'Connor & Temple, 2005). The authors discuss that there is several ECE teachers lacking knowledge as to the importance of physical activity for children under five years of age.

Due to a distinct lack of physical activity research in ECE settings in New Zealand, it is difficult to understand how widespread the international physical activity findings (as reported on) are in New Zealand ECE settings. This highlights a key gap in the physical activity literature from a New Zealand perspective and provides a strong rationale for this research study to be performed.

2.4.3: Beliefs around physical activity practice in the home setting

The previous section provided an overview of insufficient levels of physical activity engagement in the ECE setting. But what of the parents' practices? What do teachers believe in relation to whether children are involved in sufficient physical activity in the home setting? Tucker, Zandvoort, Burke, and Irwin (2011) discussed one teacher's belief that parents were not encouraging an active lifestyle outside of childcare hours. The teacher in

the Tucker et al. (2011) study assumed that because children did not want to be involved in physical activities on a Monday morning at the ECE setting, they must not have been engaging in physical activity at home on the weekend. However, there is such limited research in this area that it is not appropriate to draw conclusions from one teacher's comments.

While the teacher in the Tucker et al. (2011) study believed limited physical activity occurred in the home setting, Hesketh, Hinkley, and Campbell (2012) describe the influential role parents play in developing physical activity patterns for the growing child. Parents, rightly or wrongly, model physical activity practices, and they provide the rules around what physical activity does or does not look like within the family. Parents provide the type of physical environment the child will engage with. However, Hesketh et al. (2012) argue that little is known about how parents view physical activity for children up to five years of age.

Interestingly, just as ECE teachers in the Dyment and Coleman (2012) study believed that children under five years of age were naturally active and, on the go, so too did parents. Hesketh et al. (2012) found that all parents in their study believed children were naturally physically active and that there was little need for parent engagement with children's physical activity. However, Hesketh et al. (2012) state the parental 'belief that children are innately active [it] … is at odds with evidence showing even young children spend a very small proportion of their time being physically active' (p. 12).

O'Dwyer, Fairclough, Knowles, and Stratton (2012) found a link between parent attitude, behaviour, parenting styles and practices and children's physical health behaviours. Likewise, Hinkley, Crawford, Salmon, Okely, and Hesketh (2008) reported that children whose parents participated in some form of physical activity were more active than those whose parents did not. Whilst there was an unspoken belief by parents that children are naturally fit, those parents who have a natural interest in physical activity themselves will, by default, pass those experiences on to their children.

O'Dwyer et al. (2012) found a link between children's increased levels of physical activity and parents being offered guidance on how, when, and where to encourage their children's physical activity. An intervention implementation strategy introduced into the O'Dwyer et al. (2012) study, called the 'Move It! Snap It! Log It! Diary' (p. 4) was seen to increase children's levels of physical activity. Parental logbooks, incentives, and follow-up support led to an increase in physical activity in the O'Dwyer et al. (2012) study. From an overall

perspective, O'Dwyer et al. (2012) state that those children whose parents are physically active, do not have a television in their home, and attend extramural physical activities 'are most likely to habitually participate in health-enhancing physical activity' (p. 11).

In summary, these findings promote the importance of a family approach to physical activity development and intervention. Parental attitude and level of own physical activity were viewed as factors influencing the type of physical activity children engaged in within the home setting. The belief held by some parents within the literature that children are naturally fit and do not require adult assistance is an area that requires further research.

2.4.4: Screen time practices in the home

Whilst O'Dwyer et al. (2012) discuss not having a television in the home as being ideal for children to engage in more physical activity, this is not a reality for most families. The New Zealand Ministry of Health (2017) makes recommendations for all families that do have televisions in their home. Replacing television time with reading is one suggestion, as is not having the television on in the background. Another strategy suggested is not allowing screens in bedrooms. Like O'Dwyer et al. (2012) the Ministry of Health (2017) guidelines recommended removing the TV completely or at the very least limiting its use. The Ministry of Health (2017) guidelines for physical activity for under-five-year-olds also advocate discouraging all screen-based entertainment for children under two years old and only allowing up to one hour per day screen time at the most for children aged two years or older. However, with screen use being adopted by adults it is very hard for parents to limit this practice for their children.

Additionally, due to societal pressures, parents believe that their children will be missing out somehow if they do not engage in educational screen-based programmes. The Ministry of Health (2017) guidelines discuss that many New Zealand parents often feel it is important for their children to be engaged in educationally based programmes, either on TV or other electronic devices. The New Zealand Ministry of Health (2017) guidelines describe how parents believe if they do not provide their children with this educationally based intervention the children will fall behind other children once they reach school age.

However, the New Zealand Ministry of Health (2017) guidelines point out that whilst children may look like they are engaged (due to the bright colours and fast movements emitting from the screen) this does not mean the screens are good for them. Rather, the guidelines suggest that children should be engaged with screens for as little time as possible,

and instead should be playing inside and outside. The New Zealand Ministry of Health (2017) guidelines say that children need to be provided opportunities that are fun, engaging and challenging to encourage them to move away from screens.

Tension can be seen between the recommended screen-based guidelines and practice occurring in the home setting. Hinkley et al. (2012) discuss how many very young children are not participating in adequate amounts of physical activity (as recommended in the guidelines) and are instead involved in increased time spent with screen-based entertainment.

Hinkley et al. (2012) also report that the older a child becomes, the stronger the likelihood that there is a further reduction in time spent in physical activity and an increase in screen-based sedentary activity. This is of high concern considering the limited level of physical activity that preschool children are engaged in already. Hinkley et al. (2012) state, 'preschool children need to be supported to obtain optimal levels of physical activity so that when their participation does decline, they are still active enough to achieve health benefits' (p. 463). Parents, therefore, have a key role to play to ensure that when their children grow up, they are still physically active.

ECE teachers also have a part to play in relation to screen time, not only within the ECE setting but also in terms of assumptions they make around screen time in the home. Teachers in the Tucker et al. (2011) study believed that when children were not in the ECE setting or doing organised extra-curricular activities they were playing video games or watching TV. But how do the teachers know this? One teacher in the Tucker et al. (2011) study went as far as saying that screen time was being used as a privilege that would be taken away if children did not behave. The teacher said, '[TV/video is] the privilege they get taken away now, it's not like 'oh you can't go outside today […] …' it's always like 'no video games, your computer is taken away, your movie or TV time is taken away' (Tucker et al., 2011, p. 4).

Therefore, it is with careful consideration that the influence of screen-based entertainment for children under five years of age needs to be monitored. In New Zealand, in 2015, statistics showed that 45 per cent of children watched an average of at least two hours per day of television. Hinkley et al. (2014), the Ministry of Health (2016b), and Pagani, Högberg, Fernandez, and Siracusano (2013) also state that as a child grows up, excessive time spent in front of a television can have an adverse effect on maths ability and physical skills, cause lower classroom attentiveness, and increase emotional problems later in

childhood. Allen and Clarke (2016) discuss that if a child sits for prolonged lengths of time watching TV without having breaks, it can contribute to poorer health outcomes, such as obesity. Allen and Clarke (2016) also discuss that prolonged screen use can be detrimental to a child's sleep patterns and the quantity of sleep.

In summary, with children transitioning daily between the home and the ECE settings, it is essential that more research be performed on physical activity behaviour and links to screen time for children aged five years and under. With both parents and teachers having a role to play in the beliefs and practices related to screen-based entertainment, communication is key as children transition daily between the home and ECE settings.

2.4.5: Who is responsible for physical activity practice between the home and the ECE settings?

Due to the daily transition between the home and ECE settings one of the key areas that needs exploring further is who exactly is responsible for the child's physical activity. Bilton (2012), Stork and Sanders (2008), and Venetsanou and Kambas (2010) suggest that it is essentially the responsibility of the ECE teacher to provide a well-facilitated physically active environment for young children, however, as has been highlighted in the literature, this does not appear to be happening.

When it comes to the question of who is responsible for physical activity, Tovey (2007) supports Bilton (2012), Stork and Sanders (2008) and Venetsanou and Kambas (2010), and states that 'while it is easy to blame others, the key to developing more opportunities for physically active play lies with those who work with young children' (p. 111). Whilst Tovey (2007) supports risky play as a form of physical activity, she questions the use of the terminology of *risky* play as it can lead teachers to think that it is a certain type of play that perhaps, they should not be encouraging.

Dowda, et al. (2004) describe how, due to a growing number of children spending major parts of their day in early childhood settings, quality teacher–child interactions in relation to physical experiences are essential. However, Trost (2011, p. 1) argues that while teachers should be responsible for physical activity, children are only engaging in limited moderate-to-vigorous physical activity in ECE settings.

Additionally, McWilliams et.al (2009) discuss how of all the centres they studied in the United States of America, only 13.7 per cent of the teachers met the 'best-practice guideline'

of ensuring children were engaged in 120 minutes of active playtime per day (National Association for Sport and Physical Education [NASPE], 2002). Additionally, less than half of the teachers in the ECE settings were physically involved in the activities with the children. McWilliams et al. (2009) state that nearly a third of the ECE settings in the study demonstrated that they provided 90 minutes of physical activity on the day they were observed. However, only a small minority of teachers used regular verbal prompts to encourage children's participation in physical activity.

Several studies indicate that ECE teachers are not demonstrating responsibility for physical activity. Tucker (2008) found that only half of the children researched met the recommended physical activity guidelines, as published by NASPE (2002). Brown, Pfeiffer, McIver, Dowda, Addy, and Pate (2009) found that just over half the children in ECE settings were engaged in sedentary activity even when playing outdoors. Hannon and Brown (2008) also found that children were engaged in more sedentary activity when outside.

Reunamoa, Hakalaa, Sarosb, Lehtoa, Kyhäläa, and Valtonena (2014) say that due to teachers in ECE settings not encouraging physical experiences that the responsibility should belong to the children themselves to consolidate and refine their own everyday physical experiences. Reunamora et al. (2014) say that children need to 'take responsibility for their own physical wellbeing' (p.14). However, the feasibility of young children being responsible for their own physical activity experiences is fraught with challenges, not the least being the lack of support of adults. Reunamoa et al. (2014) see the role of adults is to help children 'build a sustainable and healthy culture that is shared by everybody' (p. 14). However, considering the limited physical activity experiences being offered to children in the ECE settings, it is difficult to understand how children are expected to consolidate and refine their physical skills. It is questionable as to how children take responsibility for their own physical well-being and build a sustainable and healthy culture (Reunamoa et al., 2014) when they are not being provided everyday physical experiences within their ECE setting.

It could be argued that currently there are limited chances for a 'child-led' sustainably healthy culture to exist. With the amount of time that children spend in ECE settings, coupled with the high level of sedentary activity, an additional concern is teachers thinking children should be responsible for their own physical activity experiences. This again raises the query which underpins this research, i.e. who is responsible for children's physical activities between the home and the ECE settings.

Literature demonstrates confusion between parents and teachers as to who is responsible for physical activity. Two key studies conducted by Irwin, Bouck, Tucker, and Pollett (2005) and Tucker, et al. (2011) demonstrate a level of confusion between parents and teachers that was influential in carrying out this thesis. In the Irwin et al. (2005) research, parents discussed their dependence on the ECE teachers to ensure their children were sufficiently physically active. Yet in contrast, a teacher in the Tucker et al. (2011) study indicated a belief that physical activity was being catered for at home and that parents played an essential role in regard to children's everyday physical experiences. Teachers in the Tucker et al. (2011) study were of the belief that children were involved in extra-curricular physical activities outside of the ECE setting, and that parents were good role models for physical activity, especially when walking and biking to the ECE setting to drop their children off and pick them up.

Teachers in the Bellows, Anderson, Gould, and Auld (2008) study viewed parents as playing a large role in contributing towards their children's physical activity habits. The Bellows et al. (2008) study discussed that 'everything starts at home', and that parents played a key influence in relation to children's everyday physical experiences. Teachers in the Bellows et al. (2008) study believed parents thought that physical activity was good for their children. However, whilst the teachers in the Bellows et al. (2008) study believed parents were responsible for providing for their children's physical activity experiences, parents in the Irwin et al. (2005) study articulated a dependence on ECE teachers to ensure their children were sufficiently physically active. Little, Elliot, and Wyver (2017) discuss that ECE settings need to be providing children with regular access to outdoor play environments to compensate for decreased physical activity opportunities they may experience in other areas of their lives.

Why might decreased physical activity opportunities be occurring for children, and why might parents be relying on the ECE setting to be responsible for providing for their children's physical activity? One reason may relate to safety. Kalish, Banco, Burke, and Lapidus (2010) discuss that parents do not believe that the physical environment outside of the home is safe for their children to take part in physical activity. Therefore, parents rely on their children's physical activity occurring within the safety and security of the ECE grounds. Parent's safety concerns may make them feel that they need to supervise their children's outside play. However, if parents are unable to supervise their children outside

then as a result children may engage in limited outside physical activity (Bellows et al., 2008).

Little (2013) describes how environmental factors impact the opportunities provided for children in terms of physical activity within nature and the outdoors. Over-protective parenting practices are a concern as they serve to limit risk-related opportunities for children's independent physical play. In the Little (2013) study the beliefs of mothers of four- to five-year-old children were examined in terms of outdoor play opportunities. It was evident in the Little (2013) study that while mothers believed in the value of risky outdoor play, safety tensions were also apparent.

Sandseter (2007) refer to risky play as a form of play that is thrilling and exciting and involves a risk of physical injury. Sandseter (2007) explored categories of risky play, which have been paraphrased below. Sandseter (2007) discusses how risky play involves: height and danger of falling from trees; uncontrolled speed where children might collide with something or someone; playing with dangerous tools that can lead to injuries and playing near dangerous elements where children can fall. Little, Sandseter, and Wyver (2012) discuss how care givers and adults deal with children's risk taking in play. Whilst some adults are reluctant to restrict children's freedom to roam outdoors, other believe strict adult supervision is required to ensuring children's safety. Little, Sandseter, and Wyver (2012) discuss the importance of physically active play for children's overall development and encourage a more relaxed attitude to risk taking.

Bevan and Reily (2011) also discusses parents' fear around road safety and 'stranger danger'. Bevan and Reily (2011) ascertained parents in their study viewed safety as a significant issue for children not being engaged in physical activity experiences. Bellows et al. (2008) argue that due to work commitments, providing for children's everyday physical activity becomes increasingly difficult for parents. As a result, parents are involved in a balancing act between meeting work requirements and meeting their children's everyday physical experience needs.

Bevan and Reilly (2011) argue that due to there being more working parents who have less time for their children's physical activity experiences, there is an increase in children involved in sedentary indoor activities. This thesis will investigate if there is a link between increased time spent in ECE settings (due to full-time working parents) and opportunities for children's sedentary physical activity.

In summary, it can be concluded that the literature undoubtedly demonstrates mixed messages as to who is responsible for physical activity between the home and ECE settings.

2.5: Opportunities for strengthening physical activity practice for children under five years of age

2.5.1: Assessment documentation as a tool for strengthening opportunities for communication between the home and ECE settings

This third theme draws on the literature in terms of opportunities for strengthening physical activity for children under five years of age. This section starts by reviewing the role that assessment documentation plays as a tool for strengthening opportunities for communication between the home and ECE settings.

An essential responsibility of teachers in ECE settings is to communicate children's learning and development with parents. One way that communication about children's learning occurs between teachers and parents in New Zealand ECE settings is through assessment documentation (Carr, 2001). For the purposes of this thesis, assessment documentation is the process by which young children's learning and development is assessed and evaluated by ECE teachers (Ministry of Education, 2017). The New Zealand licensing criteria for ECE settings expect that assessment documentation, planning, and evaluation practices that are inclusive of children's learning and interests are used to inform children's growth. The expectation is also that formal assessment documentation of children's learning is shared with their families (Ministry of Education, 2009).

In New Zealand, a shift occurred in assessment documentation when it moved away from a developmental to a sociocultural approach inclusive of the home setting. Niles (2016) discusses how originally a developmental approach to documentation was taken where children's development was 'checked off' in a summative assessment manner. Based on these recorded deficits (that is, what the child *wasn't* achieving) 'teaching strategies were developed, aiming to fill the gaps in children's knowledge and learning' (Niles, 2016, p. 5).

Since the development of *Te Whāriki* (Ministry of Education, 1996, 2017) the check-box approach was replaced by a sociocultural approach to documentation. A sociocultural approach towards documentation highlights learning and development as being linked to the social and cultural context the child grows up in (Ministry of Education, 2017). The main

form of sociocultural assessment documentation of children's learning in New Zealand is known as *Learning Stories* (Carr, 1998a, 1998b, 2001, 2004).

Unlike the 'checklist' summative approach ECE teachers previously used, Learning Stories (Car, 2001) require teachers to first observe children and then write narrative stories to interpret the learning that is occurring in particular situations. However, unlike the previous approach that focused solely on children's physical, intellectual, language, emotional and social development, Learning Stories (Car, 2001) allow for the recording of relationships and context.

Learning Stories (Carr, 1998) were informed by sociocultural theory (Vygotsky, 1979), where children were seen as being located within the activity and social practice between the home and ECE settings.

The predominance of Learning Stories (Carr, 2001) as an assessment documentation technique in New Zealand was reinforced through a government-funded resource, *Kei Tua o Te Pae/Assessment for Learning: Early Childhood Exemplars* (Ministry of Education, 2004). Part of the success of Learning Stories as a form of documentation was that it was a type of narrative documentation that covered any type of learning experience, and focused on individual or group learning (Carr, 2001).

However, whilst Carr (2001) proposed that Learning Stories were viewed as narrative documentation where learning progression becomes obvious, this was not what Meade (2012) found in her study. Meade (2012) stated that in her study not all teachers wrote 'narratives of progressive learning' but tended to document more anecdotal snapshots of what was occurring at that time. While it may be presumed that all ECE teachers are documenting children's ongoing learning and development over time, this is not the case.

Whilst substantial government funding initially went into resourcing professional development related to writing effective Learning Stories, it can be argued that little if any of this funding resulted in evidenced-based research. Blaiklock (2010) argues that there is little empirical evidence that demonstrates that Learning Stories are resulting in gains for children's learning.

McLachlan, Fleer, and Edwards (2010) critique Learning Stories when they state that teachers can be affected by their own biased perspectives, which may affect the validity of Learning Stories. The literature demonstrates that whilst assessment documentation is a key

teacher responsibility (Carr, 2001) there are several factors that exist that limit assessment documentation as a valid and credible form of documentation for all children in different areas of learning (Blaiklock, 2010, McLachlan; Fleer, & Edwards, 2010). This thesis will research assessment documentation practices related to communicating physical learning between the home and ECE settings.

2.5.2: Understanding 'noticing, recognising, responding and revisiting' as an assessment documentation framework

In 1999, Dahlberg, Moss, and Pence (1999) discussed assessment documentation as a tool for reflecting on and creating democratic pedagogical practice, where ECE settings become responsible for making meaning and decisions in terms of progressing children's learning and development. The assessment documentation terminology of 'notice, recognise and respond' can be seen as early as 1993 in the writing of Drummond (1993) who stated, 'we observe children's learning (*notice*), strive to understand it (*recognise*), and then put our understanding to good use (*respond*)' (p. 13). It was in 2000 that the 'noticing, recognising, and responding' terminology first appeared in the writing of Cowie (2000). At this early stage the terminology was not understood from an ECE perspective, but in terms of science assessment in the compulsory schooling sector.

It was not until 2004 that the 'noticing, recognising and responding' terminology appeared in the New Zealand ECE assessment documentation resource *Kei Tua o te Pae/Assessment for Learning: Early Childhood Exemplars* (Ministry of Education, 2004). Book 1 of the *Kei Tua o te Pae* assessment exemplars describes noticing, recognising and responding as progressive filters. Teachers *notice* a great deal as they work with children, but only *recognise* some of what they notice as learning. Teachers will then only *respond* to a selection of what they recognise. (Book 1: Kei Tua o te Pae, Ministry of Education, 2004). This thesis will draw on the notion of noticing, recognising and responding as progressive filters in Chapter Nine, the discussion chapter.

As well as teachers 'filtering' what they recognise and respond to as learning, Niles (2016) discusses how for many teachers the challenge is in differentiating between what they notice and what they recognise. The Ministry of Education (2004) discusses that the application of professional expertise and judgment plays a key role in teachers understanding the difference between noticing and recognising. Recognition of learning does not always occur at the time of the experience but in retrospect, after the event. The Ministry of Education (2004) says

that it is important that there is not too long a gap in time between *noticing* and *recognising* children's learning, because the opportunity to *respond* has often been and gone. The *Kei Tua o te Pae* exemplars (Ministry of Education, 2004) were published to assist teachers to gain the necessary knowledge to close the gap between noticing, recognising and responding (Kei Tua o te Pae: Education.govt.nz).

The updated version of the New Zealand early childhood curriculum, *Te Whāriki* (Ministry of Education, 2017), takes the noticing, recognising and responding process further and adds *recording* and *revisiting*. *Te Whāriki* discusses how it is important to record children's learning so they can be provided with opportunities to revisit their Learning Story assessment documentation, either by themselves or with an adult. As children revisit their learning this allows further opportunities for learning conversations, while supporting self and peer assessment (Ministry of Education, 2017). This thesis will explore the role assessment documentation plays in communicating physical activity experiences between the home and ECE settings. In doing so, this thesis will explore to what extent children are being provided opportunities to revisit past experiences of physical learning.

2.5.3: Lack of teacher confidence in identifying learning

Whilst Learning Stories (Carr, 2001) are clearly the most prominent form of assessment documentation in New Zealand ECE, their uncontested nature is of concern. Blaiklock (2008; 2010) for example, believed teachers demonstrate an inability to identify learning dispositions as a key form of analysis. Carr (2001) offered learning dispositions in her conceptualising of Learning Stories as a formative means of documenting and analysing children's learning.

Cullen (1991) identified effective learning strategies such as task persistence, use of resources, use of peers as a resource, use of adults as a resource, seeing self as a resource for others, directing self, and directing others. From these dispositional concepts, Carr (2001) developed the following dispositions: taking an interest (participating and contributing); being involved (managing self); persisting with uncertainty and challenge (thinking); expressing ideas and feelings (using language symbols and texts); and taking responsibility (relating to others).

In New Zealand assessment documentation, ECE teachers use Carr's (2001) learning dispositions to a lesser or greater degree to identify children's learning. For example, Mitchell, Meagher-Lundberg, Mara, Cubey, and Whitford (2011) found that most ECE

settings in their research did 'implement *Te Whāriki'*. However, Blaiklock (2010) states that with very little evidenced-based research 'it is very difficult to know what implementing *Te Whāriki* actually means' (p. 23).

With the lack of research into Learning Stories comes an inability for teachers to learn from others and change their practice accordingly. This could be one reason why the Education Review Office (2013) found that 24 per cent of ECE settings demonstrated ineffective assessment documentation practices. In the Education Review Office (2013) evaluative findings it was noted that ECE documentation assessment was being viewed as more of a record of children's participation in activities, without providing analysis of learning and next steps. This corroborates Meade's (2012) previous statement that some of the teachers in her study documented 'one-off snapshots' of children's learning.

The concern is that if almost a quarter of ECE settings were not assessing and documenting children's learning effectively from a general perspective than this did not bode well for the specific documentation of physical activity. Of even more concern from the Education Review Office's (2013) report was that the 'information shared with parents was not helping them to see continuity in their child's learning over time' (p. 17). This raises a concern from a physical learning perspective, because if parents do not have an understanding of their children's physical learning over time, they are unable to plan adequately for their children's physical activity needs.

It could be said that the 2013 Education Review Office report might not be representing current assessment practice. In answer to that, a more recent report (Education Review Office, 2017) provides an up-to-date picture of the expertise of teachers coming into the ECE profession. Surely, these newly graduating teachers (NGTs) will be introducing effective assessment documentation practices into the ECE setting, and thereby providing more chance for physical activity to be documented. Unfortunately, that is not what was found. The Education Review Office (2017) report found that NGTs only had a foundational knowledge of *Te Whāriki* and lacked appropriate pedagogical knowledge of how to articulate *Te Whāriki* within assessment documentation and how to apply it in practice.

A tension is evident in the Education Review Office (2017) report, because whilst at least two thirds of NGTs were reported as saying they felt confident in their planning and implementation of the curriculum, the leaders of the ECE services where the NGTs attended on their practicum placements said that this was not the case. The ECE setting leaders viewed

NGTs as less competent in incorporating assessment into their teaching practice. The NGTs were identified as only having a basic knowledge of Learning Stories and assessing children's progress.

The Education Review Office (2017) report discussed that the NGTs appeared to be provided with adequate theoretical knowledge but lacked the knowledge of applying theory to practice. Rather than the teachers learning this knowledge in their Initial Teacher Education (ITE), it appeared to be left up to the ECE services where they attended practicum placements (Education Review Office, 2017).

The tension demonstrated is that if ITEs are relying on ECE settings to demonstrate application of theory to practice, and yet the Education Review Office (2013) report states that 24 per cent of ECE settings demonstrate less effective documentation practices, then the practices that the NGTs are viewing are not necessarily as effective as they should be.

The Education Review Office (2017) report highlighted the evident tensions of the NGTs who reiterated a lack of focus by their ITEs in direct teaching related to learning dispositions and assessment portfolios (Learning Stories). Additionally, expectations between the ITE providers and the practicum centres were noted as being unclear in relation to the role they each played in assessment documentation (Education Review Office, 2017). One NGT discussed how on one hand her ITE tutor said she would learn about assessment from the practicum placement and on the other hand her associate teacher at her practicum placement said she should be learning that from her ITE (Education Review Office, 2017).

2.5.4: An intentional approach to providing opportunities for learning

The concerns raised in the previous section about ITE providers not always providing direct teaching related to assessment documentation, may in part be attributed to a discomfort within New Zealand ECE of the notion of intentional teaching (Batchelar, 2016). It may be that what the ECE leaders in the previous section are requiring of the NTGs is that they are more intentional in their assessment documentation practices. The leaders may also be looking for more intentionality in application between theory and practice, and in links to learning dispositions when evaluating children's learning.

Intentional teaching refers to teachers being deliberate, purposeful and thoughtful (Batchelar, 2016) in providing opportunities for learning and development. Intentional teaching derives from research showing that young children's participation in open-ended

play alone is insufficient for learning. Instead, intentional teaching argues that teachers need to regularly and deliberately plan for learning experiences for children (Batchelar, 2016).

2.5.5: An intentional approach to curriculum

Batchelar (2016) discusses how the term *intentional teaching* is not one that would be typically associated with early childhood education in New Zealand, however 'there is some evidence that it is beginning to be discussed by policy-makers, researchers, and teachers in this country in the context of early childhood education' (p. 1). This reference Batchelar (2016) is making to policy-makers, researchers, and teachers discussing intentional teaching may be in relation to the revision of the New Zealand ECE curriculum *Te Whāriki* (Ministry of Education, 2017) that was occurring at the time, and its direct link to kaiako responsibilities. *Te Whāriki* states whānau are the key resource in any ECE service. The Ministry of Education (2017) defines the Māori word Kaiako as teacher/s and whānau as extended family, multigenerational group of relatives (pp. 66-67).

Their primary responsibility is to facilitate children's learning and development through thoughtful and intentional pedagogy' (p. 59). While the links to intentional teaching in the 2017 revised version of *Te Whāriki* are tenuous, there is nevertheless a shift from the language used in the early version (Ministry of Education, 1996).

Batchelar (2016) discusses how international curriculum documents appear to foreground intentional teaching in a way that the 1996 version of the New Zealand early childhood curriculum *Te Whāriki* did not. Added to this critique of a lack of attention to intentional teaching in *Te Whāriki* (Ministry of Education, 1996) was that it did not provide guidance relating to the teaching of discrete subjects or domain knowledge and related learning outcomes (Blaiklock, 2010; Batchelar, 2016). This thesis focuses on the discrete domain knowledge area of physical learning.

But changes are afoot in the New Zealand ECE curriculum in relation to intentionality and the responsibility of being a teacher. During the period of time that this literature review was written, the updated *Te Whāriki* (Ministry of Education, 2017) has foregrounded teaching and learning domains in a way that the previous curriculum version had not. One way in which the updated curriculum links to a more intentional approach to teaching is in relation to the shift in the terminology used by those who work in ECE settings.

Batchelar (2016) discusses how *Te Whāriki* (Ministry of Education, 1996) did not refer to 'teachers' but instead referred simply to 'the adult'. The terminology of 'the adult' was used purposefully to apply to all — teachers, parents, and family members — who play a key role in children's sociocultural learning. By backgrounding the role of 'the teacher', and foregrounding the role of 'the adult', teaching responsibilities also were backgrounded. In the 2017-updated curriculum, the term 'kaiako' is now used. Kaiako are viewed as the key resource in an ECE setting. By foregrounding the kaiako terminology, the new version of *Te Whāriki* is supporting a more intentional (Batchelor, 2016) approach to teaching.

Intentional teaching can also be seen in the discussion on *learning domain knowledge*, which *Te Whāriki* views from two different perspectives, that is, from the perspective of the *child* and the *kaiako* (teacher). The updated *Te Whāriki* (Ministry of Education, 2017) refers to children *developing* domain knowledge, and the kaiako being responsible for *integrating* domain knowledge. From the perspective of the child, *Te Whāriki* (Ministry of Education, 2017) links domain knowledge to the concept of *working theories*.

Working theories were initially derived from the work of Claxton (1990) who discussed the notion of *mini-theories*, and that learning 'involves a gradual process of editing these mini-theories so that they come to (i) contain better-quality knowledge and skill, (ii) to be better 'located' with respect to the area of experience for which they are suitable' (Claxton, 1990, p. 66). Peters and Davis (2011) and Hedges (2014) discuss working theories as occurring when children find connections between experiences and understandings to make sense of their understanding of the world.

In *Te Whāriki* (Ministry of Education, 2017) kaiako (teachers) are encouraged to make links to children's working theories between the home, the ECE setting and the community. Batchelar (2016) discusses that teachers need to be intentional in their teaching approach and prioritise the development of children's working theories. In relation to integrating domain knowledge (as one of the kaiako responsibilities) *Te Whāriki* (Ministry of Education, 2017) argues that those who work in ECE settings need to be committed and *responsible* as teachers.

2.5.6: An intentional approach to providing opportunities for physical activity between the home and ECE settings

If ECE teachers are not confidently describing children's learning dispositions, as proposed by Blaiklock (2010), how then are they going to be able to document physical learning as a

specific domain area? Emberson (2016) described how teachers in her study demonstrated a lack of confidence, knowledge, and teaching strategies in relation to facilitating physical activity. Blaiklock (2010) would argue that this lack of confidence, knowledge and teaching strategies is due to an inability of teachers to identify the appropriate (physical activity) related learning dispositions and a lack of reasoning for how these learning dispositions link to *Te Whāriki* (Ministry of Education, 2017).

From the perspective of specific documentation of physical activity, Emberson (2016) discussed how in New Zealand physical assessment documentation could be undervalued and unsupported by teachers as part of regular teaching practices. The earlier notion raised by Cullen (2003), Nuttall (2013), and Oliver and McLachlan (2006) that *Te Whāriki* (1996) offers little guidance and support for teachers to work within such a broad curriculum, also indicates a discomfort by teachers to address specific curriculum areas (such as physical learning) within the broad sociocultural framework that is *Te Whāriki*.

Emberson (2016) found that in physically active play 'teachers utilised planning to ensure emergent interests were catered to, whilst also planning the space allocation to ensure there was enough area for vigorous activity unencumbered by too many resources' (p. 267). Blaiklock (2013) states, 'to target individual children's learning in particular domains (for example, language development, physical development, social learning) is also an area that ECE teachers are not comfortable with' (p. 21). Whilst the teachers in Emberson's study used an emergent approach to planning, it was not stated in the research if the teachers documented children interests. In fact, there was limited if any reported planning in the Emberson (2016) study that directly linked to the domain knowledge area of physical learning.

Emberson's (2016) study linked intentional teaching when additional targeted professional development resulted in enhanced physical learning outcomes for children. But in fact, it was not the teachers as such that were being intentional but the facilitators of the physical learning intervention programme that were called into the ECE setting to deliver the professional development. This lack of intentionality by the ECE teachers supports Batchelar (2016) who said within her study an intentional approach to teaching was typically unarticulated by the teachers.

The very nature of an intentional approach to curriculum is one that is deliberate, planned and purposeful. So why are teachers reticent in being deliberate, planned and purposeful in

relation to physical learning? Hedges and Cullen (2005), Epstein (2007) and Grieshaber (2008) discuss how the intentional teacher also needs to have content knowledge, be goal orientated, plan for learning based on sound decision-making, and utilise a range of teaching strategies. This thesis will explore to what level teachers are intentional in their teaching of physical learning.

In summary, this section explored how an intentional approach to curriculum might be viewed from a physical learning perspective. However, there were more queries than answers. The queries explore the possibility of teachers: limited level of documentation and planning for children's physical activity interests; limited physical-learning-related knowledge, and lack of confidence in documenting and planning based on sound physical learning decision-making. These queries demonstrate a key gap in research relating to what role assessment documentation plays in developing both physical activity and goal orientated decision-making practices by teachers in the ECE setting.

2.5.7: Opportunities for strengthening physical activity between the home and ECE settings in terms of Te Whāriki's kaiako responsibilities

This final section refers to the *kaiako responsibilities* as alluded to previously in this chapter. *Te Whāriki* (Ministry of Education, 2017) states that *kaiako responsibilities* refer to a 'need to be able to engage with children, parents and whānau to identify learning priorities and then weave their curriculum using the framework provided by *Te Whāriki*' (p. 59).

By looking at the *kaiako responsibilities* in *Te Whāriki* (Ministry of Education, 2017) through the specific content knowledge lens of physical learning, teachers' roles and responsibilities in terms of physical activity become very clear. Hedges and Cullen (2005) argue that having and incorporating content knowledge is essential when facilitating children's learning. Just as Epstein (2007) recognises the importance of an intentional teacher including both planned and spontaneous child-initiated activities within the ECE setting, it is also important there is a balance between teacher-led and child-led physical learning activities.

The term 'teacher-led' is open to interpretation. Epstein (2007) offers two definitions that are worth considering. One way of interpreting 'teacher-led' is where the teacher controls all aspects of the lesson and how it is delivered to the group. Epstein's (2007) offers another interpretation, which comes from more of a guidance approach. Epstein (2007) refers to teacher-led in this instance as where "the teaching proceeds primarily along the lines of the

teacher's goals but is also shaped by the children's active engagement" (p. 3). For the purposes of this research, the second meaning of 'teacher-led' will be referred to, that is, that it links to teachers enacting their planned goals which are shaped by children's engagement.

However, Pyle, DeLuca and Danniels (2017) concluded that there is a need to move away from the binary approach of either child-led or teacher-led play activity to an intentional integration of a child-led and teacher-led approach. The notion of intentional teaching is positioned in this thesis as an integrated approach to teaching and learning, providing opportunities for planned and unplanned learning experiences to occur in terms of physical-activity-related learning.

From a planned perspective, Epstein (2007) stated that the intentional teacher needs to have a goal in mind, a plan for how the goal is going to be accomplished, and a repertoire of teaching strategies to support learning. Those same strategies are essential when planning for physical learning. From a spontaneous perspective, just as Epstein (2007) and Grieshaber (2008) discuss how the intentional teacher needs to be flexible in their teaching approach, teachers also need to be able to adapt their practice in response to children's spontaneous physical learning experiences.

It will be seen in the section below, how when a physical learning lens is applied to the *kaiako responsibilities* (Ministry of Education, 2017) ECE teachers are offered guidance on how to be deliberate, purposeful and thoughtful in relation to physical learning. By viewing the curriculum content through a physical activity lens the 'kaiako responsibilities' (Ministry of Education, 2017, p. 59) provide more specific guidance on how to be intentional with physical learning as a domain area. Whilst not all of the 'kaiako responsibilities' have been listed below, those that directly link to 'learning' have been stated in an attempt to demonstrate the responsibilities that *Te Whāriki* (2017) is saying kaiako need to demonstrate. Note that the word 'physical' has been placed before 'learning' in an attempt to apply a physical learning lens.

Therefore, the responsibilities of a kaiako when viewed through a physical learning lens are:

- to be knowledgeable about children's [physical] learning and development and able to identify their varied abilities, strengths, interests and learning trajectories;
- to be able to integrate [physical learning] domain knowledge into the curriculum;

- to be able to engage in dialogue with parents, whānau and communities to understand their priorities for curriculum and [physical] learning;
- to be attentive to [physical] learning and able to make this visible through assessment practices that give children agency and enhance their mana;
- to be knowledgeable about and able to try alternative ways to support and progress children's [physical] learning and development; and,
- to be committed to ongoing professional development that has a positive impact on children's [physical] learning.
  (Ministry of Education, 2017, p. 59).

By adding the word 'physical' before the word 'learning', the responsibility of teachers in terms of physical learning becomes very clear. *Te Whāriki* (Ministry of Education, 2017) promotes teachers having knowledge of physical learning and the importance of integrating that knowledge into the curriculum. As well as having and integrating physical learning knowledge, teachers are required to assess children's developing physical learning knowledge and support their associated working theories. Teachers are required to share children's physical knowledge with parents. Together with parents, whānau and the community, kaiako are required to consider different ways in which they can further develop children's knowledge of their physical learning and associated working theories. Finally, teachers are required to continue to build on the development of their own physical learning knowledge, in a way that creates positive outcomes for children, their parents, and their whanau.

2.6: Addressing gaps in knowledge

In light of the literature reviewed in this chapter, this thesis aims to address the seven overall gaps in knowledge that can be grouped under the themes of physical activity understanding, practice and opportunity.

There are identified gaps in *understanding* of:

- who is responsible for children's everyday physical experiences between the home and the ECE setting;
- how physical-activity-related learning is implemented and documented;
- why ECE teachers lack confidence in documenting and planning based on physical learning decision-making.

There are identified gaps in *practice* related to:

- how New Zealand teachers enact (or don't enact) physical activity in the ECE setting;
- what physical activity in the home setting is occurring;
- what ECE teacher practice in terms of assessment documentation for children's physical activity is occurring.

There is an identified gap in *opportunities* for:

- using assessment documentation as a tool to share knowledge of physical-activity-related learning and development between the home and ECE settings

2.7: Chapter summary

The themes discussed in this literature review, i.e. 'how physical activity for children is understood', 'how physical activity for children is practiced' and 'opportunities for strengthening physical activity for children between the home and ECE settings' have provided a framework that sets up the remaining aspects of the study. There are clear tensions within the literature between the *understanding* and *practice of* physical activity between the home and the ECE settings. Whilst many tensions exist within the literature and the evidence related to physical activity in ECE settings and (more minimally) in homes, the literature is clearly demonstrating high levels of sedentary behaviour and limited physical activity for children up to five years of age. In the hope to address the tensions in the literature, the final theme highlighted the role of assessment documentation as a tool for providing for opportunities for communication between the home and the ECE settings.

The next chapter, the theory chapter, provides an overview of the theoretical framework that guides the exploration into understanding, practice and opportunity for physical activity enactment that will be carried out in this thesis study. A specific emphasis will be demonstrated in relation to contradictions (Engeström, 1987, 1999) as a way of demonstrating the tensions or contradictions in parent/teacher physical activity understandings, practices and opportunities for physical activity between the home and ECE settings.

Chapter Three: The theoretical framework underpinning physical activity understanding, practice and opportunity

3.1: Introduction

This chapter takes the notion of tensions and refers to them as contradictions. But to understand contradictions, and how they apply to understanding, practice and opportunity, it is first important to understand how they are constructed from a theoretical perspective. This chapter foregrounds activity theory (Leont'ev, 1978; Engeström, 1987, 1999) as the basis for understanding how contradictions occur. In this chapter the home and the ECE settings are seen as units of analysis for the thesis study. This chapter introduces the theoretical framework of cultural historical activity theory (Leont'ev, 1978; Engeström, 1987, 1999) as a means of framing the home and ECE settings as *co-evolving activity systems.* As the chapter describes the three generations of activity theory (Leont'ev, 1978; Engeström, 1987, 1999) *elements* of the home and ECE activity systems are identified. It is the relationship within and between the elements of the activity systems that allows contradictions to be viewed.

The contradictions-based approach (Engeström, 1987, 1999) is foregrounded in the second part of this chapter where four types of contradictions (*primary, secondary, tertiary* and *quaternary*) are defined. The chapter concludes by summarising how contradictions (Engeström, 1987, 1999) provide an analytical framework for identifying tensions in parent and teacher understandings, practices and opportunities for physical activity between the home and the ECE settings.

The chapter will conclude by discussing how an expansive learning approach (Engeström, 1999, 2001, 2010) provides a framework for physical activity opportunities through reconciling contradictions in understanding and practice between the home and the ECE settings.

3.2: The first generation of activity theory

To understand activity theory is to understand a generational approach to theory creation. Sannino, Daniels, and Gutiérrez (2009) describe how activity theory was born into an era of struggle and dictatorship. A shift from a socialist to a dictatorship ideology, after the death of Lenin in 1924, meant a Stalinist dictatorship prevailed. Sannino, Daniels, and Gutiérrez

(2009) discuss how at this time in Russian history, anyone who deviated from the Stalinist ideology had their academic work attacked, they were marginalised and at times even physically threatened. Russian academics articulated views that were not popular with the dominant political status quo of the time (Sannino, Daniels, and Gutiérrez, 2009) and it was within this time of political and ideological struggle that the notion of activity theory developed.

This time in history saw Russian academics such as Vygotsky and colleagues fleeing Ukraine for their physical safety (A. A. Leont'ev, 2005). The son of Leont'ev describes what this must have been like for his father and his father's mentor, Vygotsky. A. A. Leont'ev (2005) states, 'the position of Vygotsky and his team at the Institute of Psychology became less and less secure with each year' (p. 27). It became increasingly difficult for Vygotsky and his colleagues to pursue their academic work. This turbulent time meant that Vygotsky's involvement in research was condemned and his books were removed from Russian academic archives (A. A. Leont'ev, 2005).

The struggle for these academics to be heard was a difficult one. As late as the 1990s coercion and extreme control were still present in relation to some Russian academic perspectives (Sannino et al., 2009). It was within this historically and politically unsafe context that activity theory was conceived. Some of the ideology being condemned by the Stalinist dictatorship was earlier work by the philosopher Carl Marx, who devised the ideological notion of *activity* as a means of overcoming the dichotomy between the notion people held of the inner and the outer world (Blackler & Regan, 2009). It was the philosophical perspective of Marx that Vygotsky (an early proponent of activity theory) believed as more than just ideology, but as plausible theory.

It was in the first generation of activity theory that Vygotsky internalised Marx's theory of *activity* in a way that influenced his own theories on human development. Vygotsky elaborated on Marx's idea of *activity* and developed the notion of cultural mediation of higher order functioning, where 'things' were used as language signs to mediate between the child and the adult (Blackler & Regan, 2009).

Vygotsky sketches the first version of the triangle with mediating activity, tools and signs, and then later in text describes the concepts behind the activity triangle. His student Leont'ev (1978) then took Vygotsky's (1978, 1979) explanation of mediated human activity and conceptualised it into (what is now known as) the first generation triadic activity system. It

was from Vygotsky's (1978) idea of *activity* that Leont'ev (1978) devised the classic 'artefact, subject, object' triangle (see Figure 1), which viewed cultural artefacts as being significant. However, there is not one but multiple 'tool, subject, object' triangles of activity occurring at the same time. In this way, every element, that is, tool, subject, and object, of the activity system mediates several relationships within the triangle. This level of complexity goes some way to explain why activity theory views human cultural activity as being dynamic and open to change (Sannino et al., 2009).

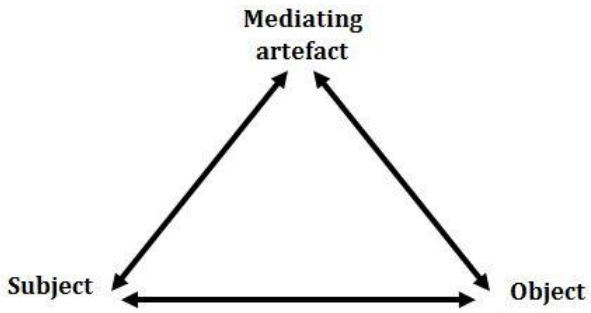


Figure 1**:** *A basic mediational triangle with subject, object and medium or mediating object (Cole & Engeström, 1993, p. 5)*

Vygotsky (1978) viewed interaction with artefacts as being fundamental to how cognitive thinking develops. Vygotsky's (1979) pioneering concepts of human activity influenced the development of his initial thinking around activity theory. Within this thinking, Vygotsky (1979) developed the revolutionary idea that cognitive 'objects' comprise part of an individual's collective cultural entity, where objects are viewed within a dialectical relationship with other features of the context, especially language and other people (Lofthouse & Leat, 2013).

Vygotsky (1978) viewed 'objects' as the collective cognitive thought that directs the activity and leads to further action. The object is then shared within the collective activity and may be tangible or non-tangible (Engeström, 1993). For example, within an activity system, people can shape, as well as be shaped by their surrounding world. Vygotsky argued that 'objects' do not exist solely, without mediation, rather objects appear in two fundamentally different roles, that is, as objects and as mediating artefacts or tools. All objects are directed towards outcomes (Engeström, 1993). Vygotsky (1978) was working on revising his thoughts on human activity, including looking at cognitive activity from a cultural and historical perspective just before his death.

3.3: Second generation activity theory underpinning the notion of understanding as used in this thesis

Leont'ev, a student of Vygotsky's, continued Vygotsky's work after his death and began to view individual cognitive activity as taking place within a collective activity system. It is the notion of individual cognitive activity occurring within a collective activity system that frames *understanding* for the purposes of this thesis. It is Leont'ev's (1978) process of taking Vygotsky's (1978, 1979) view on human action (as a physical action) and viewing it from the perspective of *cognitive activity where the motive is a goal* that further strengthens this thesis's concept of *understanding.*

It is in Leont'ev's (1978) creation of the basic triangle of activity, that is, subject, tool, and object (as influenced from Vygotsky 1978, 1979), that the notion of *understanding* (as used in this thesis) is further highlighted. The *subject* element was important for Leont'ev (1978) because it determined who was carrying out the activity, that is, the *bearer* of the activity. The *subject* element is also important for highlighting what is referred to as *understanding* in this thesis. For example, collective activity referred to the shared cognitive understanding held by more than one *subject*. In other words, *understanding* in this thesis is viewed as the collective activity of more than one person. Whereas an individual activity would represent a single cognitive held by an individual subject, that is, one person holds that *understanding* (Blackler & Regan, 2009).

Within Leont'ev's (1978) second generation of activity theory an individual can influence the collective activity but only by connecting with it and participating in it. This links to *understanding* as used in this thesis. It is not the *understanding* of individuals that is sought in this thesis, but rather the norms and rules of the collective understanding of the ECE activity system and the collective understanding of the home activity system. Leont'ev (1978) discussed that while an individual can pursue their own goals, an individual cannot have norms and rules that are only theirs. Leont'ev (1978) stated that the norms and rules of individuals will always be shared by a number of people, hence the notion of collective activity (Blackler & Regan, 2009). It is this notion of collective activity that underpins the use of collective *understanding* as being mediated through all elements of the home activity system and the ECE activity system.

Engeström (1987) added *community* as an element of the activity system. The community is composed of the distributed thinking of the subject and other individuals who are brought

together by a shared object (Engeström, 1999). In this thesis, the community element adds to the notion of understanding where it is seen that distributed thinking across other neighbouring activity systems are identified and analysed. At times in this thesis the distributed thinking of parents and teachers are brought together in the *community* element. In Chapter Eight the community element (Engeström, 1987) is demonstrated in how parents and teachers hold shared understanding of the value of excursions as a physical activity. It is demonstrated again in Chapter Eight when the ECE regulations are viewed as a neighbouring activity system, linking to the distributed thinking of the ECE activity system.

The *rules* element (Engeström, 1987) is the formal and implicit informal values, beliefs, perceptions, and norms or conventions governing the community and informing the activity (Engeström, 1999). This thesis uses the rules element as an additional way of demonstrating *understanding*. For example, this study will demonstrate how parents and teachers hold *rules* about physical activity in the home and the ECE settings that do not necessarily match. Additionally, Chapter Eight will demonstrate how the ECE teachers hold informal *rules* (Engeström, 1987) that differ from the formalised regulated rules in relation to the New Zealand ECE regulations for adult-to-child ratios when taking children on excursions. Teacher understanding is foregrounded through the *rules* element.

3.4: Second generation activity theory underpinning the notion of practice as used in this thesis

Whilst practice can demonstrate itself in connection with all of the elements, this thesis draws on Leont'ev's (1978) *division of labour* element to describe how practice is primarily highlighted. The *division of labour* element describes the roles and tasks that a functioning activity system carries out. This thesis draws on the *division of labour* element to describe the roles and tasks in terms of physical activity between the home and ECE activity systems. It will be demonstrated that these roles and responsibilities were not always demonstrating the home and ECE activity systems as functional in terms of physical activity provision. The dysfunction will be demonstrated as showing itself most clearly within the practice of the division of labour element (Leont'ev, 1978).

Division of labour (Leont'ev, 1978) determines who has the opportunity in terms of physical activity decision-making. This will be illustrated in the thesis in the way in which labour (practice) is 'divided' within the home and ECE activity systems. Leont'ev's (1978) *division of labour* element will be seen to be a key focus of this study as it differentiates the roles,

responsibilities and opportunity for enacting physical activity, that are collectively and individually carried out by subjects within the activity system. In relation to the *division of labour* element, the term 'opportunity' is used in reference to who has the most *time* opportunity to provide for physical activity between the home and ECE settings. (Later in this chapter it will also be demonstrated that the term 'opportunity' is used in its own right to refer to opportunity for development as linked to Engeström and Sannino's (2011) *expansive learning* theory.

Within this thesis, a key tension will become evident within the *division of labour* (Leont'ev, 1978) element of physical activity within the home and ECE activity systems. It will be demonstrated that the ECE activity system holds the *division of labour* (Leont'ev, 1978) of physical activity due to the children spending most of their day in the ECE setting. Within the division of labour of physical activity between the home and the ECE activity systems it will be demonstrated that the ECE system can enact physical activity due to children's full-time attendance, however, teachers are not necessarily aware of the associated roles and responsibilities they should be carrying in terms of physical activity.

3.5: Second and third generation activity theory underpinning the notion of opportunity as used in this thesis

In the second generation of activity theory, Leont'ev (1978) also proposed how collective human actions are brought together with cultural artefacts, that is, *tools*. *Tools* are the mediating artefacts that influence the way people act and think when they engage in an activity (Kaptelinin, Kuutti, & Bannon, 1995). It is demonstrated in Chapter Seven how assessment documentation is highlighted as a potential development *tool* (Engeström, 1987). It will be proposed that assessment documentation acts as a *tool* for how parents and teachers act and think (or do not act and think) about physical activity between the home and the ECE settings.

In Figure 2, Engeström's (1987) representation of 'the modelling of human activity as a systemic formation' (p. 78) demonstrates the interacting elements of the activity system that underpinned the second generation of activity theory. The model is seen as being multi-directional and linking to multiple levels of activity. This thesis will demonstrate the complex interactions that occur from the perspective of relationships either within or between elements of the home and ECE activity systems.

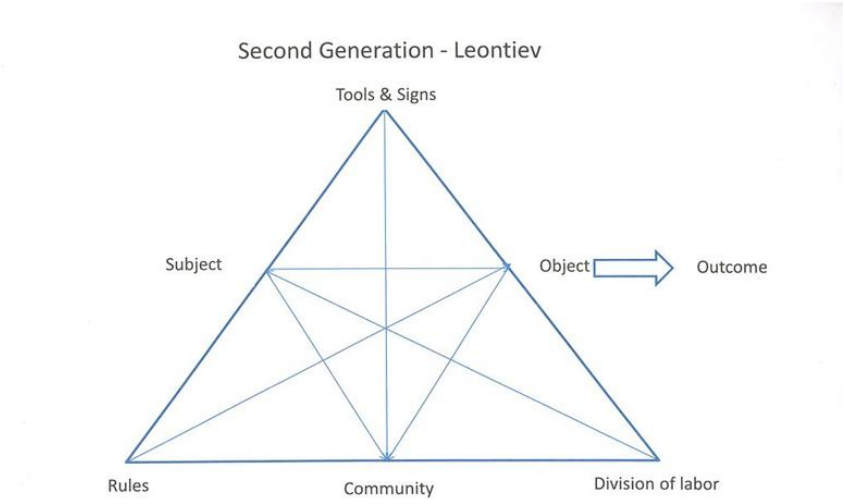


Figure 2: *The modelling of human activity as a systemic formation (Engeström, 1987, p. 78).*

Leont'ev (1978) focuses on the notion of *object-orientated activity* as being a process whereby the *subject* is mediated by mental reflection, which orientates them to the object. In this way, Leont'ev (1974) stated, 'activity is thus not a reaction or a totality of reactions, but rather a system possessing structure, inner transformations, conversations, and development (p. 10). This thesis proposes that a reciprocal structure of 'inner transformations, conversations, and development' occurs between the home and ECE activity systems as they mediate physical activity understanding, practice and opportunities.

It is this reciprocal process of conversations and development that Cole and Engeström (1993) discuss when *activity* becomes institutionalised into the culture of the setting. Cole and Engeström (1993) discuss how once an activity is institutionalised, it becomes a robust and enduring tool within the cultural context. This thesis offers the ECE and home activity system the potentiality of assessment documentation as a robust and enduring *tool* within their cultural context.

As Leont'ev (1978) developed his thinking in regard to object-orientated and goal-directed activity, he viewed human actions as being engaged in an activity, and in most cases, in a number of activities at one time. These activities are collective by nature and are set within a historical time frame, where they are deeply influenced by both present and past activities. Engeström (1987, 1999) draws on Leont'ev's (1978) notion of activity being collective and set within a historical context in his conceptualising of a third-generation of activity theory, the cultural historical activity theory (CHAT).

In the CHAT third generation activity theory, Engeström (1987, 1999) takes Leont'ev's (1978) concept of activity and links it to interacting multi-voiced traditions, interests, and interactions that occur within and between elements of the co-evolving activity systems. Within Engeström's (1987, 1999) third-generation activity theory he discusses that human subjectivity is not viewed as an unknown process existing solely in individual's heads. Rather it is a process of collective practical involvement. The third generation of activity theory underpins this thesis where it can be seen that this thesis is about researching parents and teachers' cognitive *understanding* related to physical activity as well as the related *practice.*

Engeström (1987, 1999) argues that activity occurs through a process of social transformation where analysis includes viewing how the social world is structured. Within this third-generation perspective, Engeström (1999) takes into account the conflictual nature of social practice. This thesis draws on the conflictual nature of social transformation of practice when it makes links to contradictions.

In an effort to conceptualise the conflictual and transformational nature of social practice within and between activity systems Engeström (1987) devised the notion of two interacting activity systems. Engeström (1987) viewed his 1987 conceptualisation as a minimal model for the third generation of activity theory. The two collective and expanded triangles (demonstrated in Figure 3) represent Engeström's (1987) original notion of third generation activity theory, as a dynamic and transformational *network* of activity systems. However, Figure 3 does not do justice to the dynamic interaction that Engeström (1987) proposes as occurring within and between elements of the co-evolving activity systems. Engeström indicated the concept of the 'third space'. The notion of the 'third space' may have been an early attempt by Engeström to conceptualise how his expansive view of development allowed for a shift through dysfunction to a state of function between the co-evolving activity systems (Engeström, 1993).

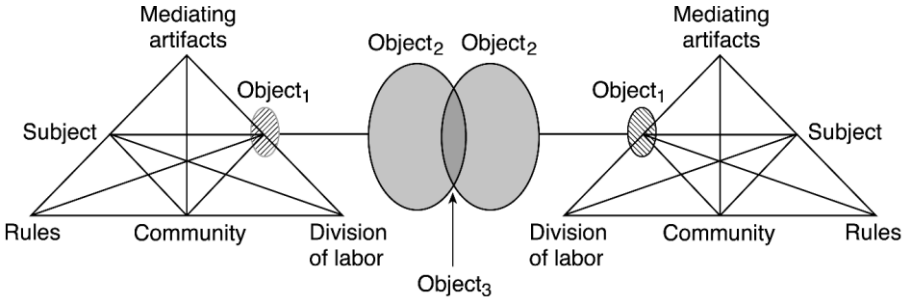


Figure 3: *Two interacting activity systems as minimal model for the third generation of activity theory (indicating the concept of the 'third space') – Engeström (1987)*

Figure 3 (above) demonstrates Engeström (1987) minimal conceptualising of two co-evolving activity systems at play. However, *activity* is a far more dynamically complex process with more multiple interacting activity systems occurring at any given time than can be represented by the figure. Engeström (1999) discusses how the notion of *expansion* underpins the dynamically complex, multiple interacting processes in third generational approach to activity theory.

Expansive learning (Engeström & Sannino, 2011) is crucial to this thesis as it underpins the notion of *opportunity*, in terms of transformational development. This thesis will demonstrate how identifying physical activity contradictions between the home and the ECE activity systems can be the first stage of opportunities for development. Assessment documentation is viewed in this thesis as a tool for reconciling contradictions, and in turn allowing parents and teachers to move to a 'third space' in terms of physical activity understanding, practice and opportunity.

The concept of development and transformation (referred to as opportunity in this thesis) is fundamental to Engeström's (1999) notion of expansion, where contradictions in understanding are identified and new knowledge assists the learning process. A development approach underpins Engeström's (1999) view of how learning is expanded, and where intervention steps in and transcends individual or short-term actions. This thesis will show how parent and teacher knowledge is expanded when assessment documentation is used as an intervention to communicate physical activity between the home and ECE settings. A broader and long-term outcome is provided for parents and teachers where they can become more informed as to what level of physical activity children are actually involved in between the home and ECE settings.

Engeström (1999) states that expansive learning is underpinned by a 'much longer perspective of a third dimension, that is, the dimension of the development of the activity' (p. 64). The notion of the development of the activity supports the use of the term *opportunity* in this thesis as it explores existing parent and teacher physical activity understanding and practice between the home and the ECE settings. The dimension of the development of the activity (Engeström, 1999) supports the notion of opportunities for developing and expanding existing knowledge of physical activity learning between the home and ECE settings.

A key process that differentiates the expanded nature of third generation activity theory from other forms of research is that intervention is seen to play a key role. This thesis links intervention to the notion of *opportunity* and how this study proposes a process of intervention to transform physical activity understanding and practice between the home and ECE settings. Sannino et al. (2009) describe how with expanded learning theory (Engeström, 1999) research findings are not just passed back to the participants but that the researcher remains in an active role, transforming the new ideas into practice.

It will be demonstrated in this thesis how new ideas gained from the study create the potential for intervention and development of physical activity practice and understanding between the home and ECE settings. Engeström (2010) recognises that due to the complexity of educational settings, the expectation should be that the initial design (or new ideas) would proceed through multiple iterations of refinement before there is any form of reconciliation.

3.6: Expansive learning theory underpinning understanding, practice and opportunity as a process for innovation and development

Engeström (1999) discusses several principles that support his proposed expanded activity system as a unit of analysis. It will be seen how these principles underpin the overall notion of physical activity *understanding, practice* and *opportunity.*

Engeström (1999) describes *multi-voicedness* as a principle of expansive learning where the community is seen as holding multiple points of view, traditions, and interests (Engeström, 1999) that are prioritised over individual activity. As teachers and parents articulate their understanding of physical activity practice, multiple perspectives are privileged over that of the individual. As teacher and parent understanding of physical activity is seen to come together, co-evolving activity systems expansive learning allows multi-voicedness of understanding to develop.

Engeström (1999) discusses how within the division of labour, participants carry their own *diverse* histories that are considered within the analysis process. As the previous principle of multi-voicedness develops in an expansive learning process, the understanding that teachers and parents articulate represents their varied contexts and diverse histories. Understanding of practice is mediated through diverse histories. Opportunity to expand physical activity learning is proposed through offering assessment documentation as a tool for communication.

As physical activity understanding is expanded on, *multiple layers and strands of history* (Engeström, 1999) are sustained through its artefacts, rules, and conventions. Chapter Eight demonstrates how the ECE activity system holds informal rules and conventions that differ from the formal excursion regulations. *Multiple layers and strands of history* (Engeström, 1999) unfold as it becomes evident how the ECE activity system's informal rules develop. Links are made to how historically the informal rules became operationalised by the ECE sector. It will be demonstrated how expansive learning (Engeström, 1999) as an opportunity identifies tensions in understanding and practice. Expansive learning (Engeström, 1999) allows for an opportunity of transformation of understanding and development of practice. *Historicity* occurs as the home and ECE co-evolving activity systems take shape and through expansive learning transform over lengthy periods of time. Problems within the home and ECE activity systems are understood against the history of the activity systems. As the history of ideas and tools shape the collective expanded activity system (Engeström, 1999) then *local history of the activity* develops.

This complexity between multiple activity systems is viewed as a source of *trouble and innovation*, where activities need to be translated and negotiated (Engeström, 1999). It is the principle of viewing trouble and innovation together that underpins the notion of contradictions. By understanding contradictions in physical activity practice, opportunity can provide for new and innovating practice.

3.7: Exploring the notion of contradictions and how it applies to understanding, practice and opportunity

Set within Engeström's (1987, 1999) expansive learning process is the notion of *contradictions* that are used as an analytical tool for reconciling tensions in practice. But for tensions to be reconciled, they first need to be identified. Contradictions can be viewed from two polar perspectives, that is, as a form of resistance and also as a process for understanding transformation. Basharina (2007) and Stohl and Cheney (2001) discuss contradictions as a form of resistance where they discuss tensions being torn between two conflicting ideas, principles, or actions. Alternatively, Quinn and Cameron (1988) view contradictions from a quite different perspective and argue instead that contradictions are 'a dynamic, paradoxical frame that allows us to understand transformation' (p. 304).

Foot (2001) supports the notion of contradictions as a process for understanding transformation and refers to them as the 'growing edges or growth buds' (p. 63) where

development is possible to take place. Foot (2001) is referring to the elements of the activity system as 'growth buds'. Engeström (1987) discusses how the purpose of contradictions within the activity system is that they illuminate and in turn assist understanding of potential problems within the history of the activity systems. This thesis uses the term 'contradiction' to mean both being torn between two conflicting ideas and as a process for transformation. This thesis refers to Engeström's (1987, 1999) four types of contradictions to provide a framework for conflicting and transformational contradictions. The key areas where the thesis identifies contradictions are in terms of physical activity understanding, practice and opportunity between the home and ECE settings.

This thesis uses the process of stabilisation and destabilisation of contradictions as the 'motive force of change and development' (Engeström, 1999, p. 9) between physical activity understanding, practice and opportunity. Destabilisation is viewed as a positive thing if it then provokes change and development. However, it will be seen in Chapters Five to Seven how destabilisation was not viewed as a positive process where contradictions were evident between the home and ECE settings that demonstrated opposing ideas. Destabilization is a key part of what happens when people cognitively transition and reorganise themselves between activity systems. Chapter Seven talks of the potential for assessment documentation to act as a tool for allowing parents and teachers to cognitively transition and reorganise themselves with their understanding, practice and opportunities in terms of physical activity between the home and ECE settings. Chapter Eight demonstrates how new knowledge allows the potential for ECE teachers to cognitively transition through their previous and current understanding of excursion regulation rules and how they apply to the adult-to-child ratio when out on excursions. This research believes that it is within this cognitive transformation process that physical activity contradictions have the potential to be identified and reconciled.

3.8: Exploring four types of contradictions and how they apply to understanding, practice and opportunity

Within Engeström's (1987, 1999) concept of expansive learning there are four different types of contradictions. In Engeström and Sannino's (2011) expansive learning cycle, the four types of contradictions feature at different stages as people engage in a process of questioning, analysing, modelling, examining, implementing and consolidating the new understanding and practice. The four types of contradictions are categorised depending on

whether the tension in the activity system is within an element (for example, the physical activity *rules* element of the ECE activity system), between elements of the one activity system (for example, between the physical activity rules and tools element of the ECE activity system), whether new knowledge is created in the activity system (for example, new ideas in terms of changed physical activity practice is brought into the ECE activity system) and whether new knowledge creates changes to old practice between activity systems (for example, changed physical activity practice between the home and ECE activity systems).

Engeström (1987, 1999) discusses how these four different types of contradictions are known as *primary* (that is, tension in the activity system is within an element), *secondary* (that is, tension between elements of the one activity system), *tertiary* (that is, when new knowledge is created in the activity system), and *quaternary* (that is, when new knowledge creates changes to old practice between activity systems).

In this thesis, these four types of tensions (*primary*, *secondary*, *tertiary* and *quaternary*) underpin the contradictions analysis between the home and the ECE activity systems. Table 1 describes Engeström's (1987) four types of contradictions, shows the different types of contradictions and describes the characteristics of each contradiction, as well as the relationship between them.

Type of contradiction	Characteristic of contradiction	Relationship between contradictions
Primary	Occurs between the use value and exchange value of any one element of an activity system.	The *primary* contradiction is continually present and is viewed as foundational to all other contradictions that ripple out from it. The *primary* contradiction remains a *constant tension*; it surfaces within the everyday context in various forms and in relation to the other types of contradictions.
Secondary	Develops between two elements of the same activity system.	The *secondary* contradiction occurs and prompts the *primary* contradiction (that may have been hidden from everyday knowledge) to surface again and take the form of a specific problem as tension begins to build.
Tertiary	Arises when the object of a more developed activity is introduced into the activity system.	The primary and secondary contradictions *are a priori* to, and independent of, *tertiary* contradictions. It is only if and when a *more advanced activity* is introduced into the activity system that the *tertiary* contradiction is enacted. This is where a continuation of the ripple effect occurs within the different types of contradictions. The introduction of a new object into the activity system resolves one or more *secondary* contradictions that are occurring.
Quaternary	Occurs between central and neighbouring activity systems	A *quaternary* contradiction is triggered by a ripple effect from efforts to remedy the outcome from the *tertiary* contradiction. This creates a disturbance *between* the original object and the new ideas or knowledge that have occurred from the introduction of a more advanced object into the activity system. Old ideas make way for new knowledge.

Table 1: *The four types of contradictions (adapted from the work of Foot & Groleau, 2011).*

Engeström (1999) argues that the tension within one element of the activity system, that is, *primary* contradiction, can often lead to an aggravated *secondary* contradiction with another element of the activity system. If there is no awareness of the contradictions at play, the tensions in understanding and practice will continue to occur. Engeström (1999) argues that if and when new knowledge is introduced (such as physical activity intervention) this new knowledge rubs up against old ways of doing things. Expansive learning occurs where the old understanding collides with new and a *tertiary* contradiction generates disturbances and conflicts in the existing knowledge. Engeström (1999) argues that this disturbance and conflict creates a potential for innovative attempts to change understanding and practice

(*quaternary* contradiction). In this thesis, assessment documentation of physical activity is seen as a potential tool for acting as a disturbance between current *primary* and *secondary* type contradictions. A physical activity expansive learning framework is developed in this thesis as a potential innovative attempt to change physical activity understanding and practice, that is, to act as a *quaternary* contradiction.

3.9: Exploring how consciousness-raising and sedimentation dilemmas apply to the identification of contradictions in understanding, practice and opportunity

The notion of consciousness-raising is pivotal to highlighting expansive learning, for without it people will not move through a transformative process. Parents and teachers need to be consciously aware if *primary* and *secondary* type (Engeström, 1987, 1999) contradictions in physical activity understanding and practice are going to evolve to *tertiary* and *quaternary* types. However, sedimentation in understanding and practice can often be the reason that understanding, and practice remains as conflicting ideas, principles, or actions (Basharina, 2007; Stohl & Cheney, 2001). Engeström (1987, 1999) proposes the notion of contradictions as a way of using this new knowledge to change old ideas –requiring a form of consciousness-raising to occur. For this level of consciousness-raising to occur it requires the activity system as a whole to be open to change and able to work together for the greater good of the group, rather than for individual gain. Whilst the notion of consciousness-raising is good in theory, people often hold highly sedimentary beliefs and values. Engeström (1987, 1999) contends that it is important for members of the activity system to not just adjust to and accept the conflicting ideas in a regimented, passive manner but to actively explore the contradictions in understanding and collectively work through them. It can be seen how consciousness-raising underpins the tertiary and quaternary contradictions as offering a dynamic and transformative framework for changing old ways of physical activity thinking into new ideas between the home and ECE settings.

3.10: Using Cultural Historical Activity Theory in early childhood education research contexts

Cultural Historical Activity Theory has been used as a theoretical research framework for other early childhood education studies. The research topics covered from a CHAT perspective are: play and learning (Fleer & Veresov, 2018 and Nuttall, Edwards, Mantilla,

Grieshaber & Wood (2015); reconceptualisation of role play (Van Oers, 2013); classroom organisation (Rivera, Galarza, Entz and Tharp, 2002); and natural sciences education activities (Kolokouri, Theodoraki & Plakitsi, 2012, Sundberg, Areljung, Due, Ekström, Ottander and Tellgren, 2016).

Fleer and Veresov (2018) discuss that there are many theories that influence early childhood education, including cultural-historical and activity theories (CHAT). In Fleer and Veresov's (2018) link to dialectical logic they focus specifically on play and learning. When referring to play, learning and development and early theoretical concepts proposed by Vygotsky are referred to. Fleer and Veresov (2018) use CHAT to help illustrate the contemporary context of early childhood education. Fleer and Veresov (2018) refer to CHAT as being foundational when discussing: play pedagogy; pedagogical models; children's perspectives on play and digital play. Fleer and Veresov (2018) discusses how CHAT has been used to inform ECE research, as well as providing a framework for challenges and helping set future directions and recommendations for early childhood education.

Nuttall, Edwards, Mantilla, Grieshaber and Wood (2015) adopted a CHAT approach to their research on digital technologies as a viable aspect of early childhood curriculum. Teacher perspective on young children's digital play became the unit of analysis for the study. Cultural Historical Activity Theory provided the theoretical framework to study teachers' motives for engaging in professional development in relation to children's play-based learning.

Carroll-Lind, Smorti, Ord and Robinson (2016) report how ECE leaders were coached to use CHAT theory as a mediating tool to identify connections between their everyday leadership tensions and systemic contradictions (as identified within CHAT). This study confirmed the potential of CHAT theory as a tool for building pedagogical leadership in ECE.

Van Oers (2013) propose a reconceptualisation of 'role-play' by using CHAT to specify play as a mode of activity. Van Oers (2013) discuss three basic parameters that define play as a unit of activity, that is, rules, degrees of freedom and involvement. CHAT is used by Van Oers (2013) to offer a framework that explores the role of adults within role-play. Additionally, Van Oers (2013) use their 'rules, degrees of freedom and involvement' parameters to review the nature of playful learning, and to clarify the development of

playing. Van Oers (2013) describe that in their use of CHAT developmental theories are superseded by viewing play as a cultural problem, where the role of adults is to make well informed decisions about what is culturally acceptable in the children's play activities.

Links to CHAT and early childhood education pedagogy can be seen also in the work of Rivera, Galarza, Entz and Tharp (2002) who adopt a CHAT based pedagogy. Rivera et.al. link CHAT to classroom organisation, community values within the classroom, and how the classroom community is embedded with a larger community. Rivera et.al. are interested in the emergent role of information technology within a developmentally appropriate pedagogy.

In other early childhood education studies, Kolokouri, Theodoraki, and Plakitsi (2012) and Sundberg, Areljung, Due, Ekström, Ottander and Tellgren (2016) have used CHAT specifically from a science curriculum perspective. Kolokouri et.al. used CHAT to analyse and design natural sciences education activities. In a similar way, Sundberg et. al. explored how CHAT can be useful for examining interrelations within preschool systems in relation to science teaching. Sundberg et. al. found that science activities tended to be shaped by how children's interests could freely govern their practice. The use of CHAT as an analytical tool proved to be an effective framework for identifying elements, relationships and tensions crucial for understanding how science activities can be most effectively designed. It will become evident that the link to tensions in the Sundberg et. al. study has relevance for this research study.

3.11: Summarising how activity theory underpins understanding, practice and opportunity

This chapter foregrounded the three generations of activity theory and how they have provided a theoretical frame for understanding, practice and opportunity. Expansive learning theory has been described as a framework for building understanding of physical activity practices between the home and the ECE settings. More importantly, expansive learning theory has provided the evidence-based support for the physical activity expansive learning framework that will be discussed in Chapter Nine, the discussion chapter as an opportunity for transformation and development of physical activity between the home and ECE settings. It can be seen that this thesis is not just about identifying contradictions but also about providing a potential form of intervention for contradictions, with the understanding, practices and opportunities. Whilst CHAT has not been used to investigate physical activity

provision in early childhood before, it can be seen in this chapter that it has been used in other areas of early childhood education and offers the ECE sector a unique approach to physical activity analysis. For example, see, Fleer and Veresov (2018), Van Oers (2013), Rivera, Galarza, Entz and Tharp (2002), Kolokouri, Theodoraki and Plakitsi (2012) and Sundberg, Areljung, Due, Ekström, Ottander and Tellgren (2016).

The next chapter will describe the methodology that supports a theoretical expansive learning analytical framework. The next chapter will detail how the activity system is considered the unit of analysis and describe the data collection methods, and the contradictions analysis process that will answer the three key questions of the research study.

Chapter Four: Methodology underpinning understanding, practice and opportunity

4.1: Introduction

This chapter will provide a full explanation of the conceptual framework and methodological approach that underpins this thesis. The research design will be described, as well as how research participants were chosen. The proposed data analysis process is described, where the home and ECE settings are viewed as the units of analysis. Clear links will be made with the overall aims and rationale of the thesis, and the method and design. In the previous chapter, cultural historical activity theory (CHAT) (Engeström, 1987, 1999) defined the notion of the *activity system* as the unit of analysis. The focus of this section is to explain how a qualitative methodological approach underpins the ECE and home settings. This chapter views the home and ECE settings as the units of analysis. The chapter includes discussion of the ethics that underpinned the recruitment of parents, teachers, and children within the ECE and home settings.

The focus then turns to data collection methods that allow for culturally and historically shaped knowledge to be gained. The research design describes that while Phase One and Two planned to collect data through photographic recording, physical activity templates and semi-structured interviews that in fact these methods only ended up occurring in Phase One. A change to *when* transcribing happened (that is, after each interview, rather than after each completed phase as planned) will be described and it will be explained how this created an inductive approach to data collection and analysis for Phase Two. Through the rich, broad data collection that occurred in Phase One, the second phase of the research concentrated on unstructured interviews and teachers writing assessment documentation in the form of *Learning Stories* (Carr, 2001).

An analogy of the repetitive action of dancing the 'waltz' is referred to when identifying the relationship between data, transcribing and analysis. Gentner, Holyoak and Biicho (2001) discuss how the use of an analogy or metaphor is to use 'familiar concrete domains to discuss less familiar or abstract domains (p. 202). Just as a waltz has a count of 1, 2, 3 to give shape to the dance, this study used data collection as count 1, transcribing as count 2, and further analysis as count 3 to give shape to the findings.

The previous discussion chapter describes Engeström's (1987) four types of contradictions from a theoretical perspective. This section looks at the relationships that occur within and *between* the elements of the home and ECE activity systems. This provides a contradictions-based analytical framework for the data.

4.2: Methodological framework

Rogoff (2003) describes how it is essential to 'foreground' and 'background' information where not all phenomena are examined at one time. Rogoff (2003) stated 'however, the distinctions between what is in the foreground and what is in the background lie in our *analysis* and are not assumed to be separate entities.' (p. 58). This notion of foregrounding and backgrounding knowledge is a way of describing the complex and dynamic nature of the interacting activity system (Engeström, 1987, 1999). This study foregrounds contradictions in understandings and practices between the two activity systems. The similarities in understanding and practice will be backgrounded.

In cultural historical activity theory, Engeström (1987, 1999) discusses understanding as being culturally and historically shaped. Viewing Engeström's (1987, 1999) contradictions from Rogoff's (2003) methodological notion of *foregrounding* and *backgrounding* allows for the intricate inter-relationship within and *between* the contradictions to be studied in this research – rather than just analysing the 'elements' of the activity systems. In this way, a sociocultural/cultural-historical based methodological framework (Engeström, 1987, 1999; Rogoff, 2003) guides how dynamic and complex understandings, practice and opportunity are constructed between the activity systems of the ECE setting and home.

4.3: Epistemology – understanding from a methodological perspective

The epistemic point of view researchers choose portrays their specific understanding and worldview of reality, their knowledge of that view, and how they ascribe meaning to that specific view of reality. Tennis (2008) stated that we make 'implicit epistemic statements about knowledge […]. In so doing, we create knowledge, and our epistemic stance dictates what kind of knowledge that is' (p. 103). Crotty (1998) also views epistemology as the theory of knowledge that is embedded in research methodology. It is essential to explore the dynamic epistemological theory of knowledge that occurs within and between the sociocultural, cultural analytical, historical-based method (Engeström, 1987, 1999). Tennis

(2008) also describes how the epistemic stance we take demonstrates the kind of knowledge we collect, gather and present as understanding.

Langemeyer and Roth (2006) argue that cultural historical activity theory (Engeström, 1987, 1999) foregrounds the elements within the activity system in a structured, pre-determined, analytical approach without taking into account the underlying complex inter-relationships that are at play. In this way, Langemeyer and Roth (2006) are suggesting that within an activity system, knowledge is viewed as being of a predetermined nature and that understanding is predetermined.

Langemeyer and Roth (2006) contend that when using CHAT (Engeström, 1987, 1999) as an analytical framework, the epistemic focus needs to shift from knowledge being of a structured *pre-determined* nature to one that explores thematic relationships, interdependencies, determinations, and changes in practice. The research reported in this thesis deliberately foregrounds the inter-relationships *within* and *between* the elements of the activity system (Engeström, 1987, 1999). This means that the thesis does not just identify the elements of the ECE and home setting contributing to parent and teacher understandings and practices of physical activity for young children. Instead it also ensures a thematic exploration of relationships and interdependencies between these settings.

A qualitative stance on research implies the researcher believes meaning-making occurs from people's lives, behaviour and interactions. A qualitative approach aligns with the CHAT-based analytical framework. Vasilachis de Gialdino (2009) discusses how knowledge is created through dynamic and social interactions, and in the understanding of personal narratives and life stories. Qualitative researchers want to know people's viewpoints, what they think and what their thinking implies and signifies (Vasilachis de Gialdino, 2009).

From a CHAT (Engeström, 1987, 1999) perspective a qualitative approach provides a framework for understanding collective viewpoints and their implied meanings. Within CHAT (Engeström, 1987, 1999) Foot and Groleau's (2011) contradictions analysis provide a specific framework for understanding contradictions in implied meaning and how they influence the activity system.

The methodological epistemic underpinning for this research is that knowledge is not a separate entity held by the individual. Knowledge is viewed as a socially constructed process

within and between activity systems (Engeström, 1987, 1999). For this thesis knowledge will be viewed in terms of how the activity system constructs understanding and practice of physical activity. This contrasts with an individual perspective of knowledge as existing outside of the person. This means the ECE and home settings are inclusive of all teacher and parent knowledge.

For this thesis, knowledge will not be viewed from an individual perspective, but rather as to how the activity system as a whole constructs understanding of everyday physical experiences *within* their activity system and *between* the other. In this way, the 'home' activity system is inclusive of all parent knowledge (Engeström, 1987, 1999).

The type of epistemic claim made within this thesis is that knowledge is a socially constructed process that occurs within and between groups of people with shared interests. Sociocultural theory argues, 'individual development constitutes and is constituted by social and cultural-historical activities and practices' (Rogoff, 2003, p. 51).

Engeström's (1987, 1999) third-generation activity theory is underpinned by sociocultural principles that focus on culture being historically formed, multi-voiced, collective and artefact-mediated. Parent and teacher knowledge of physical activity constructs a social perspective for this thesis. Engeström's (1987, 1999) third-generation activity theory also views individual actions as being interpreted against the background of the entire activity system, incorporating the associated traditions and interests.

In this thesis, by researching with teachers and parents a growing recognition will develop as to what parents and teachers understand and practice about physical activity for young children. Engeström (1987, 1999) describes the critical role the analysis of problems and potentials play in third generation activity theory. In this way, *all* viewpoints count for knowledge and practice, not just those that fit nicely into finding areas of understanding and practices parents and teachers might have in common. The epistemology of this thesis views tensions in understanding and practice as crucial factors for awareness and knowledge to develop in terms of physical activity between the home and ECE settings.

4.4: Ontology

Ontology is the branch of philosophy that deals with the essence of reality. Near the beginning of the previous chapter, activity theory perspectives (Vygotsky, 1979; Leont'ev, 1978) drew on Karl Marx's notion of 'activity' as a means of connecting the inner world and

outer world and showed that this dichotomy was a challenge for academics at the time. Marxism was a direct outgrowth of enlightenment thought and took its legitimacy from the scientific traditions that were prominent in the 19th century. Although Marx (1877) demonstrated an objective and materialist ontology, his notion of 'activity' was a key influencing factor related to this political economy, where he explored notions such as 'division of labour' to address and improve human issues (Marion & Gonzales, 2014). Marx's identification of the divisions between those who had money and those who only had their labour to contribute to the economy (to whom Marx coined as the 'working classes') was of key concern for him. Marx (1877) viewed the 'working class' as disempowered and merely a cog in the economic machine due to not having their finances to manage their working lives (Marion & Gonzales, 2014). Marx's (1877) political ideology of the less wealthy being on an even keel with those with more wealth and in effect running the economy never eventuated.

Both parenting and early childhood education are forms of human activity (Engeström, 1987, 1999) and types of work that have material effects on children's human development. As such, Marx's (1877) notion of fair division of labour relates to the parent/teacher *activity* involved in caring and providing for children's development. Kuutti (1996) discusses *activity* as everything objective that exists independent of individual consciousness. Both the internal parent/teacher understandings and the material practices in terms of young children's physical activity describe what is referred to as *activity in* this thesis study.

A critical focus in this thesis is on parent and teacher understandings about physical activity. Coupled with parent/teacher understanding is the material affect that misunderstandings can have on practices in term of children's physical activity between the home and ECE settings. When relating to the influence that understanding and misunderstanding can have on practice, Morris, Leung, Ames and Lickel (1999) discuss how an *etic* analytical perspective (which is from the standpoint of the observer) is meaningful to external and anecdotal behaviours. It is essential that the thesis acknowledges the role that understanding (and misunderstanding) has on practice.

Due to the need to explore the material consequences of parent and teacher assumptions in this thesis, an etic approach is evident. Morris et al. (1999) state, 'a key feature of etic methods is that observations are made in a parallel manner across differing setting' (p. 782). The 'methods' section will discuss that while an etic approach to the interviews was first

intended (where each group had the same questions), the process of transcribing between interviews meant that a systematic approach would not drill down deep enough to gain the required information. The interviews in the second phase came from a less pre-described perspective and instead link to the specific socially constructed knowledge of each context.

4.5: Axiology

Watt (2007) discusses how each research project is different and ultimately the decisions are up to the researcher to determine 'what works best' for their research. Watt (2007) also discusses how judgments influence decisions made as a researcher. Axiology links to the judgments about the value and the ethical stance taken as a researcher. Schroeder (2012) discusses the concept of 'value theory' as being roughly synonymous with axiology. Value theory has some relevance to axiology, but links more to an external objective perspective of reality that concerns classifying which things are 'good', and 'how good' they are. Whereas axiology within research is concerned more from the perspective of how values influence the ethical stance taken by the researcher.

Sargeant (2012) also discusses that the values held by the researcher guide their actions and how these values demonstrate the formation of judgments throughout the research process. Axiology explains how the values taken by a researcher influence the type of topic chosen, choice of philosophical approach, and how data is collected and analysed (Sargeant, 2012). When looking at the data, the analysis considers contradictions between a collaborative or individual approach. Within this thesis, from an axiological perspective value was placed on collecting data collaboratively but within the particular setting of the parents and teachers. All parents at one ECE setting were interviewed collaboratively, and then at another time all parents at the other ECE setting were interviewed collaboratively. Likewise, the teachers at one ECE setting were interviewed collaboratively, and then at a separate time all the teachers at the other ECE setting were interviewed collaboratively.

4.6: Research questions

The research questions are:

1. What are the contradictions in parent and teacher understanding of physical activity between the home and the ECE settings?
2. How do contradictions in understanding of physical activity influence practices in the home and ECE settings?

3. What teacher practices would strengthen opportunities for physical activity between the home and ECE settings?

4.7: Ethical considerations

Having discussed the methodological underpinnings of the activity system as the unit of analysis, and the rationale for the research questions, the next concern involves ethical consent for the research project.

Creswell (2007) discusses how institutions set ethical guidelines. The Australian Catholic University (ACU) Human Research Ethics Committee has approved the research (Appendix A). However, there were several areas in which the original ethics application required amendment. These concerned the type of narrative documentation utilised by parents and teachers and the taking of digital photographs. As a result, a 'template' for parents and teachers to fill out regarding children's physical activity at home and in the centres was requested.

There were a few contextual factors that created this cautionary approach adopted by the ACU Human Research Ethics Committee. For the purpose of this research, being conducted in New Zealand, it was also important that the New Zealand Association for Research in Education (NZARE) ethical guidelines were considered.

From the perspective of the ACU Human Research Ethics Committee, there are seven overall principles considered. The principles are: that participants are protected from any physical or mental harm; the researcher is also protected so that they can carry out a legitimate investigation; the research conducted should safeguard the University's reputation that it conducts and sponsors; potential for breaches of legislation and claims of negligence are minimised; privacy legislation is met; the funding requirements are satisfied; and assurance that a letter of approval is presented as a precondition for publication in specific journals.

From an Australian perspective the Australian Association for Research in Education (AARE) adopts the following four principles. First, that all research performed must enhance the general welfare of all participants. Second, that educational research is an ethical matter and should contribute to human good. Third, no risk of significant harm is permissible to the subjects. Finally, the dignity of participants and the general public is respected and should take precedence over the self-interest of researchers. The possible risk associated with any

photographs ‘going public’ needs to be considered to ensure respect for the dignity of the participants.

The New Zealand Association for Research in Education (NZARE) abides by three overall principles. First, that the rights and welfare of participants and the general public should take precedence over the self-interest of researchers, and that there should be a concern for the rights and interests of those people affected by the research. Second, all research should be reported objectively and frankly, and without prejudice. Limitations in techniques should be noted, and opinions unsupported by evidence should be distinguished from research findings. And finally, all aspects of research should be performed with open inquiry and discussion, and research findings should be expressed in a way that is easily understood by those with interest in the research.

These principles concur with Creswell (2007) who discusses how all education researchers need to be aware of and anticipate ethical issues in their research. He refers to three basic principles that relate to research ethics: respect for participants that is, protecting the autonomy of the participants and ensuring they are well-informed; ensuring their participation is voluntary; and ensuring there is a fair distribution of risk and benefits for the participants.

As part of the ethical approval process, the institution’s ethical committee also needed to be assured that those people participating in the research were well informed. Participants needed to know the purpose and aims of the study, how the results of the study would be used, and what would be required of them as participants (Creswell, 2007). All participants had the right to be fully informed of the nature of the study and any possible consequences of their involvement. The participants involved in this thesis were given an information letter and consent form.

Henn, Weinstein, and Ford (2006) argue that information needs to be presented in such a way that is easily understood by the participants. It was required to provide the ethics committee with the letter that parents would share with their children, informing them of the research process. In Appendix B (Information Letters Given to Parents and Teachers) there is a letter produced in pictorial format so that the children could more readily understand for themselves that they were having photographs taken of them and Learning Stories written. This information was to be written up in a ‘book’ (that is, reported in the thesis).

Once ethical approval had been given for the information and consent forms, the study was discussed face-to-face with possible participants. In this way, participants could be well informed by the researcher going over the information letter and consent forms with them and being directly available to answer any questions or queries. The initial meeting was also a way of introducing the researcher and initiating the possible relationship the researcher would have with the parent participants and teacher participants who chose to be part of the research process (Henn, Weinstein, and Ford, 2006). The research was not directly discussed between the researcher and the children. The process of seeking children's informed consent was allocated to parents who could talk to their children about it at an appropriate time and in an appropriate manner. A consent form was constructed that was easy for the children to make sense of. An example of this is a photograph of a camera was provided to say I would take photos of them.

As well as ensuring participants were well informed, a key consideration was the risk that being part of the investigation might have for participants. Johnson and Christenson (2012) discuss how the way in which research participants are treated is the most crucial and fundamental issue that confronts researchers. They also describe how research on humans has the potential risk of performing physiological or even physical harm. Whilst no obvious risk was identified by carrying out this investigation, it was considered that participants might come away from this investigation feeling a sense of being 'lesser than' others in regard to their physical activity provision. Johnson and Christenson (2012) discuss that it is essential from a respect perspective to be sensitive to participant's values and beliefs. The ACU Human Research Ethics Committee believed that taking digital photographs of the children and then storing them on a computer was a risk, hence, to counter this concern, photographs were taken with disposable cameras only. The rationale for this decision was that disposable cameras had film and were kept in hard-copy format and not able to be digitally formatted on a computer.

Cresswell (2007) emphasises the importance of participants being informed that they have the right to withdraw from the investigation at any stage and that their anonymity is protected and guaranteed by the researcher. In the information letter and consent form, prospective participants were informed they could withdraw from the research up until the end of the fieldwork, and, if so, their data would not be used in the investigation. Participants were also informed that if they chose to withdraw from the research, their data would not be used. Parents understood if they withdrew from the study this also meant any information relating

to their child would also be withdrawn. Nobody withdrew from the investigation once the two ECE settings (parents and teachers) agreed to be part of the research.

Finally, safe storage of data is an essential element to prove to the ACU Human Research Ethics Committee. The ACU Human Research Ethics application stated very clearly that all data would be stored in a safe manner that could not be accessed by anyone other than the researcher. More specifically, the data would only be stored on a password-protected laptop that would remain either in the researcher's office or at their home. As discussed previously, all photographs of children were in hard copy format only and were locked in an office drawer at the researcher's place of work.

4.8: Recruitment

Part of gaining the ethical consent from ACU HREC was to prepare the information sheets (Appendix B) and consent forms (Appendix C). Attached to the information letter and consent forms was a 'child-friendly' information letter and consent form for the parents' children, as the researcher required a child to participate for every parent.

Once the ACU HREC approval was gained, a purposive approach (Dudovisky, 2018) to recruitment was adopted. The recruitment judgement was based on finding early childhood settings in the city in which the researcher lived that were 'not-for-profit' centres. The reason for choosing this type of centre structure was because they had parent committees. As this research required teacher and parent participation it was felt that by approaching the parents on the committees and talking with them face-to-face there would be a better chance of them understanding the research process. It was decided to keep the number of centres that were approached to a minimum as the potential for qualitative data from a higher number than four centres could become difficult to manage. Four local 'not-for-profit' early childhood centres were invited to participate in the research by the researcher.

Each of the four identified ECE settings were telephoned, and a pre-scripted 'phone message' was discussed with them. The pre-scripted message was to ensure consistency of what was said to each of the managers (Appendix D) of the ECE settings. Then the managers were asked if the researcher could attend a staff meeting and committee meeting to inform teachers and parents of the research. The managers then said that they would take it to their next staff meeting and committee meeting. The settings were contacted after their meetings occurred and managers from three of the four ECE settings said that the teachers and parents

were interested in being informed further about the research. When the fourth ECE setting was contacted, they said they were not interested in participating. It was decided that it was too late in the research process to seek an additional ECE centre to recruit. This brought the recruitment number down to three ECE settings. For each ECE centre two parents, two children (one from each of the parents), and two teachers were required as participants, i.e. a total of 18 participants.

The recruitment and selection process continued by the researcher attending staff and committee meetings at the three remaining ECE settings. Copies of the information letter and consent form were handed out at that stage. The discussions were kept to about 15 minutes including time for any questions. After the meetings, the ECE settings were contacted again and the researcher asked if each ECE centre had two parents, two children and two teachers that were willing to participate in the research. As is normal with research recruitment, things didn't go quite to plan.

One ECE setting (to be known from this point on as Centre A) was able to provide the requested two parents, two children (of the parents) and two teachers. The second ECE setting (to be known as Centre B) took some time to contact and confirm, but eventually, two parents, two children, and the whole teaching team of six teachers agreed to participate. It was clear with this centre that it was either all the teachers participating or none. Unfortunately for the third ECE setting, whilst two teachers were keen to participate, they could not gain any parent (and children) interest.

The participating centres were now down to two, with the total number of participants being: four parents (two in Centre A and two in Centre B), eight teachers (two in Centre A and six in Centre B), and four children (two in Centre A and two in Centre B). The total number of participants was 16. This was slightly short of the total of 18 had there been three centres. Whilst having only two participating centres was of some concern to the researcher and the her supervisors it was decided that the variety and amount of data to be collected would provide enough data to address the research questions.

The selection process took place when the four centres were chosen to be recruited. Due to two of the four ECE centres withdrawing from the research in the recruitment stage, all participants who wished to participate were accepted.

The next aspect was waiting for the consent forms to be returned. This process occurred quite quickly with Centre A, whereas it took quite a few phone calls and emails back and forth to Centre B to get all the required documentation signed. Creswell (2007) refers to the recruitment process in qualitative research as being purposeful, where participants are selected concerning who best can inform the research questions and enhance the understanding of the study. This form of sampling is known as convenience sampling where the participants were any parent or ECE teacher who agreed to participate in the research. The inclusion criteria for the convenience sampling were that the ECE teachers were fully qualified, and parents had a child attending the ECE setting.

The recruitment process was a lesson in patience and compromise. It also taught the researcher probably the most valuable lesson in regard to qualitative research —it is not about the 'quantity', but it is very much about the 'quality' of the research data.

4.9: Participants and setting

4.9.1: Participants

The number of participants in the study was 16 in total, eight teachers, four parents, and four children. Onwuegbuzie and Leech (2007) discuss how the goal of the qualitative researcher is not to generalise to a population but to gain insights into a phenomenon. In the case of this research, the overall purpose was to understand physical activity between the home and the ECE settings. While viewing the activity system as the unit of analysis for this study, it was important to understand that the activity system could not be viewed in isolation from its participants.

Verenikina and Gould (1998) discuss how the activity is viewed as a 'system of interrelationships' between people (p. 6) thus it is this interconnection between the activity systems that allowed the data received from the teacher and parent participants to be rich in meaning-making. The most important aspect was that the participant's contribution could inform the research question. Therefore, it was essential that the teachers and parents of children who attended an early childhood setting took part in the research study.

Sargeant (2012) discusses how the number of participants in qualitative research depends upon the amount required to inform the phenomenon being studied fully. While it could be argued that an increased number of participants would have answered the question more fully, the use of a contradictions-based analytical framework in this study meant that

dynamic meaning-making was able to occur between the two critical interrelating home and ECE activity systems.

The two ECE teachers from Centre A and the five ECE teachers from Centre B were aged between approximately mid-twenties to mid-thirties and had individual teaching experience ranging from two to fifteen years each. All teachers were female.

Both parents at Centre A were aged 25 to 35. One was from England and the other from New Zealand. Both Centre B parents were aged 25 to 35. One was for New Zealand and one from Spain. Centre A parents each had one child enrolled in the centre. Both Centre A and B parents worked and were of middle income. All four parents in the study were females.

One Centre A child was an eighteen-month-old boy and the other was a four-year-old girl. Centre B parents each had one child enrolled in the centre; both were aged four years. One parent had a boy and one had a girl.

As discussed in the literature review, research findings about the effect of gender on physical activity in the early years are generally mixed. It is not clear whether or not girls are more active than boys or vice versa., (see Nielsen, Pfister and Andersen, 2011; Rohan, Telford, Telford, Cochrane & Davey, 2016). One study suggests that girls have better motor skills or are more physically active than boys (Reikerås & Moser, n.d).

As well as the parents, teachers, and children there was one additional participant in this study. This participant (who will be referred to from this point on as ‘Annie’) inadvertently walked into the second Centre B interview. Annie did not introduce herself to me and the interview continued. Annie had planned to carry out some professional development with the team and there was confusion of dates as to when she was meant to attend the ECE setting staff meeting. A previous role Annie had held was as an advisor for the Ministry of Education liaising with early childhood settings. Annie contributed once during the interview as it was an area that related to her previous expert knowledge of the ECE regulations and how they applied to ECE setting practice. Retrospective ethical approval was obtained to allow Annie’s comment to be included in the thesis. This enabled ethical approval for Annie to be contacted via email to follow up on her expert knowledge. Once ethical approval was gained, Annie was sent an information letter and a consent form to sign.

4.9.2: Setting

As stated in the introduction and detailed in Chapter Three, the home and ECE activity systems are viewed as the unit of analysis for this study. Therefore, whilst the interviews took place in the ECE setting for the convenience of the participants, the research is set within the home and ECE setting. The next section will highlight the home and ECE setting study sites.

The ECE setting

Two inner city, community-based ECE settings took part in this research (to be referred to as Centre A and Centre B).

Centre A is a long-established, teacher-led, community-based environment that is situated in a central business district in a New Zealand city. The ECE setting has been operating for 30 years. It is an incorporated society that operates as a non-profit parent cooperative. The ECE setting is licensed to provide all-day education and care for 27 children, including eight children up to two years old. Separate learning areas cater for the needs of infants, toddlers and young children. Centre A mostly served working families. Centre A had two teachers who wished to be involved in the research. One teacher worked in the under-two-year-old age group and the other worked in the over-two-year-old area of their ECE setting. Two children were part of the initial focus of the study in Centre A. One teacher was assigned to observe and take photos of the younger child in the study and the second teacher was assigned to observe and take photos of the older child. There were two parents from Centre A who took part in the research. Both parents worked full-time.

Centre B was a ‘not-for-profit’ community-based early childhood setting. It serves middle-income parents that live within its community. Centre B is a long-established, teacher-led, community-based ECE setting and is managed by a parent cooperative as an incorporated society. The setting supports a diverse community. It operates all day, Monday to Friday, with up to 35 children over the age of two years. The ECE setting operates from a modified home, adapted to suit the needs of an early childhood setting. There is a ‘core group’ that manages the ECE setting, which is supported by the head teacher. The ‘core group’ undertakes the governance role, while the head teacher is responsible for the day-to-day running of the ECE setting. Centre B is also an inner-city ECE setting serving mostly working parents. In the Centre B teaching team, all of the six teachers wished to be involved in the research.

The home setting

All parents in the study were from medium socio-economic backgrounds and worked at least 30 hours per week They lived nearby their ECE settings. Three of the four parents lived in stand-alone homes, and one parent lived in an apartment building. Two of the parents were from New Zealand and two were not were not. Of the two parents who were not from New Zealand, one was from Spain and the other from England. All parents either swam, walked, or took part in some form of regular physical activity as individuals and with their families. All parents chose to be interviewed at the ECE setting, rather than in their own homes.

4.10: Data collection methods

Research methods that were designed to identify the understanding of physical activity within the home and ECE activity systems will now be presented. The research methods that are identified in this section are interview, photographic recording, physical activity template, and Learning Stories.

4.10.1: Interview

The key method used in the research was interviewing. The interview process was chosen so that participants could be engaged in conversation, with the purpose of gathering descriptions of their lived experiences and detailed understandings (Kvale, 1996) about everyday physical experiences in the home and the ECE settings. Rather than merely answering the researchers' questions (Schostak, 2006) the concept of engaging participants in an extended conversation between each other was supported in this study.

The interview research design:

There were two stages to the interview process.

Stage One:

- Parents at Centre A engaged in one one-hour combined hour-long semi-structured interview;
- Parents at Centre B engaged in one one-hour combined hour-long semi-structured interview;
- Teachers at Centre A engaged in one one-hour combined hour-long semi-structured interview;

- Teachers at Centre B engaged in one one-hour combined semi-structured interview.

Note: Four one-hour long interviews in total for stage one.

Stage Two:

- Parents at Centre A engaged in one one-hour second combined semi-unstructured interview;
- Parents at Centre B engaged in one one-hour second combined semi-unstructured interview;
- Teachers at Centre A engaged in one one-hour second combined semi-unstructured interview;
- Teachers at Centre B engaged in a one one-hour combined semi-unstructured interview.

Note: Four one-hour long interviews in total for stage two.

Eight hours of interviewing was undertaken for parents and teachers in stages one and two. All the interviews were held at the ECE centres.

First semi-structured interviews

The first phase began with the notion that all participants should be asked the same set of questions to allow for validity across the data collection process. Edwards (2001) discusses the importance of validity in qualitative research as a 'matter of being able to offer as sound a representation of the field of study as the research methods allow' (p. 124). Therefore, pre-determined questions were asked using a semi-structured process (see Appendix F).

Canold (2001) discusses semi-structured interviews as having a mixture of open-ended and closed questions. This semi-structure provided the opportunity for direct questions to be asked, as well as opportunities to extend on specific topics. The first interview was divided into four principle issues that came from the identified gaps in previous research. The four overall topic areas were, describing the physical activity, exploring what physical activity looked like in the home setting and the ECE setting, discussing whose critical responsibility it was to provide for children's everyday physical experiences, and finally, discussing factors that constrained and supported everyday physical experiences. The researchers learning from the Phase One approach to questioning was that while the pre-determined questions provided

some excellent initial links to answering the research questions, they did not collect beliefs, thoughts, and feelings (Kumar, 2005) that were specific to each activity system. It was proposed, therefore, that a change to this pre-determined approach would occur for the questioning focus for the second phase.

Second semi-unstructured interviews

As described earlier, the notion of validity that seemed relevant for the first set of interviews was not seen as the key priority for the second round of interviews. The concept of 'validity' is based on the idea that there is 'a valid truth' to be collected which contrasts with Engeström's (1999) belief that there are multiple and ever-changing realities. Rather than viewing the importance of 'validity', Richardson and St Pierre (2005) use the metaphor of a crystal to symbolise how 'reality' depends on the position from which we are viewing it. Therefore, instead of the deductive approach (as used in the Phase One interviews), the second phase took on more of an inductive method (Fontana & Frey, 2000).

A semi-unstructured interview approach was therefore used in the second round of interviews (Appendix G) for the parents and the teachers (Kumar, 2005). An open-ended interview approach (Gubrium & Holstein, 2002) was adopted which allowed for more freedom regarding how the content and questions were planned, implemented and organised when following up on developments from the first phase of interviews. The open nature of the second semi-unstructured interview (Fontana & Frey, 2000) meant unexpected knowledge could be gained. In the second round of interviews the questions not only varied from the first round, but they also differed *within* each interview of parents from Centre A and parents from Centre B. Likewise, the questions also differed *within* each interview of teachers from Centre A and teachers from Centre B. In this way questions also differed *between* the home activity system and the ECE activity system. The second interview content was therefore designed around the unexpected insights that had come from the Phase One interview analysis for each setting.

Expert participant email after the second interviews

Harrell and Bradley (2009) discuss how interviews can be used to gather vital background information from an expert in the area. Interestingly, while not knowing it, this was precisely what occurred during the second interview for one of the ECE settings (Centre B). While not intentionally seeking 'expert knowledge' Annie contributed her knowledge about ECE policy and ratios while out on excursions. The information provided by Annie in the interview was very brief. It was followed up with an unstructured computer-aided email

interview with Annie where further background information (Harrell & Bradley, 2009) was sought. Email interviews are favourable if conducted in 'real time' where the interviewer and interviewee are involved in a degree of personal interaction (Harrell & Bradley, 2009). Additional ethical approval was sought for the email interview to occur, as it was not foreseen when ethics approval was first gained. Annie's contribution was an opportunity for 'expert knowledge' that could not be overlooked for the study.

4.10.2: Photographic recording

Photographs as data generators for the first interview

Schwartz (1989) talked about the benefits of using photographs in social research as data or as data generators. The photographic recording was used in this research as a 'data generator', rather than actual data. Onwuegbuzie and Leech (2007) support the use of photographs being taken by participants as encouraging research participants to be able to express their viewpoints and tell their stories more clearly.

Appendix E (the original research plan) outlines the initial plans for the use of the cameras at the beginning of phase one when cameras would be given out to all parents and teachers. Participants were asked to photograph the study child involved in any form of physical activity. Participants were open to take photographs of anything they related to physical activity, either in the home or the ECE setting.

The photos were to be supplemented by a 'physical activity template'. The use of the template was for participants to document and add context to aspects that happened in the photographs. The idea of a template was that it provided consistency and guidance for parents and teachers to use as they described the physical activity that occurred.

The disposable cameras and the corresponding physical activity templates were collected at a suitable time from the centre. The use of the cameras was not consistent across the two settings. Centre A teachers and parents took the photos. The Centre B teachers did not seem to get the message clearly and so there were no photographs taken by them. Centre B parents did use their digital cameras. This inconsistency of the use of cameras between the two centres proved a problem, only in that there was not the same amount of data generated as was intended within the original research plan. In the end six films (at 20 photographs a film) were developed.

All photos that were developed were shown to the respective parents and teachers who took them. The main aim of the photographs was to use them to provoke the participants' thinking, as they explained the photographs at the beginning of the first semi-structured interview questions. The photographs did not have the anticpated effect as provokers for conversation. This process was expected to repeat itself in phase two. As the disposable cameras were of limited use for data generation it was decided to not repeat the process for phase two.

Disposable cameras were suggested from an ethical perspective so that no digital images of the children would be retained. Wiles, Prosser, Bagnoli, Clark, Davies, Holland and Reynold (2008) discuss how issues can occur with the use of visual data collection methods as it means that participants are potentially visually identifiable. Concerning research with children, Wiles et al. (2008) also discuss how it is essential to consider the child's rights in regard to possession and dissemination of images, hence the use of disposable cameras in this study for Phase One for ethical purposes.

4.10.3: Physical activity template

Physical activity template as data generator for the first interview

Initially, a straightforward template was designed for parents and teachers to fill out. The idea of the template was that it was a brief form for parents and teachers to fill out giving limited context to the physical activity photographs they were taking. The physical activity template (Appendix F) provided some initial information concerning what physical activity the children were engaged in. The purpose of the template was to act as another provocation for the interviews. Overall, the template did not contribute greatly to knowledge of the parents and teachers *multiple and ever-changing realities* (Engeström, 1999) and therefore was not used again before the second round of interviews.

4.10.4: Learning Story assessment documentation

The early childhood education assessment documentation process of Learning Stories (Carr, 2001) was used as both data and data provocation before the second round of interviews. In this way, parents viewed the Learning Stories that the teachers in the research had written about their child's everyday physical experiences. Learning Stories (Carr, 2001) are the main national assessment and documentation method used within ECE settings in New Zealand, and increasingly internationally. Smith (2013a) talks about learning arising from children's active participation in social interactions and relationships, and advocates that Learning

Stories effectively capture this learning. Blaiklock (2010), however, argues that teachers can be affected by their own perspectives of how they believe children learn, when they write Learning Stories. McLachlan, Fleer and Edwards (2010) also say that teachers need be aware of their personal biases and the ways that personal biases could influence the observations. The concept of observers being influenced by their perspectives sits comfortably alongside the qualitative notion of *multiple and ever-changing realities* (Engeström, 1999) that underpins this research and Richardson and St Pierre's (2005) metaphor of 'reality' depending on the position from which we are viewing it.

Engel (2000) argues that good stories, either direct or indirect, provide valuable insights into learning. In Phase Two of the research, due to Learning Stories being a form of assessment that teachers are accustomed to using, it seemed appropriate to ask teachers to write a Learning Story about the focus children to evidence physical activity in the ECE settings. An example of the insight gained by one of the ECE teachers is provided as data.

In the second phase of the research teachers were asked to write one Learning Story each on the study child involved in physical activity. The two Centre A teachers wrote one learning story each and four learning stories were provided by Centre B teachers

While the Learning Stories did provide some data for the thesis, it was the considerable discussion with the teachers who wrote them, and then with the parents who viewed them, that was important. A hard copy of the Learning Stories created by the teachers was used as a provocation for the second interview with the teachers and the parents.

4.11: Researcher journal notes

The final form of data collection was that of a researcher journal. These records were kept more for the benefit of the researcher. Ortlipp (2008) discusses that while maintaining a reflective journal is a common practice for qualitative researchers, there is relatively little literature on how to use reflective journals in the research process. Ortlipp (2008) describes that rather than attempting to control researcher values through research methods, a research journal aims to acknowledge researcher values, assumptions, and thinking. The process of keeping a researcher journal is essential when trying to understand both the phenomenon of physical activity and the iterative nature of the research process itself. Writing in a research journal is a method of inquiry and a way for the researcher to find out about themselves as well as the research topic.

During the research period, brief notes are written in the journal, which as Maxwell (2005) recommends, has many benefits. Writing ideas down during the research is the beginning of the analysis process where it enables opportunities to discover insights that the researcher did not know were there. In turn, this method also supports the researcher to convert thoughts into a form that can then be re-examined. Glesne and Peshkin (1992) suggest, 'subjectivity is something to capitalise on rather than to exorcise' (p. 104). Similarly, Watt (2007) refers to how this 'introspective record of a researcher's work potentially helps them to take stock of biases, feelings, and thoughts, so they can understand how these may be influencing the research' (p. 84).

For the purposes of this research, journal entries were recorded whenever there was a need (as is evident in Appendix K). This would range from every few days to weeks depending on the stage of the research. The nature of the entry text would be narrative and reflective. Appendix K shows how during the data collection stage, for example, frequent entries were made. Some of these entries included reflecting on: adopting a 'what works best' approach to the data gathering; the idea of excursions into the community as a form of physical activity; differences between the two case study centres; and what role culture might play in physical activity.

4.12: Research design

4.12.1: Original design

The principal focus of the research design was the activity system (Engeström, 1987) as the unit of analysis. There were two activity systems: the home setting and the ECE setting. With the focus of investigation being on parent and teacher understanding of physical activity within and between the home and ECE settings, the research design consisted of two phases of data collection.

The original plan for Phase One involved*:*

1. Parents and teachers individually *taking photographs* of the child in the study;
2. Parents and teachers independently *completing a physical activity template* providing contextual information about the photographs;
3. Parents at one ECE setting engaging in a *semi-structured interview*; parents at the second ECE setting participating in a semi-structured interview; teachers at one

ECE setting engaging in a semi-structured interview; teachers at the second ECE setting engaging in a semi-structured interview;

4. Transcribing all interviews at the end of Phase One, in preparation for Phase Two.

The original plan for Phase Two involved:

1. Parents and teachers individually taking photographs of the child in the study;
2. Parents and teachers independently completing a physical activity template providing contextual information on the photographs;
3. All parents engaging in a second semi-structured interview; all teachers participating in a second semi-structured interview;
4. Transcribing all interviews at the end of Phase Two, in preparation for overall analysis.

Changes to research design

Table 2 will illustrate how as the research process transpired most of the Phase One design went to plan, but nearly all of the Phase Two plan was altered. One of the fundamental changes that occurred in how the research was initially designed and how it finally happened was at what point in the design process the interview transcribing occurred.

- Change 1: Originally it was planned for the interviews to be transcribed at the end of Phase One and Two – this was changed so that the transcribing process occurred after each interview.

The initial research design was to perform all the Phase One interviews before transcribing and analysis. However, due to a delay in being able to interview Centre B, it was decided (while waiting) to transcribe the Centre A interview. This delay proved to be a very worthwhile incidental change in the design and promoted the continuation of this practice to occur after all other interviews. In this way, analysis happened 'concurrently with data collection in an iterative cycle' (Sargeant, 2010, p. 1). As new themes were identified it created rich, thick analysis and in doing so, data saturation (Sargeant, 2010) could occur at a much quicker rate.

- Change 2: Chose not to repeat the method of taking photographs of children involved in physical activity in Phase Two (as occurred in Phase One).

The 'film' nature of the disposable cameras brought limitations as data provocations for Phase One. Accessibility and editing the photographs was a challenge, as participants were

restricted to only being able to take a certain number of photos on the film. Not being able to view the images they had made (as they are used to with digital cameras and cell phones) was also a hindrance. Not being able to delete the images that were not precisely representing what they wanted to show also posed a challenge from a data perspective. The photographs from disposable cameras were therefore only used before the first interviews to encourage participants 'to reflect verbally on their views and perspectives, and to entice them to offer additional information' (Onwuegbuzie & Leech, 2007, p. 718).

- Change 3: Chose to change the physical activity template used in Phase One to teacher Learning Stories in Phase Two.

The process of reaching data saturation (Sargeant, 2012) was also aided by a decision to change the type of written data parents and teachers were asked to collect. It was recognised in Phase One that the physical activity template that parents and teachers were invited to fill out was not obtaining the level of rich, thick contextual data as was required for the research.

- Change 4: Chose to change having a combined parent interview and a combined teacher interview as was planned for Phase Two.

The original plan was that in Phase Two all parents would be interviewed together and then all teachers would be interviewed together. While this collective form of interviewing has its benefits from a time perspective, it did not seem appropriate from an ethical standpoint to bring all the teachers from both ECE centres together just for the sake of the research when they had never met each other before. The same thing applied to the parents. It was decided to repeat the same types of interviews that occurred in the first phase. Centre A parents were interviewed separately to Centre B parents. Centre A teachers were interviewed separately to Centre B teachers. This process allowed for further data saturation to occur as different questions could be asked of parents from *each* setting, as well as teachers from *each* setting.

Table 2 on the following page demonstrates the implemented changes. The initial research design for Phase One and Two are in the left-hand column, and the iterative changes are represented in grey in the right-hand column.

Planned Phase One design	Iterative changes to Phase One design
Parents and teachers supplied with disposable cameras for 7–10 days and asked to photograph the child in the study engaged in physical activity.	No change
Parents and teachers were supplied with a template to complete and asked to add any context to the photographs taken.	No change
Parents from each ECE setting attended a semi-structured interview and teachers from each ECE setting attended a different semi-structured interview (four interviews in total were conducted).	No change
No original transcription or analysis was to occur until the end of the data collection.	Due to an unplanned gap in time between Centre A and B interviews, it was decided to transcribe and perform initial inductive analysis on the Centre A interview data before proceeding with the Centre B interview.
Planned Phase Two design	**Iterative changes to Phase Two design**
In the original research design, it was planned that the Phase One process would just be repeated, where parents and teachers would be given a disposable camera for a 7–10 days and asked to photograph the child in the study involved in physical activity.	Due to the disposable cameras having limited benefit as a data provocation for the first phase of the research, it was decided not to repeat this process for the second phase of the research.
Parents and teachers would also be supplied with a template to complete to add context to the photographs.	Similarly, as above, just as the physical activity template had limited use as a data generator in the first phase of the research, it was decided not to repeat this process for the second phase of the research. In place of this form of data collection teachers were asked to write one *Learning Story* about physical activity for the child in the study within the ECE setting.
A combined ECE setting teacher interview and combined parent interview was planned for Phase Two.	It was decided to repeat the same types of interviews that occurred in the first phase, that is, Centre A parents had a separate interview to Centre B parents, and Centre A teachers had a separate interview to Centre B teachers. This interview process allowed for different questions to be asked of parents from each setting, as well as teachers from each setting.

Table 2 *Planned Phase One and Two research design and iterative changes*

4.13: Data analysis

4.13.1: The 'waltz' of moving from data collection, transcribing to analysis and back again to construct the home and ECE activity systems as the unit of analyses

Transcribing process:

Following the data collection, the researcher initially planned for all the interviews to be transcribed before the data analysis. However, this was not how it occurred. All interviews were audiotaped and after they had been transcribed by the researcher, they were given to the participants to check for accuracy. Participants were interested to reflect on what they had said. As well as this checking the data with the participants for accuracy, the second stage of interviews would start with a statement such as "In the last interview you said…. Do you want to add anything to this, or change it?" Mostly they did not but there were times when this provoked deeper thought that what had initially been expressed in the first interview.

The key change from transcribing at the end of the phase to transcribing within the phase allowed for key learning to occur for the researcher and extensively strengthened the meaning-making process.

The analysis process was much like the '1, 2, 3' timing of a waltz. As the footwork danced back and forth between 1) collecting, 2) transcribing, and 3) analysing data, the two activity systems were gradually constructed. Just as timing is essential when dancing the waltz, so too is the mastery of combining data collection, transcribing and analysis. Without going back and forth between the '1, 2, 3' of the waltz the notion of understanding everyday physical activity between the two activity systems would not have occurred to the level it did. This section describes the '1, 2, 3' process that repeatedly occurred in this research to construct the home and ECE activity systems as the unit of analyses.

4.13.2: The waltz begins – Phase One data collection, transcribing and analysis

1. Data collection – Phase One

The first and most important step in the waltz was that of data collection. While participants were interviewed within their groups, they were viewed as two collective activity systems – the home activity system and the ECE activity system. The parents from both ECE settings, while interviewed separately, were viewed as the 'home activity system.' Likewise, although the teachers at the two ECE settings were interviewed as two sets they were viewed as the

‘ECE activity system’. In Phase One the data on ‘understanding physical activity was collected within each activity system through the parents taking photographs, filling out the physical activity template and attending a semi-structured interview, and the teachers completing the same process. Within the next stage (transcribing) the complexity of each activity system was identified. At this point the waltz moved to the second step.

2. Transcribing

As has been described in the previous section (4.12: Research design), the change to transcribing after *each* interview was critical for the direction the research took and the depth of data collected. Creswell (2012) discusses how a simultaneous iterative method of analysing occurs when transcribing within the data collection process. The inductive and iterative form of transcribing between interviews meant that early analysis was occurring both *within* and *between* activity systems (Engeström, 1987, 1999). For example, transcribing happened *within* each of the Phase One interviews of the two sets of parents (Centre A and Centre B). In this way, contradictions were already beginning to be identified with how parents of the two different ECE settings constructed their understanding of everyday physical experiences. By transcribing between the Phase One interviews of Centre A and Centre B teachers, a stronger level of understanding of similarities and contradictions could be obtained. In this way complexities within each activity system were identified. By performing the transcribing an understanding of the complexities of physical activity within each activity system could be developed more quickly and thereby influenced the direction of the Phase Two data collection. Strauss and Corbin (1990) discuss the benefit of performing your own transcribing as bringing the researcher closer to the data, providing a unique opportunity to critique and improve on the following data collection process. Now the waltz moves on to the third step for Phase One, and that is the data analysis.

3. Data analysis – Phase One

While there was an original form of iterative analysis that occurred *between* each interview enabling an understanding of everyday physical experiences within each activity system, it was not until the end of Phase One that a more formal analysis occurred. At the completion of Phase One, all data for both activity systems had been collected and transcribed. The home activity system data was the Centre A and Centre B parent photographs, physical activity templates and semi-structured interviews. Equally, the ECE activity system data consisted of Centre A and Centre B photographs, physical activity templates, and semi-structured interviews.

As has been stated, it was essential when it came to the analysis stage to reconstruct the transcribed raw data in such a way to represent the two principal activity systems (home setting and ECE setting). Creswell (2007) refers to *a priori* as those ideas that might be expected to emerge from the research based on theory and literature. From the theoretical perspective of this study, a key *a priori* idea was the notion of the activity system and its corresponding elements (Engeström, 1987, 1999). The other *a priori* influences were the gaps in knowledge identified in the literature review. These contradictions in knowledge were: 1) lack of a precise definition of what every day physical experiences look like in the home and the ECE settings; 2) lack of knowledge of who parents and teachers think is responsible for everyday physical experiences; and 3) lack of knowledge on parent and teacher understanding of everyday physical experiences in the home and the ECE settings.

Phase One data analysis was based on four *a priori* (Creswell, 2007) ideas that arose from gaps in the literature on everyday physical experiences between the home and the ECE setting. These were: 1) the role that New Zealand teachers play in children's physical activity; 2) what physical activity looks like in the home setting; 3) who is responsible for children's everyday physical experiences between the home and the ECE settings; and 4) what role assessment plays in terms of communicating physical activity between the home and ECE settings. Denscombe (2007) describes the first part of data analysis as that of becoming familiar with the data, looking for implied meaning within the data. Therefore, when taking an *a priori* perspective to data analysis (as occurred in Phase One) the suggested meaning within the data was looking for the four pre-conceived gaps in the literature.

The process used for coding the Phase One data related to identifying segments of text that referred explicitly to these four *a priori* concepts. Johnson and Christenson (2012) suggest that a part of text could be 'a word, a single sentence, or it might include a larger paragraph or even a complete document' (p. 534). In the case of the coding for this research, sentences or paragraphs were extracted from the separate parent interviews and directly copied into another Word document that explicitly linked to the home or the ECE activity system.

Once the initial analysis had occurred across all the Phase One data, similarities and contradictions were identified within each of the categories; patterns were then defined within and between the home and the ECE activity systems data. From this analysis of trends, some key ideas emerged from the Phase One analysis that would influence the direction of Phase Two data collection. These ideas were exploring the notion of 'everyday physical

experiences' as the definition of physical activity used in this thesis. Another emerging idea was the role of teacher documentation regarding everyday physical experiences in the home and ECE settings. The shared value of excursions/local walks for everyday physical experiences between the home and the ECE settings was another theme. Another idea that came from the data was the limiting factors concerning excursions as an everyday physical experience in the ECE setting. Teachers' beliefs concerning how ECE excursion policy limits excursions as a physical activity also emerged from the data.

4.13.3: Continuing the waltz – Phase Two data collection, transcribing and analysis

1. Data collection – phase two

The notion of the 'waltz' draws attention as we metaphorically 'take to the floor' a second time. Having completed the Phase One waltz of data collection, transcribing and analysis, it was at this point that the data was starting to tell quite a specific story. The pre-organised process that led to the first phase no longer seemed adequate as new emerging data was pointing the dance in another direction. The data collection methods proposed for Phase Two needed to be reviewed (while keeping within the ethical confines as approved by the ACU HREC). The photographs (while useful in Phase One as provocation) did not seem appropriate for Phase Two. Hence the decision was made not to include this data collection method. Additionally, the physical activity template did not provide rich data for Phase One, and so it was decided not to ask parents and teachers to complete these for Phase Two.

It was important that the focus of the interviews was attuned to the new emerging phenomena that were occurring from the Phase One analysis. Two new critical areas that were not planned for in the *a priori* planning for Phase Two needed to be explored in the Phase Two data collection. Creswell (2007) also talks about the unexpected concepts or phenomena that arise in the analysis that may be of surprise. Two surprising aspects appeared in the Phase One data analysis. These were 1) excursions as a physical activity and 2) a lack of documentation of everyday physical experiences in the ECE setting. This realisation meant that the pre-planned questions for Phase Two were no longer suitable and a new line of interview questioning relating to 'excursions as an everyday physical experience' was required. It also seemed important to ensure that a more unstructured approach applied to the Phase Two interviews, rather than the semi-structured approach. The intention thereby was to provide as much scope as possible for parents and teachers to talk freely about excursions as an everyday physical experience. Learning Stories were used both as data and as data generators.

2. Transcribing Phase Two

The practice of transcribing after each interview was continued in Phase Two. By this point, a developing understanding had been established of how the two activity systems understood and practised physical activity between the home and the ECE settings. As each interview was transcribed in Phase Two it built on the emerging knowledge around 'excursions as an everyday physical experience' and 'a lack of documentation of everyday physical experiences in the ECE setting'. The complexities of understanding *within* each activity system were further developed concerning 'excursions as an everyday physical experience' and 'a lack of documentation of everyday physical experiences in the ECE setting,' as was the relationship *between* the two activity systems.

3. Data analysis – Phase Two

From the analysis of Phase Two, three key ideas from Phase One were strengthened. These were 1) who plays a key role in children's everyday physical experiences, 2) a link between 'the role of documentation' and parents' un-evidenced trust in the ECE setting, and 3) documentation as a connecting link between the home and the ECE activity systems. It was at this point that a closer look was extended to the similarities and the contradictions in understanding of physical activity between the home and the ECE activity systems. It was in the analysis of the contradictions in understanding that the notion of 'contradictions' (Engeström, 1987, 1999; Foot & Groleau, 2011) were drawn on.

4.14: Contradictions analysis

At this point in the analysis, the strongest links were made to the notion of contradictions (Engeström, 1987, 1999). Also, at the same time congruence and incongruence were identified across the thematic framework using a 'contradictions' analysis process. This comprised identifying primary, secondary, tertiary and quaternary contradictions.

4.14.1: Primary contradictions

Within the analysis of the research data, any tension within one element (subject, tool/ artefact, object, rules, community, and division of labour) of the home and ECE activity systems was identified as a primary contradiction. In searching for primary contradictions, it was acknowledged that the activity could re-surface within the everyday context of the home and ECE activity systems in various forms. The primary contradiction was also seen as being linked to other types of contradictions (secondary, tertiary and quaternary)

occurring within and between the home and ECE activity systems (Engeström, 1987, 1999; Foot & Groleau, 2011).

4.14.2: Secondary contradictions

Secondary contradictions were viewed as tensions that occurred both within and between elements (between subject, tool/artefact, object, rules, community, and division of labour) of the home and/or ECE activity system (Engeström, 1987, 1999). In searching for secondary contradictions, tensions were identified that were initially prompted by a primary contradiction. The secondary contradiction only occurred concerning a primary tension, or it may also be linked to a tertiary and quaternary contradiction. However, a secondary contradiction will not be analysed as a separate entity (Engeström, 1987, 1999; Foot & Groleau, 2011).

4.14.3: Tertiary contradictions

Tertiary contradictions were viewed as when there might be a clash within the object of the one activity system. It is only when new knowledge is introduced into the dominant activity system that a tertiary contradiction will be analysed as occurring. As the new knowledge is identified as being introduced into the home and/or ECE activity system, it is recognised that the outcome of this process will be to resolve one or more secondary contradictions that are occurring within that activity system (Engeström, 1987, 1999; Foot & Groleau, 2011).

4.14.4: Quaternary contradictions

Quaternary contradictions are identified within the home and ECE activity systems when new ideas (tertiary contradictions) are raised in the other activity system (that is, home or ECE activity system) and influence the inter-related activity system. In this way, the analysis showed how the home and ECE activity systems were continually working through tensions and contradictions within and between the elements of the systems as a whole. As new knowledge (tertiary contradiction) works towards resolving one or more secondary contradictions within an activity system (for example home activity system), a quaternary contradiction is identified when there is a disturbance (as in a ripple effect) to other activity system/s (Engeström, 1987, 1999; Foot & Groleau, 2011).

A three-step contradictions analysis process is:

a) *Identify the elements of the activity system* (that is, subject, tool, rules, community, a division of labour).

b) *Analyse the specific contradiction by looking for which elements were hitting up against each other*. The contradiction was therefore analysed as either occurring *within* elements (primary contradiction) of the home and/or activity system; or between elements of the home *or* ECE activity system (secondary contradiction), and/or whether new information was introduced into the home or ECE activity system (tertiary contradiction), and/or whether reconciliation of old thinking had occurred due to the new ideas being introduced within or between the home and ECE activity systems (quaternary contradiction).

c) *Analyse how the characteristic of the contradiction was evident within the activity system and what influence it was having*. For example, whether a primary and secondary contradiction were hitting up against each other within the activity system, where contradictions in thinking were not reconciled, or a tertiary contradiction was evident (through new knowledge being offered into the activity system), and/or whether a quaternary contradiction was present (as old thinking is transformed into new knowledge).

On the following page an excerpt from the coded data is provided to show a) the elements of the activity system (in this example) rules, tools and division of labour, b) analysis of the specific contradiction by looking for which elements were hitting up against each other, and c) analysis of how the characteristic of the contradiction was evident within the activity system and what influence it was having.

The data example (in the box below) identifies the *rules, tools* and *division of labour* elements. The *rule* element is evident in the teacher belief that when taking children on excursions outside of the ECE setting that there has to be more adults per children than when in the ECE setting). The *tool* element is evident in the actual ECE regulations that guide teacher practice. The *division of labour* element is evident in the practice where there needs to be more adults per children when out on excursions.

T3 – **(Rule)** 'I think there is a misconception about the ratios because I always thought it was 1:4 and that it was set in stone somewhere. But it's not – it's just a recommended, so I think Kindergarten have a policy **(tool)** don't they, where they keep it at that? It's over regulated. The regulation would make most centres frightened of going on trips **(division of labour).** So it's like anything, unless you are brave or a bit full-hardy then you'll say – oh we're not going to do that' **(division of labour).** There was a rumour **(rule)** going around at one point that you had to have one to one ratio on trips and people were believing it' [Centre B, teacher interview 1]

'The rules **(tool)** are that you can't go out in a ratio **(division of labour)** less than is used in the centre. **(Rule)** Legally you can take out 10 two-year-olds on your own … [Annie – Visitor to Centre B, interview 2]

It is evident in the excerpt above that the teachers hold a fundamental rule that guides the practice of excursions within the ECE setting. However, this teacher-held rule is in contradiction to the ECE regulations (tool) that states that the same ratio of adults to children applies whether in the ECE setting or out and about on an excursion. A *primary* contradiction within the ECE activity system rules (as just described) is seen to then trigger a *secondary* contradiction between the *rules, tools* and *division of labour* as tension is evident between the teacher rules, the regulations as a tool and the division of labour in terms of the ratio of adults to children when on excursions.

The new knowledge introduced to the teachers that their beliefs (rules) differ to that of the ECE regulations (as a tool) can be viewed as a *tertiary* contradiction. If ECE practice was to change based on this new knowledge (that is, regular excursion became an enacted practice) then a *quaternary* contradiction would be seen to be occurring.

Refer to Appendix I, which describes in more detail *the analysis process in terms of the four contradiction types.*

Refer to Appendix J, which describes in more detail how contradictions in physical activity understanding influence practice.

4.15: Chapter summary

This chapter has detailed the methodological approach that has been adopted in this study. With strong Cultural Historical Activity Theory underpinnings, this chapter demonstrated how the activity system is viewed as the unit of analysis. The unit of analysis being the ECE setting and the home setting. The methodological processes described in this chapter provide

a framework for carrying out the investigative data collection. The following four chapters describe the findings in relation to: parent and teacher understanding of who is responsible for physical activity between the home and the ECE settings (Chapter Five); how parents and teachers understand physical activity is defined and practiced between the home and ECE settings (Chapter Six); what role does assessment documentation play as a practice for sharing physical activity opportunities between the home and ECE settings? (Chapter Seven); and an example of how new knowledge can act as a provocation for developing physical activity understanding, practice and opportunity (Chapter Eight).

Chapter Five: Parent and teacher understanding of who is responsible for physical activity between the home and the ECE settings

5.1: Introduction

Over the first four chapters of this thesis, the topic of physical activity between the home and the ECE settings was introduced, tensions in physical activity literature were identified, and the theoretical and methodological frameworks that underpin the study were presented. The remaining half of this thesis presents four findings and analysis chapters, the discussion chapter and the concluding chapter. It will be seen that Chapter Five will address the gap in literature as to who parents and teachers believe is responsible for physical activity between the home and ECE settings. Chapter Six further closes the gap by describing and analysing what parents and teachers think physical activity experiences look like in the home and ECE settings, and if their beliefs concur with what is occurring in practice.

It will be demonstrated in Chapters Five and Six how the first two research questions will be answered:

1. *What are the contradictions in parent and teacher understanding of physical activity between the home and the ECE settings?*
2. *How do contradictions in understanding of physical activity influence practices in the home and ECE settings?*

Chapter Seven will address the third research question:

3. *What teacher practices would strengthen opportunities for physical activity between the home and ECE settings?*

Additional to the questions the research set out to answer, Chapter Eight will demonstrate another line of inquiry that emerged during the investigation, that is, how ECE excursions into the local community can be viewed as a physical activity. Each of the four findings chapters describes the finding and analyses how it addresses the gaps in literature as identified in Chapter Two. Chapter Nine draws together the research and proposes a new physical activity expansive learning framework (adapted from Engeström, 1999, 2001, 2010) to support teachers in strengthening opportunities for physical activity between the home and ECE settings.

This first findings chapter starts with exploring who parents and teachers believe is responsible for physical activity between the home and ECE settings. It will be demonstrated that many views came through, but primarily one understanding dominated the thoughts of the parents and teachers – the ECE setting is responsible.

5.2: Understanding that both parents and teachers are equally responsible

One idea that came through was that both parents and teachers are responsible for children's physical activity. This idea came through briefly in the data, and more so from the perspective of one parent. This parent was clear in her thoughts that 'when the child is at the centre, the teachers are responsible, and when at home, the parents are responsible' (Centre B, parent 1, interview 1). It would be presumed that this was an idea that all participants held, but interestingly, not so.

In the second interview, this same parent reiterated her thoughts that it depended on where the child was as to responsibility for the provision of physical activity. The parent refers to the ECE setting when she says, 'there would have been activities. So, I'm not worried when she comes home, and she's tired. Whereas, the days that she is with me, then that [responsibility] falls on me' (Centre B, parent 2, interview 2). The understanding of this parent is representative of the World Health Organisation (2016) recommendation that physical activity should be incorporated into children's daily routine [at home] and curriculum in ECE settings.

The New Zealand physical activity recommendations for children under five years of age (Ministry of Health, 2017) also encourage children to be involved in physical movement experiences between the home and the ECE setting. Additionally, the Australian Health Department (n.d.) physical activity guidelines encourage children to be involved in physical activities within a variety of environments, including their homes, early childhood settings and in the community.

5.3: ECE teachers not understanding what physical activity occurs at home

Another concern that demonstrated itself within the research was when some teachers had not given thought to children's physical activity in the home setting. For one ECE teacher, she was unable to say that it was the parent's responsibility or even a shared responsibility as she did not know what physical activity the child was involved in at home. It was only by default of not knowing what physical activity occurs at home that she thought the ECE

setting must be responsible. When asked who she thought was responsible for children's physical activity, this teacher stated:

> Um … I was thinking that is quite tricky because I don't know what the kids do at home. I'm thinking everyone here [the centre] we take the same responsibility [for children's physical activity (Centre A, teacher 1, interview 1).

It was not knowing what type of physical activity the children are engaged in (if at all) that influenced the teachers to assume the ECE setting must be responsible. The same Centre A teacher said:

> Again, I don't know because … then I think children might have physical activity at home or they might have swimming lessons and that sort of thing.… So if I was going to answer that, I would say the teachers here [are responsible] because I don't know what happens outside the centre (Centre A, teacher 1, interview 1).

The fact that the teacher did not know what physical activity children participated in at home remained a concern for her, because at the end of the first interview when asked if there were anything else she would like to add the same teacher replied:

> It just makes you think, you know … I don't know what happens at home. I didn't really think about physical activity at home. I've never really thought about it (Centre A, teacher 1, interview 1).

While the comments from the teacher above are isolated to this one member of the ECE activity system they are of concern to this study as it appears that this teacher does not know what types of everyday physical experiences children are involved in, in the home setting. It may be because teachers do not know what physical activity occurs in the home that Bilton (2010), Stork and Sanders, (2008), and Venetsanou and Kambas (2010) suggest that ECE teachers have to be the ones providing a well-facilitated physically active environment for young children.

Responsibility defaults to the ECE centre due to the hours of attendance. The most definitive point that was articulated by both parents and teachers was that the ECE setting was responsible for children's physical activity due to the long hours they attend the ECE setting. The hours a child participated in the centre became a critical influencing factor for the parents and teachers in this study as to whether the home or the ECE setting was seen as responsible.

While it was a factor that everyone agreed on in the study, the decision that it was the responsibility of the ECE setting seemed a pragmatic one. This was because those children who attend full time have limited time in the home setting, and therefore it must be the ECE setting's responsibility. This was evident in a comment by one Centre B teacher, who said:

> I guess we kind of do [have the responsibility], especially for those kids who are here five days a week, 7:45 am to 5:30 pm kind of thing' (Centre B, teacher 1, interview 1).

Dowda, et al. (2004) refer to the need for an increased focus on physical activity research in the ECE setting due to growing numbers of children spending significant parts of their day in early childhood centres. It was clear from a parental perspective that even if they believed that fundamentally it was the responsibility of the parent to ensure their child was involved in physical experiences, they had to concede that due to the long hours that children attend ECE settings that the ECE teachers must be providing for children's physical requirements. A Centre B parent states:

> If you look at the time that they [ECE teachers] spend with your child, assuming the child is in full-time care, that's a heck of a lot of hours that that person is responsible for your child (Centre B, parent 1, interview 2).

The link the parent makes between the number of hours a child attends an ECE setting and the ECE centre's responsibility in terms of providing for physical activity was a key point of discussion in the literature. Bellows et al. (2008), Irwin, Bouck, Tucker, and Pollett (2005), and Bevan and Reilly (2011) argue that due to work commitments, providing for children's physical activity becomes increasingly difficult from a parental perspective. The authors also say that an increase has resulted in children involved in sedentary indoor activities, due to less available parental time. However, unless ECE settings are aware that parents see them as responsible for children's physical well-being, regular physical experiences may not, in fact, be occurring.

Dowda et al. (2004) describe that due to a growing number of children spending significant parts of their day in early childhood centres, quality interactions concerning physical experiences are essential. This thesis argues that while the ECE setting defaults to being responsible for the children's physical activity (especially for those children spending long

hours in attendance) unless teachers are aware that the ECE centre is responsible, then quality physical activity interactions may not be occurring in the ECE setting.

5.4: Parents articulate that the ECE setting provides for physical activity experiences

While it is uncertain whether the *teachers* were aware regular physical activity is the responsibility of the ECE setting, the parents in one of the centres in the study articulated that the ECE setting catered for the physical activity requirements of their child.

When parents were asked whether they believed the ECE setting provided for their child's physical activity, they articulated that their centre does provide for physical activity. When asked why they believe that the parents provided four different examples of how they have gained this knowledge.

The parents stated that the knowledge that the ECE setting is providing for their child's physical activity starts when they initially enrol their child and observe the centre. In the following comment, this parent indicated that parents, in the early stage of enrolment, are looking for an ECE setting that will provide for their child's physical activity:

> When you look at centres, you are looking for centres that will provide for physical activity. It's important to know that the centre is providing this (Centre A, parent 2, interview 1).

In the second interview with Centre B parents another parent articulated that it is the little things you pick up from your child that confirm physical activity is occurring. She states:

> It's the little things that kind of lay the seeds for you knowing what is happening, that it [physical activity] is always going on (Centre B, parent 1, interview 2).

When asked what was meant by the 'little things' she could not elaborate. However, the other parent supported her further by saying she just knows it happens. The parent said:

> because I know it happens here, I don't worry so much (Centre B, parent 2, interview 2).

This then prompts the other parent to articulate the following:

> because you trust and you believe and you know what the centre is like, [and] that we know that they are a 'motivated' centre' (Centre B, parent 1, interview 2).

The same Centre B parent discusses how she believes that being physically active is a value of the centre, but that she doesn't need to see evidence of this. She states:

> It might not happen every day but you know that it is one of their values, so I don't ask about it because I trust the centre. What I am saying is that I know there is evidence of it [physical activity], but I don't need to see evidence of it in my belief of the centre to feel 'have they offered it?' I don't feel like I need to ask them (Centre B, parent 2, interview 2).

The other parent then replies:

> So it's not something where I am asking the teachers to tell me. I don't look to see what [physical activity] she has done, I just pick her up because I trust in this centre (Centre B, parent 1, interview 2).

The belief that the Centre B parents hold that the ECE setting provides for their child's physical activity correlates to two earlier statements made by Centre B parents in a previous section, where the parent stated "when the child is at the centre, the teachers are responsible, and when at home, the parents are responsible' (Centre B, parent 1, interview 1). This parent belief also links to the Centre B parent who said that when the child is at the ECE setting 'there would have been activities. So, I'm not worried when she comes home (Centre B, parent 2, interview 2). The parent articulation that physical activity occurs in the ECE setting further supports the New Zealand physical activity recommendations (Ministry of Health, 2017) that children under five years of age be involved in physical movement experiences between the home and the ECE setting.

5.5: A theoretical understanding of who is responsible for physical activity

From an activity theory perspective (Leont'ev, 1978; Engeström, 1987) the query as to who is responsible to provide for physical activity experiences is viewed through the *division of labour* element of the co-evolving home and ECE activity systems. The object of the activity is the provision of physical activity experiences between the home and the ECE settings. Leont'ev (1978) discussed how, within a functioning activity system, the *division of labour*

element would demonstrate the roles everyone plays in carrying out the object of activity within the system (Leont'ev, 1978).

Just as Leont'ev (1978) links the *division of labour* element to the roles and tasks associated with carrying out the object of activity, so too this study is interested in the shared roles and tasks that parents, teachers and children perform in terms of physical activity provision. For this study it would imply that for the home and ECE settings to be acting as functioning activity systems, parents, teachers and children would need to play an active role in being responsible for physical activity. Unfortunately, while it is the aim from the home activity system perspective that the *division of labour* (Leont'ev, 1978) meant the ECE setting contributed to providing for young children's physical activity, it was not what was found in this study.

Leont'ev (1978) described how the way in which labour is divided within the co-evolving activity systems provides a level of analysis for how the activity systems are functioning to meet its shared outcome. Parents held their own *rules* (Engeström, 1987) about physical activity provision in the ECE setting, that is, not only that the ECE setting was responsible for physical activity, but also that physical activity *was* occurring in the ECE setting. Teachers also appeared to hold *rules* (Engeström, 1987) that physical activity was the responsibility of the ECE setting, but only due to the long hours children attended the ECE setting. Added to this the teachers demonstrated a firm belief in children being responsible for their physical development and learning.

It will be demonstrated across the finding's chapters that Leont'ev's (1978) definition of the *division of labour* element determining who has the opportunity in regards to decision-making is a key argument. It could be argued that by the mere fact that children are in ECE settings for up to possibly 40 hours per week or more that the opportunity and decision-making regarding physical activity provision for young children defaults to the ECE setting. With the ECE setting putting a strong focus on children leading their own physical activity experiences, what does this all mean for children's physical activity between the home and ECE settings? Box 1.1 presents the first finding – 'Rules'.

Box 1.1

Finding 1: Rules

A fundamental finding in this research is that of the *rule* (Engeström, 1987) that held that physical activity was being provided in the ECE. This rule may occur because parents do not have the opportunity to engage their children in physical activity due to being at work. While the home and ECE activity systems both recognised that the ECE setting is responsible for children's physical activity, the *subjects* (parents and teachers) both held different *rules* about this provision – hence they also held different rationales as to why the ECE setting was responsible. For the home activity system, their *practice* first and foremost was that the ECE setting was providing for their child's physical activity because the centre offers for the child's holistic well-being and their physical development is part of their overall well-being.

Added to this fundamental rule is that parents have reduced opportunities to contribute to physical activity provision in the ECE setting whilst they are at work. They appear to be choosing to default to a *rule* that best practice is happening in *all* areas of the child's learning at the ECE setting – including the provision of physical activity. The fact that their child may attend full-time appears to be secondary to the fundamental high trust parents have that their child's physical well-being is being catered for in the ECE setting

For the ECE activity system, however, the picture is entirely different. The ECE activity system is the one that, of the two, has the most time-based opportunity concerning the *division of labour* (Engeström, 1987) between the home and ECE activity systems. Because parents worked full-time and their children attended the centre for long hours was the only rationale that teachers gave for the ECE setting being responsible for the provision of physical activity for young children. In Figure 4 the 'inconsistent rationale' in the division of labour related to who is responsible for physical activity between the home and the ECE settings is demonstrated, from a theoretical perspective.

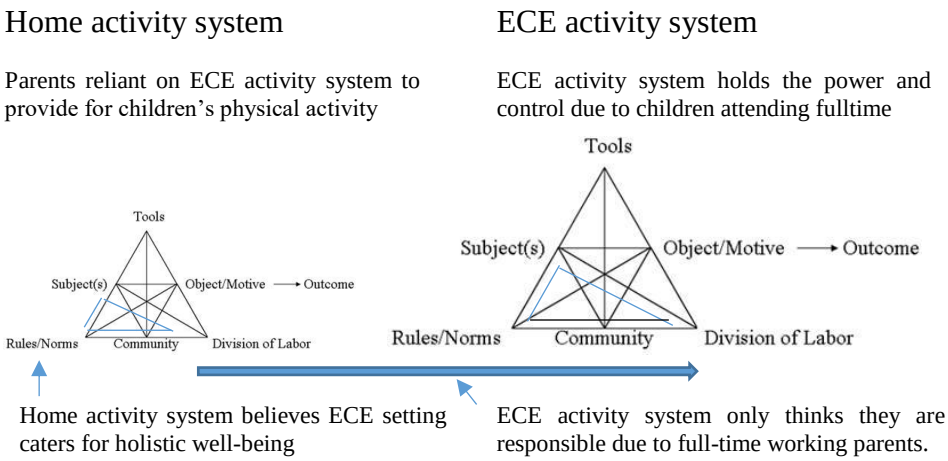


Figure 4: '*Inconsistent rationale' in the division of labour between the home and ECE activity systems related to physical activity between the home and the ECE setting*

5.6: Chapter summary

This chapter explored the gap between who parents and teachers understand to be responsible for everyday physical experiences between the home and ECE activity systems. The chapter demonstrated that parents and ECE teachers thought it was the responsibility of the ECE setting to provide for children's physical activity. It was also demonstrated that parents also believe these experiences *do* occur in the ECE setting. While this first findings chapter discussed parental and teacher *expectations* of the ECE settings, this next chapter will focus on what physical activities happen in the home setting.

Chapter Six: How parents and teachers understand physical activity is defined and practiced between the home and ECE settings

6.1: Introduction

Having ascertained that both parents and ECE teachers thought it was the responsibility of the ECE setting to provide for children's physical activity and that parents also believe these experiences do occur in the ECE setting, this chapter will focus on what physical activities teachers think happen in the home setting. Firstly, the chapter establishes how parents and teachers define physical activity.

6.2: How the home and ECE activity systems understand physical activity is defined

6.2.1: Teachers understand physical activity from a developmental and dispositional practice perspective within the ECE setting

Near the beginning of the first interview all participants were asked what they understood physical activity to look like. The ECE teachers in their interviews (both Centre A and Centre B) were hesitant to begin with, trying to describe physical activity as if it was not something, they had given a lot of thought to. In the Centre A interview, one teacher made comments such as physical activity being about children 'using their gross motor skills and doing it in a way, like in a sustained way, so that they're not just jumping once, they are jumping more than once' (Centre A, teacher 1, interview 1). The teacher was still unsure of her explanation.

The developmental theme of describing physical activity was continued when a Centre B teacher stated that 'certainly it's using your body … kind of in a big way, rather than obviously holding a pencil or whatever or drawing, a pencil contains physical activity but it's not what we would think of as that definition' (Centre B, teacher 2, interview 1). Still, the teachers seemed unsure in their descriptions of physical activity.

The ECE teachers struggled for language to describe physical activity, as if they had not used it for a long time. A Centre B teacher stated 'you could use your big muscles for balancing, and you're not getting puffed, but your muscles are working. I would fit that into the definition' (Centre B, teacher 1, interview 1). A further teacher in the same interview added that physical activity consisted of 'using muscles of different parts of your body at the same time …' (Centre B, teacher 3, interview 1).

The developmental theme of the definition of physical activity continued when a Centre A teacher stated ‘children go through different developmental stages’ (Centre A, teacher 1, interview 2). A Centre B teacher stated that children ‘move through stages where first they might jump with two feet’ (Centre B, teacher 3, interview 1). Teachers also talked about ‘awareness of different developmental stages in physical activity’ (Centre A, teacher 2, interview 2).

In the comments above, the teachers describe physical activity similarly to Livingstone et al. (2003) who looked at physical activity experiences as ‘all locomotor physical activity, which involves large muscle groups to move the body around and to apply force to objects’ (p. 682).

While it was evident that teachers described physical activity from a developmental perspective, predominantly they viewed physical learning and development from more of a holistic perspective. Links can be seen in the language the teachers used to that of the ECE curriculum *Te Whāriki* (Ministry of Education, 1996, 2017) and the New Zealand physical activity guidelines for children under five years of age (Ministry of Health, 2017).

Firstly, it was evident in their links to the holistic sociocultural language of learning dispositions (Carr, 2001) when writing documentation of children’s learning and development. In doing so, the focus appeared to be more on the overall disposition than the specific area of physical development. Teachers described dispositional language related to physical learning as ‘risk-taking and problem solving’ (Centre A, teacher 2, interview 2), ‘perseverance’ (Centre A, teacher 1, interview 2), ‘bravery and courage’ (Centre B, teacher 1, interview 1), ‘being actively engaged, finding an interest, and exploring an interest’ (Centre B, teacher 2, interview 1); and children being ‘motivated and challenged, and taking risks’ (Centre A, teacher 2, interview 1).

Links can be seen to the dispositional holistic language used in the New Zealand Ministry of Health (2017) guidelines, which referred to a holistic approach to health well-being adopting dispositions of competence, confidence, resilience, creativity and exploration. In this way, the learning disposition terminology provided the teachers in the ECE settings with a tool for mediating a holistic approach to describing physical learning.

6.2.2: Parents understand physical activity as an experience-based practice

The New Zealand Ministry of Education (2007) illustrates how children need to be physically active, that this is an integral part of their everyday life and that children should be provided opportunities to use large and small muscles to gain control over the use of their body. It can be seen in this section that the parents in this study believed physical activity should be an essential part of children's lives. Parents made only short links to providing opportunities for their children to use large and small muscles to gain control over the use of their body. A Centre A parent stated 'it's more probably just about using the large muscles' (Centre A, parent 1, interview 1), and a second parent in that same interview stated 'I suppose it's great how she uses her muscles, we've got a trampoline, so she's very much bouncing on that' (Centre A, parent 2, interview 1). However, for the most part, parents were more comfortable describing physical activity as related to their children's physical experiences they are involved in.

The Ministry of Education (2007) discusses how the term 'physical activity' can be interpreted differently and mean different things for different people, however, it is important for parents and teachers to have a shared understanding if they are going to plan for children's physical activities. One Centre B parent states how 'for me, physical activity is anything that involves motion, and activities such as walking, swimming, and doing house chores, jumping, dancing …' (Centre B, parent 1, interview 2). Parents appear to be more inclined towards Brady, Gibb, Henshall, and Lewis' (2008) definition of physically active play, which is 'any physical activity where the child is doing what they want to do for their reasons' (p. 6).

The theme of discussing the types of activities the child took part in continued for a Centre B parent who stated that physical activity was about having 'fun, organised experiences outside of the home' (Centre B, parent 1, interview 1). A Centre B parent talked of her child 'dancing out of the blue, being at the beach or outdoors, or just even walking to school' (Centre B, parent 1, interview 1). It can be seen, therefore, that for the parents, describing physical activity was like Brockman, Jago, and Fox's (2011) discussion on *unstructured* physical activity, where children are freely engaged in physical activities of their choice.

Parents' definition of physical activity is also similar to Carlson's (2011) definition of *big body play*, which encourages children's gross motor physical development in everyday activities such as rolling, running, climbing, chasing and pushing. Parents tended to have

more of a holistic 'experience-based' definition of physical activity, rather than teachers who took a developmental and dispositional approach to describing physical activity.

6.2.3: How the home and ECE activity systems understanding of physical activity is understood from a theoretical perspective

In Chapter Five it was established that there are inconsistencies in how the ECE and home activity systems reasoned that the ECE setting was responsible for children's physical activity (Figure 4). The reasoning related to the *division of labour* (Engeström, 1987) of physical activity between the home and the ECE activity systems. In this section, it will be seen how the original Figure 4 will be expanded to conceptualise from a theoretical perspective how the home and ECE activity systems understand physical activity. In Figure 5, links will be made between the home and ECE understanding of physical activity and the opportunity for *division of labour* conceptualisation held by the ECE activity system.

In Figure 5 the home activity system *rules* (Engeström, 1987, 1999) demonstrate that physical activity was viewed from a holistic experience-related perspective and the ECE activity system *rules* show that physical activity was considered from a developmental and dispositional perspective.

For the ECE activity system, their understanding of how physical activity is described is mediated through the *community* element (Engeström, 1987, 1999) which is representative of historically developed distributed thinking of their peers through previous and current learning and development theory. This distributed thinking includes professional knowledge about children's learning from a developmental and dispositional perspective. The home activity system also mediates their understanding of how they describe physical activity through the *community* (Engeström, 1987) element, which is representative of historically developed distributed thinking of family and the values of early childhood education.

Box 1:2

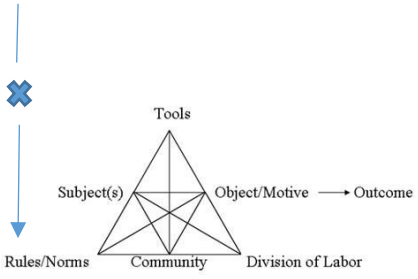
Finding 2: Rules and community

However, when the *rules* and *community* elements of the home and the ECE activity systems are then mediated back through the *division of labour* element the opportunity inconsistencies between the two settings is exemplified. Figure 5 demonstrates that whilst the home activity system has a belief in physical activity that is holistically experience related, these beliefs cannot be enacted due to the minority *division of labour* (Leont'ev, 1978) and the reduced opportunity the home activity system has on experiences that are enacted within the ECE setting. Figure 5 also conceptualises that while the ECE setting holds beliefs of physical activity being developmental and dispositional, if the ECE activity system is not aware of the opportunity it holds related to children's regular physical activities, there are limited physical activity practices enacted.

Figure 5 demonstrates these tensions between how the home and ECE activity systems define physical activity and the division of labour related to physical activity between the home and the ECE settings.

Home activity system

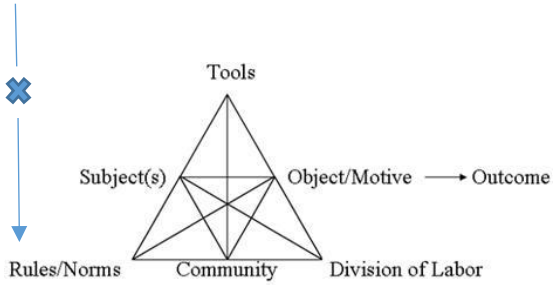
Home activity system *rules* define physical activity as being of an experienced-based nature. However, when mediated through the *division of labour* element, where the home is reliant on the ECE activity system to provide for children's physical activity, the home activity system has reduced opportunity to ensure these physical experiences are occurring.



Added to this, even though there is a break in parents' beliefs in physical activity being enacted in the ECE setting, the home activity system still defaults to a belief that the ECE setting does cater for children's physical well-being.

ECE activity system

ECE activity system *rules* define physical activity as being of a developmental and dispositional nature. The *division of labour* between the home and ECE activity systems means the ECE activity system has increased opportunity to provide for physical activity due to children attending the ECE setting for lengthy periods of time.



However, the ECE activity system does not seem aware of the opportunity it holds, causing a break between the ECE activity system's beliefs as to how physical activity understanding and practice occurs in the ECE activity system.

Figure 5: *Tensions between how the home and ECE activity systems define physical activity and the division of labour related to physical activity between the home and the ECE settings*

6.2.4: Closing the gap between how physical activity is defined and the division of labour related to physical activity practice between the home and the ECE settings

It can be seen again how new insight is being added to existing research related to physical activity understandings and practices between the home and the ECE settings. Parents' and teachers' understandings and practices regarding physical activity become ineffectual when mediated through the *division of labour* (Leont'ev, 1978) element that currently is argued as existing. Parental understandings for how they see physical activity being enacted as an experienced-based activity suggest a reduction in opportunity when they do not hold the division of labour due to working full time. Parents are reliant on the ECE to provide for their children's physical activity. If teachers are unaware of the opportunity, they hold related to physical activity provision, then even their own understandings about physical activity will not necessarily increase provision for children. This thesis argues that this is one reason why there are tensions in physical activity provision within and between the home and the ECE settings.

These contradictions in parent and teacher understanding and practice of physical activity, when mediated through the *division of labour* (Leont'ev, 1978) of physical activity between the home and the ECE settings, means parents have less opportunity to control what physical activities occur for their children in the ECE setting. Still parents appear to be defaulting to a belief that physical activity *is* being catered for by the ECE setting.

6.3: The ECE activity system's understanding of physical activity in the home setting

The focus of this second section is on exploring teachers' understanding of what physical activity they think occurs in the home setting, and how their understanding differs to the practices that occur in the home setting.

6.3.1: Contradictions in teacher and parent understanding of organised physical activity practices outside of the home setting

While the home setting believed that the ECE setting was catering for their children's everyday physical experiences, the ECE setting appeared to hold quite different understanding about children's physical activity in the home setting. It will be shown in this section that teachers were of the belief that limited physical activity opportunities were being

provided for in the home setting. This teacher belief demonstrated itself in many comments from different teachers.

The first concept that the teachers held was the notion of parents *outsourcing* their children's physical activity experiences. One Centre B teacher started this theme off by stating directly that:

> There's a lot of 'outsourcing' of physical activity these days. You used to just let your kid just run outside whenever they wanted, to climb trees, fall out of trees, and be on the streets. But in this day and age there is a reluctance to do that (Centre B, teacher 1, interview 1).

Initially, this comment seemed as if it supported a teacher belief in child-led unstructured physical activity, and it partly does. However, as can be seen in the comment below, which is a continuation of the previous discussion, the teacher held strong beliefs about parents not being responsible for children's physical activity. The teacher continued in her reference to physical activity in the home and said:

> So they [parents] outsource it and presume that it is our job to cater for this responsibility. So they send their children to 'little dribblers' on Tuesdays, gymnastics on Fridays, and ballet on Sundays (Centre B, teacher 1, interview 1).

These teacher comments demonstrating a discouraging approach to physical activity in the home setting is of concern; if teachers are holding these types of beliefs how are they (if they are at all), working alongside parents to encourage children's physical activity between the home and ECE settings?

The comment above demonstrated that a teacher believes that parents do not want to take responsibility for their children's physical activities. Parents held quite a different view when discussing engaging their children in organised physical activity. One Centre A parent talked about physical activity consisting of 'fun, organised experiences outside of the home' (Centre A, parent interview 1).

The intent of the parent comment (that is, viewing organised experiences outside of the home as being fun for their children) is entirely different to the 'outsourcing' perspective the teacher previously articulated. In fact, it was the fun aspect to organised sport that the parent continued to discuss. The same Centre A parent stated:

> That (swimming classes) for me is still physical activity. I don't see it as a sport. I don't want her to become the next New Zealand champion. I want her to be in the water and to be safe in New Zealand water. I know it is a sport, but at the moment it is fun. I guess I want her to have fun and be safe. I'm happy if she is happy. (Centre A, parent 2, interview 1)

A clear difference can be seen, therefore, between the teachers' beliefs of physical activity in the home setting and parental practice. The notion of outsourcing their children's physical activity seems to be the opposite of what the parents are doing. It appeared from the above comments that the parents are ensuring their children are safe by learning to swim and want their children to have fun. Links can be seen with the physical activity the parent is ensuring her child engages in and that of the Ministry of Health (2017) recommendation, that is, that children are provided with activities they will enjoy where they gain competence and confidence, resilience, creativity and exploration both indoors and outdoors.

6.3.2: Contradictions in teacher and parent understanding of parental attitude of physical activity in the home setting

The view of teachers towards parents concerning physical activity *outsourcing* in the home setting is of concern. Interestingly, the same teacher who made the outsourcing comment described that she did not feel parents have the right attitude when providing physical experiences for their children. The teacher stated in the first interview that there is 'too much wrapping children up in cotton-wool' occurring by parents (Centre A, teacher 1, interview 1). In the second interview, she stated, 'Parents do not necessarily have the right attitude in regard to physical activity' (Centre A, teacher 1, interview 2).

This teacher's comments that parents do not have the right attitude concerning physical activity is concerning as it links to the findings of the Tucker et al. (2011) research where teachers were assuming that parents were not encouraging an active lifestyle outside of childcare hours. However, the teachers had little to base this on except for a lethargy the children displayed on a Monday morning, where children didn't want to be involved in the physical activities.

When parents discussed parental attitude, they explained that it was essential to have a 'parent attitude that allowed for children to physically play freely in the home' (Centre B, parent 2, interview 1). A parental attitude towards free physical activity in and around the home continued as a theme for another parent who discussed that it was important 'not [to

be] too precious about your house and [to let] children play and run around inside' (Centre A, parent 2, interview 1). This positive parental attitude to physical activity is supported by Hesketh, Hinkley, and Campbell (2012) who represent the influential role parents play in developing physical activity patterns for growing children.

A positive parental attitude to physical activity is also seen to continue in the data when discussing the importance of encouraging children to get out and about when children might prefer to stay home. One Centre A parent, stated:

> We have just been really clear with the children. It's interesting because my older child – you can see that he would be quite happy to stay at home and watch a movie or something. I say 'no you need to go out and do something'. (Centre A, parent 2, interview 2)

What is evident from the comment above is that the parent is not assuming children are naturally fit and therefore do not need to get out and about. This parental attitude differs from that of Hesketh, Hinkley, and Campbell (2012) who found that all parents in the study believed children were naturally physically active and that there was little need for parent engagement with the child's physical activity. Hesketh et al. (2012) state 'The belief that children are innately active is at odds with evidence showing even young children spend a very small proportion of their time being physically active' (p. 12). It was apparent from the parents in this study that they were acutely aware of the importance of their children being physically active.

Hesketh et al. (2012) discuss how parents' model physical activity practices, provide the rules around what physical activity does or does not look like within the family and give the type of physical environment the child will engage in. However, from the data generated for this thesis it has been shown that due to working full time and children being in the care of the ECE setting, parents have little opportunity over these rules being followed through in the ECE setting. While Hesketh et al. (2012) discuss that little is known about how parents view physical activity for children up to five years of age, it is clear from the data reported in this thesis that parents view it positively. However, they do not have opportunity to promote their children's physical activity experiences in the ECE setting. Contradictions in physical activity understanding and practice are very evident between the home and the ECE setting.

6.3.3: Contradictions in teacher and parent understanding of use of screen-based sedentary practices in the home setting

Another aspect that featured only briefly in the findings was concerning physical activity and the use of technology. Once again, contradictions can be seen between teacher assumptions and parental practice. Amongst the reasons that teachers believed children were not experiencing enough physical activity was the overuse of screen-based entertainment. One teacher stated that the 'over-use of technology in the home was also an issue for not getting sufficient everyday physical experiences' (Centre A, teacher 1, interview 2).

In the case of the teacher comment above, she is referring to a commonly held belief that there is a high use of screen-based entertainment in homes. The same teacher continued when she said, 'well, if they (parents) are going to sit there and not do any physical things, they are going to plonk kids in front of TV, I think that's a massive thing' (Centre A, teacher 1, interview 2).

Contextually, the teacher who made the previous comment about parents 'plonking' their kids in front of the TV is the same teacher who, in Chapter Five, said that she did not know what physical activities children were engaged in, in the home setting. Similar to the teachers in the Tucker et al. (2011) research, assumptions are being made by teachers in this thesis based on limited, if any, information as to parents' physical activity lifestyle outside of childcare hours.

It is evident that rather than basing this comment on evidence, the teacher is using the commonly held belief of overuse of technology in the home as creating sedentary rather than active behaviour as a way of shaping her understanding. For example, Hinkley et al. (2008) discuss how most very young children are involved in increased sedentary time spent engaged in screen-based entertainment. Additionally, the Ministry of Health (2017) guidelines for physical activity for under-five-year-olds advocate discouraging all screen-based entertainment for children under two and only allowing up to one hour per day screen time for children aged two years or older, at the most.

It can be seen in the comment below that a parent from the same centre as the teacher with the screen time concern described an entirely different attitude about the use of technology than the one the teacher believed was occurring in homes. When referring to children watching television the parent stated 'Hmm … well, that doesn't happen in our house. If I

needed to get stuff done, then he will just go off and do whatever he needs to do. Open the back door and out he goes' (Centre A, parent 1, interview 1).

The parental practice discussed above links to Allen and Clarke's (2016) concern that if a child sits for prolonged lengths of time watching TV without having breaks it is detrimental to a child's sleep patterns and quantity of sleep they receive and can contribute to poorer health outcomes. While screen time did not feature as a broad theme of discussion by the teachers or parents, it is worth reporting that it is yet another area where teachers seem to have a different understanding of physical-activity-related practices that occur in the home setting.

6.3.4: How contradictions in teacher and parent understanding and practice of physical activity within the home setting is viewed from a theoretical perspective

Contradictions were evident between the ECE and home activity systems in relation to the *division of labour* (organised physical activity outside of the home setting), the *rules* (parental attitude of physical activity in the home setting), and *tools* (use of screen-based entertainment causing sedentary activity). Leont'ev (1978) discussed that meaning-making occurs through socially shared, reciprocal development where the object of the activity is transformed and becomes institutionalised into the culture of the setting. This research argues that ineffectual meaning-making can also become institutionalised when teachers hold beliefs about physical activity practices in the home setting that do not link to what is occurring. Leont'ev (1978) also viewed human actions as collective by nature and as being set within a historical time frame, where both present and past activities profoundly influence them.

Box 1:3

Finding 3: Unresolved past contradictions

This thesis argues that if the ECE activity system has understandings and practices related to physical activity in the home setting that differ from what is occurring it can create unresolved tensions between the two activity systems that can become institutionalised into the culture of the setting. These unresolved past contradictions in understanding related to physical activity in the home setting will influence teachers' present-day practice.

It can be seen in Figure 6 that Figure 5 has now been added to and now describes how unresolved tensions in physical activity can become institutionalised into the culture of the home and ECE activity systems.

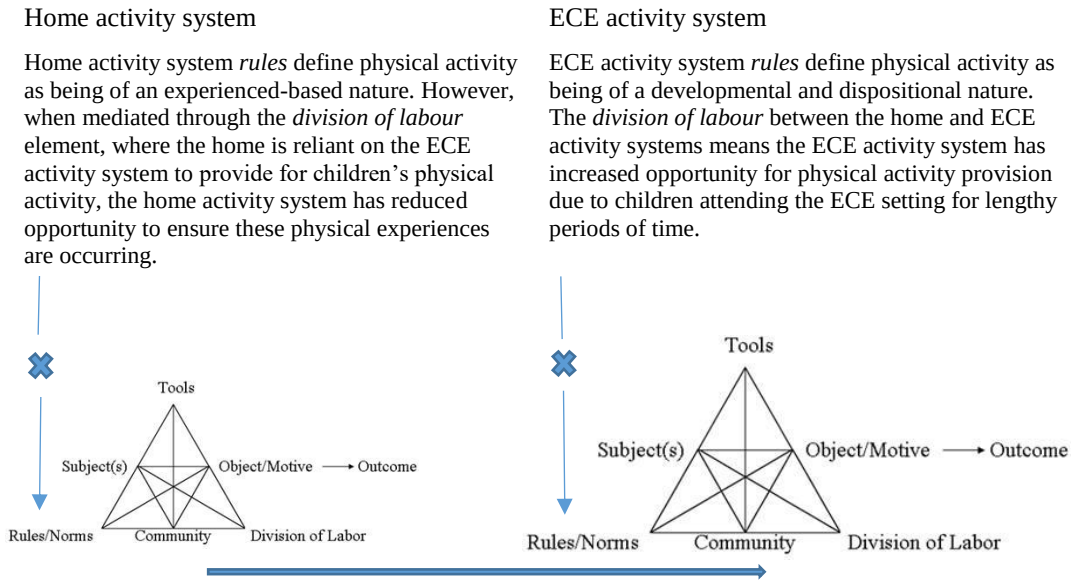


Figure 6: *How unresolved tensions in physical activity can become institutionalised into the culture of the home and ECE activity systems*

6.4: Chapter summary

6.4.1: Closing the gap further between how parents and teachers understand how physical activity is defined and the practices teachers believe occur in the home setting

There has been limited, if any, literature exploring how parents *and* teachers collectively define physical activity. This study creates new knowledge in how parents and teachers define physical activity. This study found that there are slight contradictions in how parents and teachers define physical activity, with parents describing physical activity from an experienced-based perspective and teachers identifying it as a developmental and dispositional activity. The contradiction lies in the fact that if children are attending the ECE setting fulltime then the parents have limited opportunities to provide the experience-based

physical activities for their children that they aspire to. Parents are reliant on ECE teachers to offer these experiences for their child. However, because the ECE setting is not necessarily aware of the opportunities it holds for providing young children's physical activity there seem limited opportunities for physical activity to be enacted to a high degree in the ECE setting as well.

The thesis further closes a gap in knowledge concerning teacher views of physical activity in the home setting. Here, misunderstanding of the types of physical activities in the home setting was displayed by teachers in this study. Because this study interviewed parents equally as the teachers, the parents were able to provide evidence that demonstrated the teacher's beliefs about physical activity in the home setting were misaligned with their own understandings.

6.4.2: Overall summary of understanding and practice of physical activity between the home and the ECE settings

It can be seen within Chapters Five and Six that contradictions are being identified within and between the home and ECE activity systems concerning young children's experience of physical activity.

With these tensions and differences between parent and teacher expectations of physical activity in the home and ECE setting an interventionist approach is adopted in the next chapter. In the following chapter assessment documentation is viewed as a possible tool for communicating children's physical learning between the home and the ECE settings.

Chapter Seven: What role does assessment documentation play as a practice for sharing physical activity opportunities between the home and ECE settings?

7.1: Introduction

Having defined and analysed contradictions related to physical activity between the home and the ECE settings more generally, a critical aspect that stood out from the data was that parents and teachers were making these assumptions based on little if any documented evidence. With assessment documentation acting as a possible mediating artefact between the home and the ECE activity systems understanding of children's physical activity, this chapter reviews what role assessment documentation played in relation to physical activity between the home and ECE settings.

7.2: The home activity system not appearing to need evidence of children's physical activity practice in the ECE setting

As has been stated previously, the home activity system had an apparent belief that their children's physical activity was being provided for by the ECE setting. Further evidence of this is in the parent comment below. When asked if parents were sure that everyday physical experiences were occurring, one Centre A parent stated:

> Yep, wouldn't even think about it. If my husband, for example, asked 'well how do you know?' I would be like, 'phew'! and put him down straight away.

She then paused in the interview, reflected and stated, 'Huge trust and un-evidenced essentially'. (Centre A, parent B, interview 1)

Chapters Five and Six have explained that while parents hold this belief that the ECE setting is responsible for providing for physical activity they have limited opportunity for how it occurs. Areas of interest are: why parents are determined to believe that physical activity is happening without the need for evidence; and that parents have little opportunity for how these experiences are occurring or not occurring in the ECE setting.

When parents in the study were asked whether they thought it was essential to have their child's everyday physical activity documented by the teachers in the ECE setting, one parent

referred to documentation as ‘the cherry on the top – if we did receive it’ (Centre A, parent 2, interview 2).

The comment from the parent above may indicate that she does not need documentation of her child’s physical activity. The inference that could be made from the comment above is that the ‘cherry on the top’ comment does mean they value it, but the ‘if we did receive it’ comment may mean that as they do not receive much, they do not feel they need it anyway. Assessment documentation is viewed in the ECE sector as a tool for communication of children’s learning between the home and the ECE settings (Ministry of Education, 1996, 2017).

Assessment and evaluation of learning is a legal requirement as outlined in the licensing criteria for early childhood services (Ministry of Education, 2009) so why might these parents not be seeing a lot of assessment documentation of their child’s physical activity? Are parents saying they don’t need it because they don’t know what it is to receive it?

This notion of parents having low expectations of receiving assessment documentation on their children’s physical activity is evident also in the following comment that was made when one of the Centre A parents saw an example of assessment documentation that had been written for the purpose of the research. The parent said, ‘Um, so I see him doing that stuff [referring to a photograph connected to the documentation] but I don’t get told about it’ (Centre A, parent B, interview 2).

The other parent in the Centre A interview nodded and agreed, and the Centre A parent continued, ‘Unless I am sort of enquiring, I guess. Whereas I do get told about other things that happen … I think maybe I’m assuming’ (Centre A, parent B, interview 2). This comment is an indication that there may be insufficient assessment documentation of physical activity. Blaiklock (2010), the Education Review Office (2013), and Meade (2012) support this finding in their discussions on there being some ECE settings demonstrating less effective assessment documentation practices in New Zealand. An even more worrying concern for this thesis is that specific physical activity is not being prioritised as much as other learning areas.

The comment made previously by the Centre A parent also indicates that parents may be assuming everyday physical activities are occurring, when in fact, as the findings from this thesis suggest, there is limited documentation for parents to base these assumptions. The

Education Review Office (2013) report indicated that the type of limited information that teachers were sharing with parents did not help parents view the continuity of their children's learning.

Due to an apparent lack of assessment documentation of physical activity within the two ECE settings in the study, it was decided that the data generation would involve assessment documentation of children's physical activity from the teachers. The next section of this chapter illustrates the examples of assessment documentation consequently provided by the ECE teachers.

7.3: Documentation examples

7.3.1: Limited links to physical learning and development as an assessment documentation practice

All the teachers were asked to write a Learning Story as documentation of physical activity of those children that were participants in the study. One Centre B teacher offered some previous documentation that she saw as linking to physical activity as related to a child within the study. Of the three examples of documentation that were provided by the Centre B teacher, only one was directly linked to physical activity. In this documentation, even though the children were at a local gym engaged in physical activity, the teacher connected mostly with other learning such as listening, patience, and following instructions. There was little evidence of physical activity being documented. A summary of the analysis of learning that the teacher used was:

> Good listening skills; being able to choose what activity the children wanted; patient waiting; helping each other; following instructions; trying new things; facing fears and having fun together. Body awareness; thinking about what our limbs are doing and knowing our right or left hands. (Centre B, teacher 3, Learning Story #3)

This excerpt of documentation demonstrates that from an overall perspective the teacher appears to be focusing less on physical activity and more on the general learning dispositions. Links can be seen between the teacher's analysis of learning and Carr's (2001) learning dispositions, that is: taking an interest, being involved, persisting with uncertainty and challenge, expressing ideas and feelings, and taking responsibility.

One of factors Blaiklock (2008, 2010) believed hindered teachers' analysis of children's learning was an inability to identify learning dispositions. This previous excerpt doesn't indicate a failure in determining dispositional-type learning but does suggest an inability to link it to the specific learning area of physical activity.

While the two Centre A teachers took more time than they would typically be allotted to write documentation it proved that when they were purposeful and thoughtful, they engaged in documenting children's physical activity. A summary of the analysis section of documentation by teacher 1 (Centre A) described six links to physical activity:

> Challenging yourself during physical activity experiences; doing physical activity independently; self-assessed your distance and changed it accordingly; continuing to challenge yourself in different physical experiences; thinking of different positions to go down the slide, and confidently jumped (Centre A, teacher 1, Learning Story #1).

When the same teacher considered the next steps for how she would offer opportunities to further build on the child's physical learning, she described:

> We will continue to provide a variety of physical experiences to enable you to continue to take risk and provide physical experiences that connect between the ECE setting and your home, such as soccer and bush walks, so you are aware of your strengths and confident that these are continuing to be recognised and valued (Centre A, teacher 1, Learning Story #1).

The teacher assessed risk-taking and connecting links between the home and the ECE setting. Although her examples of 'soccer' and 'bush walk' made tenuous connections to risk-taking, her writing was brought back to risk-taking when she discussed building awareness of own strengths and confidence.

A worrying fact, however, was raised in this documentation concerning what was documented in relation to the number of times Learning Story assessment had been written about this child's physical activity, that is, one per year. In the documentation writing the teacher appears to think that this is adequate. The teacher wrote the documentation:

> Two years ago, *A* wrote a story about your ball skills. You were beginning to set yourself challenges. *A* said, 'Each time you caught the ball you would take a few steps back, setting yourself a harder challenge. A year ago, *T* wrote a story about

> how you were climbing a tree and how we would support you to work through challenges independently and utilise those great problem-solving skills that you have acquired. This year *D* wrote a story about being 'out in nature'. *D* said, 'I have been told that you often go on bush walks with your family and have managed a five-hour walk. (Centre A, teacher 1, Learning Story #1)

It can be seen that of all the physical activity that this young child would have been engaged in over the last two years, it was only documented *once* per year. This finding of physical activity only being assessed and identified once per year is of concern when linked to the Education Review Office (2013) statement that 'information shared with parents was not helping them to see continuity in their child's learning over time' (p. 17). A query for the research is who is ensuring this child receives continuity in her physical learning and development if her physical-activity-related learning is only being documented once per year.

The child who was the focus of the documentation attends the same ECE setting (Centre A) where one of the Centre A parents said that documentation 'is the cherry on the top, if we get it.' Correspondence can be observed between the parent's comment of rarely receiving physical activity documentation and this example of the child receiving one Learning Story per year of physical activity. This thesis argues that if there is limited documentation of physical activity the message that may be transferred from the ECE setting to the home setting is that children's physical activity is not valued or prioritised by the ECE service.

However, the issue is not specific to physical activity documentation as a recent report from the Education Review Office (2017) indicates that newly graduating teachers coming into the sector only have a foundational knowledge of the ECE curriculum, Learning Stories, and assessing children's progress. The concern this thesis has is if these most recently graduating teachers are having difficulty analysing learning and development more generally, then how are they going to be able to analyse physical activity more specifically.

The Education Review Office (2017) report says that students are being told they will learn about applying theory to practice on their practicum placements. However, a previous Education Review Office (2013) report states that 24 per cent of ECE settings demonstrate less effective documentation practices. Therefore, the question is how newly graduating teachers will be equipped when they begin their teaching career to apply physical learning and development knowledge to practice.

7.3.2: Effective links to physical activity learning and development as an assessment documentation practice

While there is limited evidence in this study of examples of physical activity documentation, one documentation 'gem' was in the data. Teacher 2, also from Centre A, demonstrated a far more detailed examination of a focus on one child's physical activity. The documentation she provided included a range of references to the child's climbing and jumping skills as can be seen in the following excerpt when the teacher referred to the child's physical activity. For this thesis, full excerpts from the analysis of the child's physical activity have been taken from the Learning Story assessment documentation. The Centre A teacher wrote:

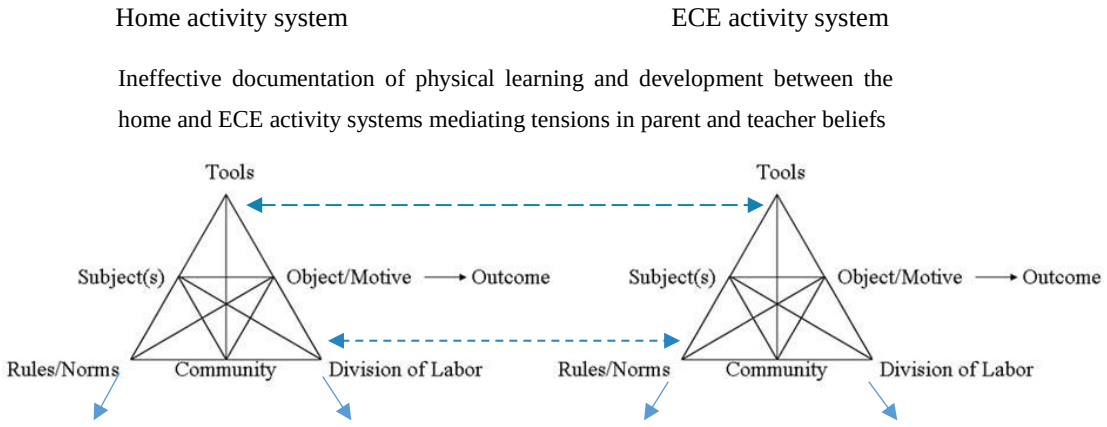
> (Child's name) you showed quite an increase in your physical abilities. You are currently quite interested in activities that use your gross motor skills, especially climbing and jumping. You persevered in trying to climb the red box, trying different positions to put your hands and feet in.
>
> After practising and refining your techniques (child's name) you became confident and were repeating this activity with ease … You have done a lot of climbing on the ladders downstairs and I could see you using the same techniques of moving your hands and feet higher as you climbed further up the box …
>
> Every so often a different challenge gets added to the red box. Two weeks ago it was just the red box to jump up, last week there was a beam as an alternative to climb up and this week there was a ladder. The beam was a little challenging as you kept sliding back down but those great perseverance skills were hard at work and (child's name) I saw you practising and getting further up each time as you refined your technique. It won't be long before you have mastered the beam as well.
>
> (Child's name) you are currently interested in physical activities, exploring using your whole body. You have been using skills and techniques from activities such as climbing the ladder downstairs and applying these to help you master resources upstairs such as the red box. You have shown great perseverance and determination as you undertake these new challenges.
>
> We will continue to provide you opportunities to revisit these activities and opportunities to continue exploring different physical activities (Centre A, teacher 2, Learning Story #2).

The assessment documentation provided above acts as a useful tool for parents and teachers to understand the child's physical activity. In this case, the assessment documentation influences the teacher to act proactively and think purposefully about children's physical development and learning. The sharing of documentation of this type with the home setting will provide opportunities for parents to engage in understanding children's physical learning alongside the ECE setting.

7.4: Taking a theoretical look at the role that assessment documentation plays as a practice for sharing physical activity opportunities between the home and ECE settings

With children's physical activity as the object of activity, and documentation as the tool for communication, it is within a process of social transformation that understanding of children's learning develops within the home and ECE activity systems. In the same way that assessment documentation is viewed as a *tool* (Engëstrom, 1987) for mediating understanding of children's learning and development between the home and ECE activity systems, the lack of assessment documentation can inadvertently also act as a mediating artefact (Kaptelinin et al., 1995) influencing a restrictive understanding of physical activity. Concerning communicating physical activity, it has been demonstrated in this thesis that there was a lack of physical activity assessment documentation mediated between the home and the ECE settings.

Figure 7 demonstrates what this lack of physical activity documentation can look like between the home and ECE activity systems.



Home activity system *not* able to communicate physical activity *rules* to ECE activity system.	Home activity system *is not* able to become more aware of the division of labour of physical activity that is actually occurring in the ECE activity system.	ECE activity system misunderstandings of rules *continue* relating to what physical activity looks like in the home activity systems.	By the ECE activity system *not* sharing knowledge about physical activity, the division of labour continues to be unbalanced, power and control remains and lack of responsibility occurs.

Figure 7: *How not prioritising documentation acts as a mediating artefact influencing restricted opportunities for physical activity practice, understanding and opportunities between the home and ECE activity systems*

7.4.1: Closing the gap in understanding the current limiting role of assessment documentation between the home and ECE settings

To the knowledge of this researcher there has not been any research exploring the role that documentation plays within the ECE setting when related to physical activity. This thesis provides new insight into the relationship between physical activity documentation and the practice of physical activity between the home and ECE settings. Figure 7 shows that by not prioritising assessment documentation of physical activity it acts as a mediating artefact (Kaptelinin et al., 1995) influencing how the home and ECE activity systems have restricted opportunities to understand and communicate about children's physical activity.

Box 1:4

Finding 4: Limited documentation as a tool

A lack of assessment documentation between the home and ECE activity systems means there is a break in documentation acting as a useful *tool* (Engëstrom, 1987) for communication. Therefore, the home activity system is not able to communicate physical activity *rules* (Engëstrom, 1987) to the ECE activity system and ECE activity system misunderstandings of *rules* continue relating to what physical activity looks like in the home activity system. When this breakdown in communication is then mediated through the *division of labour* element (Leont'ev, 1978) the home activity system is not able to become more aware of the division of labour of physical activity that is occurring in the ECE activity system. Added to this, if the ECE activity system is not sharing knowledge about physical activity, the *division of labour* (Leont'ev, 1978) continues to be unbalanced, where opportunity remains with the ECE setting, and yet remains unrealised.

7.4.2: Closing the gap in understanding the potential supporting role of assessment documentation as an opportunity for development of physical activity between the home and ECE settings

While it is evident in the analysis as to the role that physical activity assessment documentation is playing currently, this process can just as easily be reversed. In this way, effective documentation can act as a mediating artefact communicating physical learning and development between the home and ECE activity systems (Kaptelinin et al., 1995). By providing a clear picture of what physical activity is (or isn't occurring) this would influence how parents and teachers would act and think about providing for children's physical learning between the home and ECE settings. In hindsight, a more thorough examination of the assessment documentation of each centre could have provided a deeper insight into the nature and level of physical activity within ECE centres. This is a potential limitation of the study.

Finding 5: Physical activity assessment documentation as a tool for developing understanding, practice and opportunity

It is argued therefore that regular physical activity assessment documentation between the home and ECE activity systems acts as a useful *tool* (Engëstrom, 1987) for communication. Thus, there is the potential for the home activity system to communicate their physical activity *rules* (Engëstrom, 1987) to the ECE activity system. Regular physical activity documentation as a tool has the potential for the ECE activity system to gain stronger understanding of what physical activity looks like in the home activity system. When regular physical activity documentation is mediated through the *division of labour* (Leont'ev, 1978) element there is the potential for the home activity system to become more aware of the division of labour of physical activity that is *actually* occurring in the ECE activity system. A rebalancing of the *division of labour* (Leont'ev, 1978) has the potential to occur when the ECE activity system begins to share knowledge about physical activity with the home activity system. Opportunities for providing children with physical activity has the potential to be shared between the home and ECE activity systems.

Figure 8 provides a conceptualisation of how documentation can act as a tool to resolve tensions in physical activity understanding and practice between the co-evolving home and ECE activity systems.

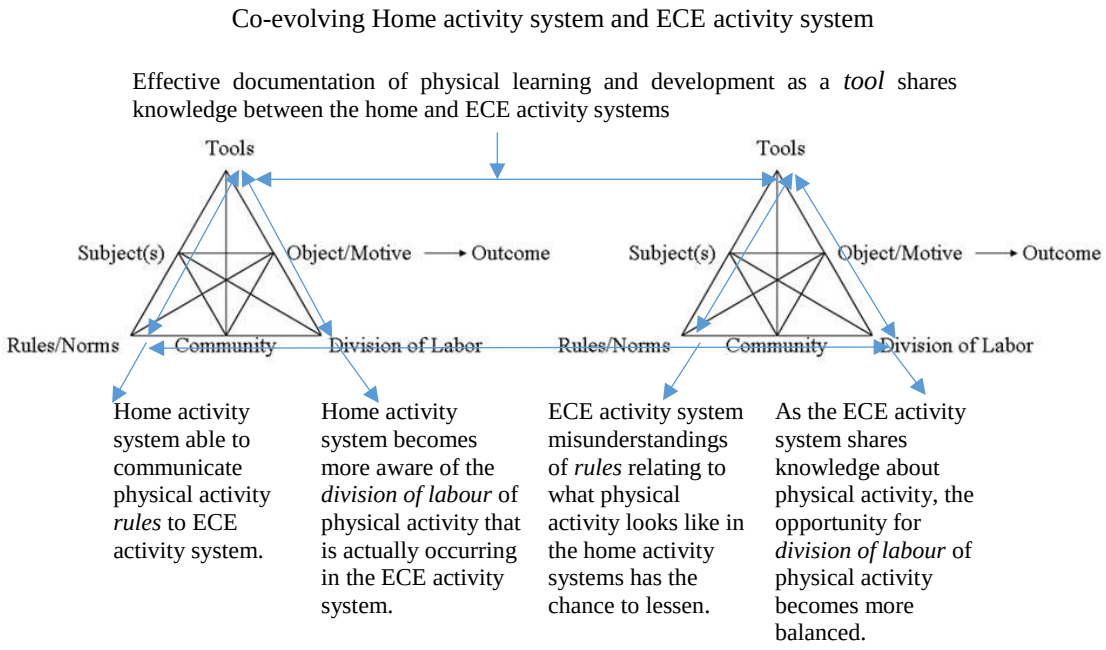


Figure 8: *How documentation can act as a tool to resolve tensions in physical activity understanding and practice between the home and ECE activity systems*

7.5: Chapter summary: Understanding, practice and opportunity

This chapter demonstrated that there is limited research carried out in regard to teacher use of assessment documentation of children's physical activity as a tool for sharing knowledge between the home and ECE settings. It has been demonstrated in this thesis that assessment documentation of children's physical activity is not being prioritised and in turn acts as a mediating artefact (Kaptelinin et al., 1995) which influences limited opportunities to view physical learning and development between the home and ECE activity systems. Whilst assessment may not be used extensively currently as a form of communicating physical activity within the home and the ECE setting, it is certainly something teachers should be further considering.

In the final of the four findings chapters Chapter Eight takes a slightly different tact and serves to offer as an example of a knowledge intervention for change in teacher understanding and practice about physical activity.

Chapter Eight: An example of how new knowledge can act as a provocation for developing physical activity understanding, practice and opportunity

8.1: Introduction

This chapter tells the story of how all four of Engëstrom's (1987, 1999) elements of the activity system in accordance with a new knowledge intervention can change existing practices. More specifically, this section will show how teachers (as the collective *subject*) interpret formal excursion regulations (as *rules*) as a *tool* for mediating practice relating to excursions as an everyday physical activity. The *division of labour* element of the ECE activity system will be drawn on when analysing the roles, tasks, opportunity and decision-making that occurs when making sense of the excursion ratios for children and how these ratios are enacted in practice. The distributed thinking of the ECE activity system and the ECE excursion regulations will be viewed from a *community* perspective as teachers (and at times parents) are brought together by the shared object of valuing excursions as an everyday physical activity for young children. The way in which labour is divided, combined with all other elements, provides a level of analysis for how the ECE activity system is functioning to meet its object of activity of excursions as an example of an everyday physical activity (Engëstrom, 1987, 1999; Leont'ev, 1978). This final chapter will offer an example of how a new knowledge intervention (provided by Annie as related to excursion ratios) has the potential to change existing ways of understanding and practices.

8.2: Shared understanding of excursions as an everyday physical activity between the home and the ECE activity systems

It is essential to start this discussion with the knowledge that both the home activity system and the ECE activity system in this thesis valued excursions as an everyday physical activity. This chapter mainly features Centre B, but there are times when Centre A parents and teachers contributed. For example, the Centre A home activity system was apparent in their understanding of excursions in the home setting as being a good experience for children to be involved in. One Centre A parent said:

> I see the excursions as an opportunity to show children a different environment. We try to go to places where we have never been before. My husband says, 'Oh shall

> we drive' and I say, 'No we will walk, it's a nice day we don't actually need to rush anywhere. (Centre A, parent 2, interview 2)

However, this chapter is mainly Centre B's story. For Centre B, excursions were seen by the ECE activity system as an everyday experience for many reasons. While it appeared that teachers were not actively aware of the physical activity potential of excursions, when prompted in the interview to consider walking excursions around the local community as a physical activity, one Centre B teacher agreed that this was:

> An area where we find out perhaps what the likely mode of transport is for that child in their general home life by how soon they say, 'I can't walk anymore', and we've only just walked up to the park, or the gate; whereas other children will walk and walk and walk and never get tired (Centre B, teacher 1, interview 1).

While this same centre did not seem to understand forms of physical activity the home setting engages in, they did seem to have a clear understanding of the shared value of excursions for the family. One Centre B teacher stated:

> I think most of our parents like to get out and about in the community. I think we share the same view about trips. Sometimes we get to hear about the weekend, and then we think, 'Oh we can do that trip'. Or the parents are like 'you should take the kids out to this place (and name the place), it's really cool; we went there on our holiday'. So you know that the parents really love what we are doing as well. That's encouraging us to do more (Centre B, teacher 3, interview 2).

It is clear from the comment above that when the ECE setting values an experience (in this case, excursions) they are keen to hear from parents and gain knowledge as to how to extend these experiences into the ECE setting. In the following parent comment, the home activity system shares the rule that the ECE activity system is expressing that parents like their children to get out into the community. In this situation, a Centre A parent said:

> It's good for them to experience other environments but that's my own personal opinion. I like going out and seeing new places and by consequence my children have too. Quite often we just pick somewhere we haven't been (Centre A, parent B, interview 1).

Therefore, as stated previously, getting out into the community is a key area of interest for Centre B. When referring to children going out on excursions Centre B teachers discussed

this as occurring often within their ECE setting. One Centre B teacher stated that 'these children go all the time, so they know the drill. Because they are doing it regularly, they listen well (Centre B, teacher 2, interview 2).

Centre B found that the more often they went on excursions, the easier it was from a safety perspective. Excursions happen as frequently as Centre B can make them happen. This frequency of excursion trips is confirmed by a Centre B parent who talks about the rate of excursions at the ECE setting. She stated:

> In the outings they see real life happening. They [teachers] plan it but on other days it's just that it's a beautiful day and they say, 'let's go to the [she names another suburb quite away from the centre]' or they say 'let's go to the supermarket' and it just happens. The last few weeks [she stated her child's name] has been on two or three trips and they will have planned it or not, or it just happens (Centre B, parent 1, interview 2).

It is obvious, therefore, that excursions are valued by the parents and teachers, but do they see that they are also valuable from a physical activity perspective? When the Centre B parents were asked how they think the excursions link to everyday physical activity, one parent stated:

> Well, some of them, for example, they go to the local recreation centre and they do a circuit. Sometimes they go to the park and there are facilities there for them, i.e., climbing things. Or anything. When they go for a walk and hop on the bus or the train. So, it's completely physical, dancing around in the old age home … It's *Te Whāriki* – so it's not just the children, it is the teachers, the parents, and the community, and it's all connected (Centre B, parent 1, interview 2).

The above comment from a Centre B parent indicates she has a clear understanding of the physical benefits of excursions as an everyday physical experience when they occur in the ECE setting. So, what about experiences that happen in the home setting, do parents see any connecting links with the home setting? When a Centre B parent was asked this question, she stated:

> I like the fact that she is given so many opportunities that not many of the other centres would provide. Because [names her child] used to go to another centre and I think she had a couple of outings to a park. They were planned and it took forever,

then they cancel, and then they postpone. Whereas here they took her to the local recreation centre a few weeks ago and she's been telling me every time we go past it, 'Oh mummy, when are we going to go to the park?' She will make connections with every experience. She is experiencing it first-hand you know? Sometimes we don't have the chance to do it, so we know that the opportunities are given here (Centre B, parent 1, interview 2).

8.3: How shared understanding of excursions is viewed from a theoretical perspective between the home and ECE activity systems

The *rules* (Engëstrom, 1999) which govern the community distributed thinking of both the home activity system and ECE activity system suggest that there is an implicit informal value and belief in excursions as an everyday physical activity. There is a change in the *division of labour* imbalance that was previously noted (in Chapters Five, Six and Seven) related to the roles and tasks (Leont'ev, 1978) for physical activity provision in the home and ECE activity systems. Concerning excursions, the home activity system seems not only informed but also displays a keen value. This value it has related to excursions is shared with the ECE setting. An awareness has developed as to what excursion-related physical activity children are involved in. This shared knowledge and value shapes and informs how the collective activity systems view excursions concerning the object activity (Engëstrom, 1999).

In a functioning activity system, everyone is involved in carrying out an activity within the system (Leont'ev). As the *division of labour* determines who holds power and status regarding decision-making, it can be seen that the knowledge is communicated between the two activity systems. A level of analysis can occur of how the co-evolving activity systems are functioning to meet the outcome (Leont'ev, 1978) with excursions viewed as a form of physical activity.

8.4: The difference in how labour is divided in terms of excursion practices within the ECE activity system

It has already been determined that the ECE setting provides opportunity in relation to children's physical activity, and this would potentially be the same for excursions. However, Centre A teachers relied on parent assistance to ensure they met (what they thought was) the correct ratios while on excursions. This did not mean Centre A did not also hold the rule of valuing excursions, it was just more difficult for excursion to occur without parental support,

as one teacher explained that it was good to be able ‘get out into the environment, even having extra people to help supervise, like, so that kids can just run and get really puffed’ (Centre A, teacher 2, interview 1).

For Centre A parents, there seemed to be a difference between the fact that the teachers relied on parent help, as the parents did not believe this was always the case. Centre A parents believed (at least for the older children) the trips happened regularly with or without parent help. A Centre A parent stated ‘they go down to Parliament grounds and up to the Botanical Gardens, so they have all of those close-by outings’ (Centre A, parent 2, interview 1).

While Centre A teachers talked about the need for excursions to be organised to have ‘extra people to help supervise’, this contrasted with Centre B who discussed how a number of their trips are spontaneous and due to their ratio of adults to children they are not reliant on parent help. A Centre B teacher stated that ‘most of the trips are spontaneous, so if we feel like we want to go somewhere we just make a list and go!’ (Centre B, teacher 3, interview 2).

Centre B parents supported the spontaneity that the Centre B teachers referred to, and in this comment below a parent indicated excursions were a regular part of the programme. A centre B parent stated:

> The kids cannot all go out at once, but you know that if that week it didn’t happen because some kids would have gone to the park, some gone shopping [The teachers would say] ‘Oh, it is sunny we have decided we are going to catch the train’… ‘Oh, the laminator doesn’t work – oh we will have to’… and there’s a trip to the shop. I love it! (Centre B, parent 1, interview 1)

It can be seen, therefore, that the *division of labour* (Leont'ev, 1978) for Centre A differs to Centre B when it comes to excursions. Even if both centres had the same licensed ratio of adults to children, one of the factors that influenced excursions for the two settings seemed to be teacher understanding that more adults to children needed to be available when on excursion then when at the ECE setting. The rule that Centre B holds is that they value excursions and therefore will even give up on their non-contact time for the children to make excursions happen. This rule is seen in the comment below by a Centre B teacher:

> If we didn’t do trips, they would only be looking at these four walls … [Meaning the ECE setting]. We are not wedded to the breaks around trips, whereas most

> teachers in centres probably go 'I can't go because it's my break' [Centre B, teacher 3, interview 2].

Another factor that means Centre B can go on regular trips is because they are working at a higher than the licensed teacher-to-child ratio. Another teacher joins in:

> Yeah exactly … What per cent [of ECE centres] don't do trips though? We do trips because we can have two teachers go off the floor … There is a culture about being relaxed about it [excursions] here which I've not seen in other places [Centre B, teacher 5, interview 2].

The adult-to-child ratio is raised again by a Centre B teacher:

> Like a centre that should remain nameless that was right across from the beach and I was there six weeks [on practicum], and they never went to the beach once. Never went once! You know, I guess they just don't have the ratios the way we do [Centre B, teacher 5, interview 2].

8.5: Understanding contradictions in how excursion labour is divided from a theoretical perspective

It can be seen from the comment above that the *division of labour* roles and tasks (Leont'ev, 1978) related to excursions seems dependent on the ECE settings having an adult-to-child ratio that allows for more teachers to go out with fewer children. A functioning activity system will ensure that everyone is involved in carrying out an activity within the system, in this case related to excursions. For the ECE setting this means that teachers are taking less than the required ratio (1 adult to 10 children) of children out of the centre on an excursion, the ECE setting also needs to maintain its licensed adult-to-child ratio (1 adult to 10 children) for all children left behind. While there is a clear licensed ratio within the ECE setting set by the New Zealand Ministry of Education (Education (Early Childhood Services) Regulations 2008) that guides the ECE activity systems division of labour, are there clear ratios when out on excursions as well?

8.6: Teachers' informal understanding of excursion ratio rules

It was at this point in the Centre B second interview that the teachers began to talk about the formal rules of the ECE regulations (Education (Early Childhood Services) Regulations 2008) and how they relate to excursions. Centre B teacher 1 said, 'Well, you could look as

well at legislation. It's over-regulated' [interview 2]. What does this teacher mean by the legislation being over-regulated?

Teacher 1, Centre B continued to make links to the ECE regulations (Education (Early Childhood Services) Regulations 2008) and said that 'the regulation would make most centres frightened of going on trips. So, it's like anything, unless you are brave or a bit foolhardy, then you'll say, 'Oh, we're not going to do that' [Interview 2].

In this comment, teacher 1 is referring to the risk-management aspect of the excursion ratios and that the responsibility is put on the ECE setting to ensure that labour is divided in such a way that ensures an adequate adult-to-child ratio to keep children safe from harm. The focus on keeping children safe on excursions becomes a dominant part of the *division of labour* (Leont'ev, 1978) rationale for ECE settings.

Teacher 1, Centre B, then stated how their ECE setting manages the contradiction between keeping children safe and having a *workable* adult-to-child ratio:

> The proof of our pudding is in the ability to take 12 children with two teachers out on a trip and know that it is a safe, valuable, high-quality experience for the teachers and the children; that there isn't danger there (Centre B, teacher 1, interview 2).

The teachers in the Centre B interview alerted that their view of needing to have more adults to children while on excursions was a view held beyond them as a team and was a belief that many ECE teachers held. Teacher 1, Centre B, stated:

> There was a rumour going around at one point that you had to have a one-to-one ratio on trips and people were believing it; that was at a supervisor's network meeting. I was like 'what?' thinking I didn't know that (interview 2).

Teacher 2, Centre B mentioned the word 'snowballing' in her response to how she believes the ECE sector has interpreted the excursion regulations. She stated:

> But that was if you were going to go swimming in the ocean or something. There was one example where that was actually the case, but it became this snowball thing where everyone was terrified, and you know I think centres need to be more pro-active about these things (interview 2).

This uncertainty about what the rules are around excursion ratios is reiterated further by teacher A in Centre A, who stated, 'You have to have a certain ratio, especially if you are

around water and the age of the children' (interview 2). The notion of there being a 'certain ratio' to adhere to according to the excursion regulations was evident in a further comment by teacher 1, Centre B, who stated:

> I think many ECE centres have been put off going on trips because they fear that regulations don't allow for things and they are going to get in trouble and that kind of thing … I know that a lot of centres just think, 'Oh, trips are too hard work (interview 2).

Teacher 1, Centre B discussed what she had heard other head teachers say about excursion ratios in a networking meeting she attended for managers of ECE settings. She firstly quoted how she has heard other teachers in leadership positions say, 'You can't even go on trips anymore, you've got to have a ratio of 1:1…' (interview 2).

Teacher 1, Centre B then continues:

> I'm thinking that can't be true, is it? I don't check all the legislation all the time, but I was thinking I'm sure I haven't heard that. But there is that impression that you couldn't possibly go out on a trip ever unless you've got 1:1 ratio (interview 2).

The informal rule that there is a specific ratio for excursions that is separate to the licensed rate comes through clearly in the comment from teacher 2, Centre A, who said 'Because the ratio is over and above what we are normally working at we have to plan for the excursion' (interview 2). Interestingly, the teachers are not sure of what the excursion ratios are but understand on some level that they are different from the standard licensed ratio of 1 adult to 10 children.

8.7: Teachers informal understanding of excursion ratio rules from a theoretical perspective

It appears the *rule* (Engeström, 1987, 1999) being articulated by the teachers is that there is a specific excursion ratio, but no one is quite clear about the nature of the rule or where it comes from. By the way the Centre A and Centre B teachers are talking it also seems that this lack of clarity exists for ECE settings generally, and that, in fact, there are specific ratio imposed by the regulations related to when out on excursions. It seems as if the *community* element of the ECE activity system is demonstrating that when the teachers from Centre A and Centre B combine in their distributed thinking with teachers from the ECE sector, a

shared common understanding of ratios when on excursions (Engeström, 1987, 1999) is occurring.

The informal *rule* (Engeström, 1987, 1999) of these Centre A and Centre B teachers (and possibly their ECE colleagues) is that there is a separate ratio while on excursions and that this is stated in the excursion's regulations. In this way, the excursion regulations are acting like a *tool* (Engeström, 1987, 1999) that mediates the way Centre A and Centre B teachers understand and practice (Kaptelinin et al., 1995) when they attempt to engage in excursions as physical activity.

Box 1:6

Finding 6: Informal rules can become the convention that governs understanding and practice

The implicit *rules* (Engeström, 1987, 1999) the teachers hold around a possible reduced excursion ratio has become the convention that governs the distributed thinking of the *community* and thereby informs their understanding and practice relating to excursions as physical activity (Engeström, 1999). In turn, the informal excursion ratio *rules* mediate the teachers' *division of labour* where roles and tasks are assigned (Leont'ev, 1978). In effect, it is the *informal excursion rules* held by the ECE activity system that contains the opportunity for decision-making relating to if and when excursions will be a physical activity offering within the ECE setting.

Interestingly, the informal rules the teachers held relating to the need for a ratio of more teachers with fewer children while on excursions did not align with the formal ECE excursion regulation as per the ECE regulations (Education (Early Childhood Services) Regulations 2008).

8.8: Misconceptions in teachers' understanding of excursion ratio rules and how they are enacted in practice

A comment from Centre B teacher 2 alludes to there being a contradiction between the informal rules the ECE teachers hold and the regulated excursion ratios. She alludes to thinking this was a specific ratio, but now she is not so sure that it is correct. The Centre B teacher states 'I think there is a misconception about the ratios thing because I always

thought it was 1:4 and that was that, and it was set in stone somewhere. But it's not, it's just a recommended ratio' (interview 2).

The comment above refers to a recommended ratio which still implies that somewhere or someone is suggesting the ratios are different. There is no difference in the regulated ratio on excursions and the regulated ratio when the children are in the ECE setting.

It was at this point in the Centre B second interview that Annie walked into the interview by accident. Annie thought it was a staff meeting where she was providing some professional development. She had been sitting quietly in the corner. When she realised an interview was occurring, she sat quietly as if not to disturb things further. As detailed in the methodology chapter, the opportune contribution by Annie provided significant insight for this thesis. Later, Annie's contribution to the interview was formalised with appropriate ethical consent for her participation obtained.

Having listened to the teachers' beliefs around excursion ratios, Annie said something that contributed a new knowledge intervention for the activity system. Not being formally part of the interview Annie was at first hesitant about saying anything, and so she merely said 'The [excursion] rules are only that you can't go out in a ratio less than is used in the centre … Legally, you can take out [on an excursion] ten two-year-old aged children on your own…' (Annie, Centre B, interview 2).

While entirely unplanned, it appeared that Annie had offered the teaching team new knowledge about the excursion ratios; that there was no difference from a regulations perspective whether you are in or outside of the ECE setting gates – the ratio is the same. While this was all Annie said at the interview, later after applying for ethical consent for her to be a participant in the research, Annie added the following contextual knowledge to why teachers had thought the regulations for excursion ratios were less than the licensed one adult-to-ten children ratio.

Annie began talking about what has been referred to as *informal rules*, or 'myths. Annie stated that just as myths develop over time, so too did the teachers' misunderstanding. But rather than being individual misconceptions, the misinterpretation was systemic across the ECE sector. Annie stated 'Overall, I think these myths have developed from a couple of sources. Many years ago, associations, such as Kindergarten and Playcentre, created their policies related to excursions, for example' (Annie, Centre B, interview 2).

The policy Annie refers to is Licensing Criteria for Early Childhood Education and Care Centres 2009. More specifically, she is referring to the Health and safety practices criterion 17 HS17 (Ministry of Education, 2009). For the purposes of clarity HS17 will be quoted in its entirety. Italics will be added to draw attention to any part that refers to the adult: child ratio when on excursions:

> Whenever children leave the premises on an excursion:
>
> - assessment and management of risk is undertaken, and *adult: child ratios are determined accordingly. Ratios are not less than the required adult: child ratio;*
> - the first aid requirements in criterion HS25 are met in relation to those children and any children remaining at the premises;
> - parents have given prior written approval to their child's participation and of the *proposed ratio* for: regular excursions at the time of enrolment; and special excursions prior to the excursion taking place; and there are communication systems in place so that people know where the children are, and adults can communicate with others as necessary.
> - When children leave the premises on a regular or special excursion, the excursion must be approved by the Person Responsible.
>
> Documentation required:
>
> - A record of excursions that includes: the names of adults and children involved;
>
> the time and date of the excursion; the location and method of travel; assessment and management of risk; *adult: child ratios*; *evidence of parental permission and approval of adult: child ratios for special excursions*; and the signature of the Person Responsible giving approval for the excursion to take place.
>
> Rationale/Intent:

> The criterion is underpinned by the understanding that excursions outside the licensed premises are a valuable aspect of the service's curriculum. The inherent risks involved in outings and excursions from the licensed premises must be managed to uphold the safety and well-being of children.

It can be clearly seen from the quoted Health and Safety Criterion that the adult: child ratio can be the same as the licensed ratio when children are within the four walls of the ECE setting.

The question for the ECE organisations became how were they to manage all their ECE settings carrying out the same practices concerning 'determining the ratio accordingly' – according to what? However, instead of taking an individual 'trust-based' approach that each setting would determine their ratios according to the context, the different organisations imposed specific ratios across their ECE settings for different types of excursion scenarios. This regulation, therefore, meant that organisations developed their excursion policies as to how the adult: child ratios would be determined accordingly, and how this would be enacted in everyday centre practice.

It was at this point that the organisational policies became their artefacts for ECE practice and governed the conventions in relation to the ECE regulations in the minds of the teachers within the ECE settings. In doing so, organisational policies veered away from the ECE regulations. As Annie said, this new understanding 'became rules by teachers in those services' (Annie, Centre B, interview 2). Annie stated:

> Over time, teachers failed to recognise the difference between their own associations' rules and the government's rules. They came to the view that all rules outside their localised centre/kindergarten policies were government rules (Annie, Centre B, interview 2).

Annie continued to demonstrate the lengths to which some organisations went to ensure they met the excursion regulations. Annie provides an example of how quickly these 'informal rules' developed across the sector and became formalised. She stated how 'one kindergarten association had a policy that ratios should be 1:1 near water when on excursions, and I remember how quickly that spread through the sector with many people thinking it was a regulation' (Annie, Centre B, interview 2).

As Ministry of Education advisors were sent out into the ECE sector as the 'interpreters' of the regulations, they perpetuated the myth of there being different ratios when on excursions. Annie reiterates this when she says:

> Ministry of Education advisors would give their interpretation of regulation as 'fact,' as they were the sole interpreter of whether the Secretary for Education would be 'satisfied'. However, this created a lot of confusion because basically if a Ministry of Education advisor said you needed a sink here, or that your excursion ratios should be x, this became the de facto 'regulation' for the individual centre/association. Because many of the old regulations required interpretation, people would have to ask the local MOE what they needed to do, and so the myths developed … excursions being but one (Annie, Centre B, interview 2).

8.9: Viewing how new knowledge can change misconceptions in teachers understanding of excursion ratio rules from a theoretical perspective

Engeström's (1999) first principle is that the prime units of analysis are collective, artefact-mediated, object-oriented activity systems. Engeström (1999) also contended that *historicity* occurs as activity systems take shape and get transformed over lengthy periods of time, with problems only being understood against their history. It can be seen in this study that the collective ECE activity system is mediated by the informal and formal *rules* (Engeström, 1987) that surround excursion ratios as opportunities for physical activity.

As time went by for the ECE sector a *primary* contradiction occurred within the *rules* element (Engeström, 1987, 1999) of the ECE activity system concerning ratios while on excursions. The *primary* contradiction was between the formal excursion legislation *rules* which stated that children needed to be kept safe, and the resulting informal *rules* or 'myths' that there were specific ratios that surrounded keeping children safe, and that these were legislated. This *primary* contradiction that took shape and became formalised has remained continually present and will continue to be foundational to all other contradictions that ripple out from it.

The primary contradiction (Engeström, 1987, 1999) held within the rules be a *secondary* contradiction (Engeström, 1987, 1999) in ECE teachers understanding and practice, when they engage in excursions as a physical activity opportunity (Kaptelinin et al., 1995). The

secondary contradiction develops between two elements of the same activity system, in this case the rules-and-tools element of the ECE activity system.

Box 1:7

Finding 7: Mediated tension between activity systems

Whilst the *primary* contradiction (Engeström, 1987, 1999) within the *rules* of the ECE activity system may appear to be an accepted practice and therefore not cause a current contradiction, when mediated through the formal excursion ratio regulations as a *tool* (Engeström, 1987) then a *secondary* contradiction prompts the primary contradiction to resurface. The *secondary* contradiction takes the form of a specific problem, that is, the *division of labour* according to the informal rules is difficult to execute and make excursions possible, and then the tension begins to build. In effect, the excursion rules held by the ECE activity system hold opportunity and decision-making relating to if and when excursions will be a physical activity experience within the ECE setting.

The excursion rules held by the ECE activity system will hold opportunity for decision-making relating to if and when excursions will occur for as long as the ECE teachers believe they are, in fact, legislated requirements. However, this chapter also illustrated how a new knowledge intervention could change existing ways of thinking. What Annie said was enough to allow teachers to reconsider their current understanding of the excursion ratios. Engeström (1999) refers to a 'much longer perspective of a third dimension, that is, the dimension of the development of the activity' (p. 64). His form of expansion of learning as a developmental approach links to the notion of how new knowledge interventions (like that provided by Annie) can cause purposeful intervention. In doing so, a broader and long-term change in practice may be possible.

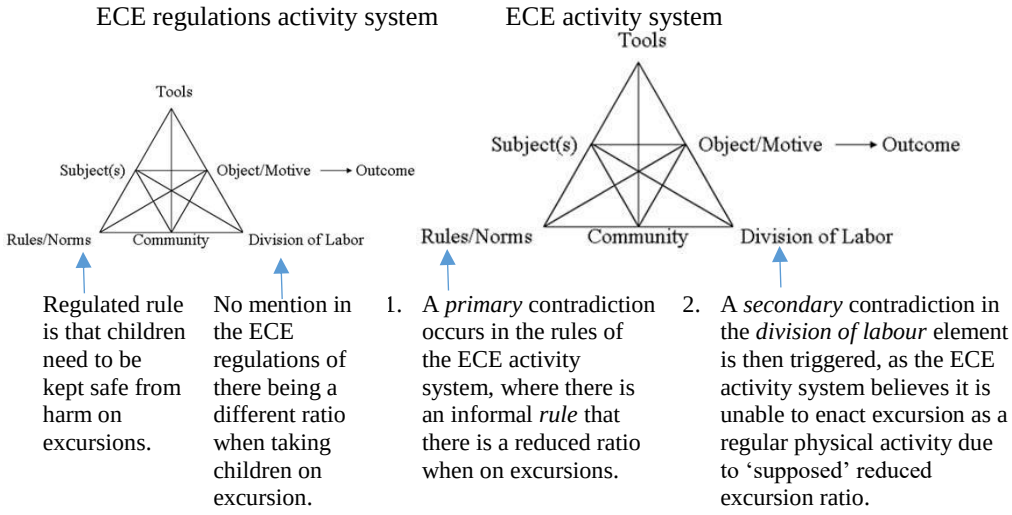
Box 1:8

Finding 8: Introducing new knowledge as a 'more developed activity'

Engeström (1987, 1999) refers to a *tertiary* contradiction arising when the object of a more developed activity is introduced into the activity system. In the case of the second Centre B interview, Annie's comment is said to be a more advanced activity that is introduced into the ECE activity system. When

this new knowledge intervenes, the *tertiary* contradiction (Engeström, 1987, 1999) of development and transformation is enacted. As the introduction (in this case Annie's statement) of a new object is introduced into the ECE activity system, one or more secondary contradictions that are occurring have the chance to be resolved.

Figure 9 acts as an example of Engestrom's (1987) four types of contradictions as related to excursions as an opportunity for physical activity, including a *quaternary* contradiction where new knowledge has the potential to act as a provocation to the problem of children going on excursions.



3. A new knowledge intervention being introduced into the ECE activity system, relating to the actual excursion regulations act as a *tertiary* contradiction.
4. When new knowledge is shared between systems it has the potential to act as a tool for transformation and development (*quaternary* contradiction).

Figure 9: *Example of Engeström's (1987) four types of contradictions as related to excursions as a physical activity*

8.10: Chapter summary

8.10.1: Closing the gap further between how new knowledge can act as an opportunity for development of physical activity intervention

There is little reported in the literature about excursions from the ECE setting within the local community being a source of physical activity for young children. This thesis has identified and now closes this gap by indicating how a quaternary contradiction can address a lack of excursion provision as physical activity opportunities for young children in ECE settings.

A *primary* contradiction (Engeström, 1987, 1999) occurred in the *rules* of the ECE activity system, where there is a tension between the *informal rules* that there is a reduced ratio when on excursions. A *secondary* contradiction was then seen as being triggered in the *division of labour* element, as the ECE activity system believed it was unable to enact excursion as a regular physical activity due to the 'supposed' reduced excursion ratio that they believed was a formal regulation. A new knowledge intervention occurred in the ECE activity system by Annie relating to the formal excursion regulations. This new knowledge in effect acted as a *tertiary* contradiction. Whilst this did not occur at the time, if the new knowledge had been shared between the researcher and the ECE activity system it had the potential to act as a tool for transformation (for example, a quaternary contradiction) of the teachers understanding of excursion ratios and the practice of physical activity in ECE settings.

8.10.2: Summarising the findings of physical activity contradictions in understanding, practice and opportunity between the home and ECE settings

Chapter Eight provided an example of Engeström's (1987, 1999) quaternary contradictions in action concerning the ECE setting's informal rules on ECE excursion ratios and how these are impacted by new knowledge interventions as a means of changing existing practice. In the next Chapter, Engeström's (1987, 1999) contradictions are called on to answer the three research questions. In the second half of Chapter Nine, it will be demonstrated how Engeström's (1999, 2001, 2010) expansive learning cycle has been used in this thesis to create a new knowledge intervention for teachers in the form of a physical activity expansive learning framework.

Chapter Nine: Discussing contradictions in understanding, practice and opportunity between the home and the ECE settings

9.1: Introduction

The first half of this discussion chapter begins by revisiting the physical activity definition, and the notion of contradictions between the ECE setting and home activities systems. With these two definitions in mind, the discussion then draws in the findings from Chapters Five, Six and Seven and analyses them from the perspective of the first two research question, that is, 'What are the contradictions in parent and teacher understanding of physical activity between the home and the ECE setting?' and 'How do contradictions in understanding of physical activity influence practices in the home and ECE settings?'

The second half of this discussion chapter moves on from analysing contradictions in understanding and practice to answering the third research question, 'What teacher practices would strengthen opportunities for physical activity between the home and ECE settings?' In doing so, the second half of the chapter highlights how assessment documentation of children's physical activity can be viewed as an opportunity for increasing awareness of physical activity between the home and the ECE settings. A physical activity expansive learning framework is provided as a tool for supporting ECE teachers to review their current assessment documentation practices of children's physical activity. It is described as to how the physical activity expansive learning framework has the potential to act as a resource enabling ECE teachers to increase their understanding, practice and opportunities for physical activity between the home and the ECE settings.

9.2: How physical activity is defined

Before exploring contradictions in physical activity between the home and ECE settings, it is important to be reminded of the meaning of physical activity as established in the literature review chapter of this thesis. The definition of physical activity developed within this thesis draws on research by Brady et al. (2008), Goodway and Robinson (2006), Brockman, Jago, and Fox (2011), and Cliff and Janssen (2011).

The New Zealand Ministry of Education (2007) discusses how 'terms such as physical activity can mean different things to different people' (p. 6). It is important that a definition of physical activity between the home and ECE settings is provided to create a clearer

understanding so that 'people planning school-based physical activities have a common understanding of the relevant language' (New Zealand Ministry of Education, 2007, p.6).

However, when teachers in this study were asked how they believed physical activity is defined they struggled for language to describe it. It was as if they are not used this type of descriptive language for physical activity before, or at least had not used it for a long time. This finding aligns with the fact that it was difficult to find a clear definition of physical activity in the literature. The teachers' response of not being able to define physical activity also links to the fact that there was limited literature on physical activity in ECE settings found in the literature search. It is no wonder therefore that teachers were unable to describe physical activity.

As well as not being able to describe physical activity McLachlan (2016) discussed how teachers in her study stated they were not confident with physical activity teaching. The teachers attributed their lack of confidence to their ITE programmes not providing this learning. It is also understandable, if there is such limited literature on physical activity within the ECE setting, that ITE providers might be struggling to provide this information within their curricula.

It was also stated in the existing research literature that teachers held the belief that children are naturally fit and therefore do not require adult assistance (Dyment & Coleman, 2012; McLachlan, 2016). It is of concern that not only do teachers believe children are naturally fit and don't require additional physical activity experiences, but that they also feel inadequate in this area of teaching and are ill-informed of what exactly physical activity for young children looks like and how it is enacted.

With these findings in mind, it is important, therefore, to devise a common understanding of physical activity, as literature demonstrated that ECE teachers lack knowledge of what physical activity looks like within the ECE setting (McLachlan, 2016; Dowda, et al., 2004; Copeland et al., 2012). The developed definition for physical activity for children under five years of age is:

> *Physical activity experiences are when children under five years of age are regularly engaged in light, and moderate-to-vigorous intensity physical experiences which are spontaneous and planned and facilitated holistically by adults and children, within the home, ECE setting, and broader community.*

9.3: Analysing contradictions in physical activity understanding

Having defined physical activity for the purpose of this thesis the aim now is to address the research questions concerning *contradictions* in parent and teacher understanding of physical activity. But what exactly is a contradiction? In a similar way in which physical activity can have many meanings, so too can the term *contradictions*. Karanasios, Riisla, and Simeonova (2017) say that there does not seem to be a clear meaning for the term *contradictions* within the literature, and the definition is often vague and ambiguous. Engeström and Sannino (2011) also state that 'there is a risk that contradiction becomes another fashionable catchword with little theoretical content and analytical power' (p. 368). By linking to Engeström's (1987) four types of contradictions, this thesis provides a clear understanding by which to analyse contradictions-based understanding.

Karanasios, Riisla, and Simeonova (2017) refer to the limited understanding of the type of change that can be enabled through viewing contradictions and tensions. Karanasios et al. (2017) state, 'Because of this, the application of these concepts may be limited, and researchers may only uncover surface level contradictions or tensions, or simply identify problems' (p.1). However, this thesis positions contradictions as sitting at a deeper level of analysis, than simply identifying problems. This research offers an intervention approach to solving problems.

This thesis views contradictions as provoking opportunities for change and action (Engeström, 2001) and as an indication of richness where expansive development can be allowed to take place (Foot, 2001). It is this notion of viewing contradictions from an opportunity-based perspective that underpins the link between understanding, practice and opportunity.

For the purposes of clarity of understanding, this thesis purposefully kept to one definition of contradictions. In so doing it is Engeström's (1987) four types of contradictions (*primary*, *secondary*, *tertiary* and *quaternary*) that are drawn on (refer to Appendix I for a reminder of the four contradictions from an analytical perspective). To illustrate Engeström's (1987) four types of contradictions Chapter Eight focused on a new knowledge intervention that occurred during the data collection process – Annie's contribution to teachers misunderstanding about adult-to-child excursion ratios.

In terms of parent and teacher understanding, contradictions are evident in who parents and teachers understand to be responsible for physical activity between the home and ECE

settings. Parents overwhelmingly understand that the ECE setting is responsible. This parental understanding is similar to the Irwin et al. (2005) study where parents discuss their dependence on the ECE teachers to ensure their children are sufficiently physically active. Bilton (2010), Stork and Sanders (2008), and Venetsanou and Kambas (2010) suggest that it is primarily the role of the ECE teacher to provide a well-facilitated physically active environment for young children.

From the perspective of teacher understanding, the fundamental factor influencing why they believed the ECE setting is responsible for providing for children's physical activity is due to the long hours children attended the centre. This finding is similar to Bellows et al. (2008) who found that due to work commitments, providing for children's physical activity becomes increasingly difficult for parents.

As well as parents believing the ECE setting is responsible for children's physical activity due to the long hour's children attend, they also hold a firm understanding that because the ECE settings cater for their children's *holistic* well-being as a matter of course, they also provide for *physical* well-being. However, while the ECE setting also thought they are responsible for physical activity, it is more from a default perspective due to the increasingly long hours children attend ECE settings. This is in contrast to any firm understanding about supporting children's physical activity.

A fundamental *primary* contradiction (Engeström, 1987, 1999) is at play within the *rules* element (understanding) of the home activity system and ECE activity system. That is, parents and teachers hold different *rules* (understanding) as to why the ECE setting is responsible for the physical activity. Leont'ev (1978) refers to collective activity where shared rules determine norms and conventions that will always be shared by a number of people.

This thesis views the rules element of the activity system as way of analysing *understanding*. The *primary* contradiction in the *rules* of the home and ECE activity systems, then triggers a *secondary* contradiction (Engeström, 1987, 1999) to occur between the *rules* and the *division of labour* (Leont'ev, 1978) of physical activity between the home and ECE settings. Engeström and Sannino (2011) discuss the manifestation of a *dilemma*. If parents and teachers can be in direct communication with each other, they will realise they hold different understanding. However, parents and teachers are not in conversation with each other, in terms of physical activity. Therefore, the dilemma continues.

In the thesis parents identify physical activity as being of an experienced-based nature, which related to specific experiences such as walking, running, and dancing. However, the ECE teachers understanding tends to come from more of child development and dispositional perspective. The dispositional understanding teachers hold in this study link to Carr (2001) and also the New Zealand Physical Activity Guidelines (Ministry of Health, 2017). Teachers believe in dispositions of competence, confidence, resilience, creativity, and exploration as linked to physical well-being.

Links are made between parent understanding of physical activity being experienced-based and teacher understanding being developmental and dispositional when related to a holistic understanding of physical activity. Physical development links to social, emotional and cognitive development. Hinkley et al. (2008) discuss how when children undertake physical activity experiences in many settings it contributes to the cognitive, physical, social, and emotional growth and development of the children.

9.4: Analysing contradictions in physical activity practice

When viewing parent and teacher understanding of physical activity from a contradiction's perspective, it would seem that there are limited contradictions in parents and teachers *rules* (Engeström, 1987) as to how physical activity is understood. However, when these small discrepancies are mediated through a 'practice' perspective the contradictions increase.

A key finding of this thesis is that the home activity system is reliant on the ECE activity system to provide for children's physical activity as a practice. Parents are powerless to ensure their understanding relating to physical activity being experienced-based occurs in the ECE setting. However, this thesis found that parents still seem to default to a high trust that the ECE setting does cater to their children's physical activity needs. From the teachers' perspective, they are seemingly unaware that they hold increased opportunity to provide (Leont'ev, 1978) physical activity between the home and ECE settings.

This thesis states that the contradiction between parents' rules and the ECE setting holding the division of labour for children's physical activity is a *conflict*. Engeström and Sannino (2011) discuss how *conflict* can be an outcome of the activity system between understandings and practices. This thesis also argues that *resistance* (Engeström & Sannino, 2011) is another indicator of a contradiction within parent and teacher understanding and practice. *Resistance* (Engeström & Sannino, 2011) is evident in teacher practice and parent

understanding. While teachers hold the rule that it is their responsibility to provide for children's physical activity, they tend to provide little assessment documentation of children's physical activity (a form of 'resistance').

Parents are resistant to believing that the ECE setting is *not* providing for their children's physical activity, even though there is very limited assessment documentation of physical activity occurring in the ECE setting. Therefore *disagreement* (Engeström & Sannino, 2011) is occurring between the practice's parents believe are happening and the practices that are happening.

Within this thesis, a key contradiction is evident within the *division of labour* (Leont'ev, 1978) element of physical activity between the home and ECE setting activity systems. The requirements of the New Zealand physical activity guidelines for children under five years of age (Ministry of Health, 2017) and the Australian Health Department (n.d.) say that children need to move more, be less sedentary and sleep well. The concern of this thesis is, based on the limited amount of assessment documentation of physical activity, that the ECE setting may not be aware of its responsibility to ensure children move more and are less sedentary.

While it is clear within this thesis that the ECE setting holds the *division of labour* of physical activity practice, teachers are not necessarily aware of the associated roles and responsibilities they should be carrying in terms of physical activity. Links can be seen to literature that highlights teachers not being engaged in physical activity in the ECE setting (Dowda, et al., 2004).

The contradiction within the *division of labour* (Leont'ev, 1978) element of physical activity practice between the home and ECE settings is of crucial concern. Bevan and Reilly (2011) go so far as to discuss that the increase in time spent at the ECE setting results in children involved in *increased levels of sedentary* indoor activities in the ECE setting. Additionally, Copeland et al. (2012), Trost (2011), and McWilliams et al. (2009) demonstrate that children are involved in a high number of sedentary activities and are not meeting recommended levels of physical activity while in ECE settings.

Another area where contradictions are evident in practice within the ECE setting is in assessment documentation of young children's physical activity at home and in the ECE setting. The Ministry of Education (2009) discusses that it is a legal requirement for ECE

teachers to assess children's learning and development and share this with parents. Carr (1998a, 1998b, 2001, 2004) developed Learning Stories as a sociocultural framework for communicating children's learning and interests with families. It would be expected that assessment documentation was a fundamental form for sharing children's physical activity experiences with parents. However, this is not what the thesis found. In fact, parents indicated that they did not require evidence of children's physical activity to know that it was happening.

The limited amount of specific assessment documentation about physical activity is evident in many ways within the findings. From a parental perspective, they stated they did not receive assessment documentation about their children's physical activity. From a teaching perspective, there was confusion demonstrated when asked to write Learning Stories for the purpose of this thesis. Of the three examples of assessment documentation generated, one teacher made scarce links to analysing physical activity. Blaiklock (2010), Meade (2012), and the Education Review Office (2013) discuss how almost a quarter of ECE settings demonstrate less than effective assessment documentation practices across all domains of learning. They discuss how documentation in these settings is 'one-off snapshots' of learning. The limited documentation teachers shared with parents in the Meade (2012) and Education Review Office (2013) research could not help parents view continuity in their children's learning over time.

Assessment documentation of physical activity is viewed as a tool (Engeström, 1987) for communication between the home and the ECE settings. However, when the tool of documentation is mediated through the rules elements of the home activity system, that is, that there is a limited need for physical activity documentation, then parents are less reliant on assessment documentation as evidence of their children continued and ongoing physical activity. Added to this, if the ECE activity system is having difficulty analysing physical activity, yet they hold the division of labour (Leont'ev, 1978) for physical activity provision, then there will be limited examples of assessment documentation of physical activity between the home and the ECE settings. When the contradiction within the rules and tools (Engeström, 1987) of the home activity system mediates through the division of labour (Leont'ev, 1978) of the ECE activity system, further tensions occur. Limited evidence and expectations of physical activity become institutionalised within the home and the ECE activity systems.

Engeström and Sannino (2011) state that when individuals repeatedly face pressing and equally unacceptable alternatives in their activity system then a double-bind occurs, in which there is seemingly no way out. A double bind situation can be seen to be happening for parents and teachers concerning assessment documentation and physical activity provision. Because teachers may not be confident in analysing physical activity, they produce less assessment documentation. Parents, in turn, are less informed about the physical activity that is (or in the most cases, is not) provided. Parents are not aware whether their child is engaged in physical activity or not. This lack of assessment documentation by ECE teachers is the primary reason why the double-bind occurs. The contradiction continues and becomes imbedded in the physical activity understanding and practice between the home and ECE settings.

The institutionalisation of a lack of assessment documentation of physical activity between the home and ECE settings is a concerning matter. Ineffectual assessment documentation practices can become institutionalised for many reasons. One reason for ineffectual assessment documentation might be the skill level of teachers coming into the sector as newly qualified teachers. While the hope is that new teachers bring with them strong understanding and practices related to assessment documentation (especially for physical activity) existing research already shows this is not necessarily the case (Education Review Office, 2017).

An Education Review Office (2017) report demonstrated that while two-thirds of newly graduating teachers (NGTs) felt confident in their planning and assessment documentation practices, the leaders of the ECE services that they attended on practicums felt otherwise. With only a basic identified level of understanding of documentation, NGTs also had limited ability to put their knowledge into practice. To extrapolate this lack of confidence in assessment and documentation, it can be seen why the teachers in this thesis may have had difficulty assessing physical learning.

Contradictions in terms of assessment and documentation can be seen within the literature as well as this study. For example, in the Education Review Office (2017) report, the Initial Teacher Education (ITE) providers stated the ECE services had responsibility to teach students on practicum how to apply theory to practice, and the leaders of the settings said it was the responsibility of the ITEs. It can be seen therefore that there are a lot of mixed-messages in terms of who provides support for guiding teachers' assessment documentation

practices. It is clear from this thesis, that even more experienced ECE teachers are not comfortable with assessing and documenting children's physical learning.

The contradictions continue in the literature, because the Education Review Office (2017) report stated that ECE settings were relied upon to provide the knowledge about the application of assessment documentation and practice, yet 24 per cent of ECE settings demonstrated limited documentation practices in the earlier Education Review Office (2013) report. Considering the contradictions shown in assessment documentation of physical activity in this study, the reported lack of confusion when related to general assessment documentation practices, as in the Education Review Office report (2017) does not bode well. If almost a quarter of ECE settings are not effectively documenting children's learning, what does that say for children's physical learning being assessed?

9.5: Analysing contradictions in physical activity understanding and practice

An additional contradiction that was evident in the thesis was between how teachers understand physical activity is enacted in the home setting, and how it is actually practiced according to the parents. One major understanding expressed by teachers was that parents 'outsource' their children's physical activities to the ECE setting or organised sport-related activities. Teachers were basing their understanding on little, if any evidence. Tucker et al. (2011) discussed teacher assumptions and cited one example where teachers said parents were not encouraging an active lifestyle outside of childcare hours. The teachers in the Tucker (2011) study based their hypothesis on a lethargy that children displayed on Monday mornings. This thesis also evidenced teachers making assumptions about physical activity practice in the home setting, that in fact, were not correct.

Parents in this thesis demonstrated quite a different practice to the understanding the teachers articulated. While some parents took their children to extra-curricular physical activity, they did so as they believed these experiences were fun learning experiences for the children. Parents also were in attendance the whole time the child was involved in any extracurricular experience. Hesketh et al. (2012) discuss the influential role parents play in developing physical activity patterns for the growing child. However, Hesketh et al. (2012) also argue that there is limited evidence-based knowledge about parents' physical activity practice for children up to five years of age. This thesis provides valuable insight into physical activity practices in the home setting for children up to five years of age.

There is a fundamental *primary* contradiction within the understanding, that is, the *rules* (Engeström, 1987) of the ECE activity system where teachers' *rules* of physical activity in the home differ to that of parent practice. When teacher *rules* mediate through the *division of labour* (Leont'ev, 1978), that is, they are responsible for children's physical activity, there is the potential for unresolved physical activity contradictions in understanding and practice to occur between the home and the ECE settings. When parents and teachers are unaware of the physical activity contradictions, there is the potential for contradictions in understanding and practice to become institutionalised into the culture of the home and ECE activity systems.

As discussed earlier, Engeström and Sannino (2011) explain how a contradiction can manifest itself as a *central dilemma*, however with parents and teachers remaining unaware of these contradictions, the difficulty continues. As teachers hold understandings of what physical activity looks like in the home setting, that may differ to the actual practice that occurs in the home setting, the thesis states that this becomes a form of *critical conflict* (Engeström & Sannino, 2011). When critical conflict occurs, it paralyses (in this case) teachers and contradictions between the home and ECE settings become unsolvable. The unreconciled contradictions in physical activity understanding and practice are institutionalised within the home and ECE settings, and physical activity awareness decreases.

This thesis states that the home and the ECE settings need to become aware of the current contradictions that exist in physical activity between the home and the ECE settings. To become aware, is to lessen the confusion. It is only at this point that physical activity is prioritised as much as other learning areas in the ECE setting, and in turn, between the home and ECE settings. Refer to Appendix J for a summary table of the contradictions discussed in this first half of the chapter.

9.6: A shift in focus – What teacher practices would strengthen opportunities for physical activity between the home and ECE settings?

Whilst the first half of the chapter focused on the first two research questions by ascertaining contradictions in parent and teacher *understanding* and *practice*, this second half focuses on the last research question, that is, 'What teacher practices would strengthen *opportunities* for physical activity between the home and ECE settings?'

Assessment documentation is viewed in this thesis as a *tool* (Engeström, 1987) for physical activity communication between the home and ECE activity systems. However, what was found in this thesis is that when assessment documentation is mediated through the contradictions, then it makes the assessment process ineffectual as a means of communication of physical activity between the home and ECE settings.

To work through the dilemma of ineffectual communication of physical activity the thesis adopts a research approach that not only records the contradictions but offers a means of development and transformation. Karanasios et al. (2017) refer to the limiting factor when contradictions analysis is viewed as a problem instead of as an opportunity for development and transformation. Karanasios et al. (2017) discuss how resolving the tensions does not occur within research but is left for 'further studies'.

If this thesis had only worked with the first two research questions, it would have confirmed key messages coming through previous literature, that is, that there is a critical lack of awareness and provision of physical activity in the ECE setting. This lack is significant against a background of research pointing to the role of physical activity in early childhood in mediating the impact of overweight and obesity in early childhood (World Health Organisation, 2010; Ministry of Health, 2003; Allen & Clarke, 2016) and national and international guidelines regarding physical activity (The New Zealand Ministry of Health, 2017; the Australian Department of Health, n.d.).

However, instead of merely reporting contradictions, this research goes one step further and asks the question as to what practices might strengthen physical activity between the home and ECE settings. It will be seen that, in answer to this third question a physical activity expansive learning framework is provided as a potential opportunity for development and transformation of physical activity between the home and ECE settings.

9.7: Physical activity expansive learning framework

Expansive learning is an approach to research that builds in intervention and evaluation. Engeström and Sannino (2011) discuss how, for expansive learning to be effective it requires the presence of a 'publicly observable and transmittable medium' (p. 7). For the purposes of expansive learning being *observable,* this thesis links to the review/evaluation process normally used to evaluate centre practice (formerly known in New Zealand as centre *self-review*). From a transmittable perspective, this thesis links to assessment documentation as

a tool for transmitting understanding of the physical activity practice children are engaged in between the home and ECE settings. These two processes combined to underpin the physical activity expansive learning framework that is offered in this thesis.

The physical activity expansive learning framework is viewed as a model for developing new understanding, practice and opportunities in terms of physical activity between the home and ECE settings. By combining the evaluation and assessment process the physical activity expansive learning framework offers a solution to the limited communication about physical activity between the home and ECE settings. The expectation is that by enacting the physical activity expansive learning framework within individual ECE learning contexts, opportunities are provided for change in physical activity understanding and practice to develop between the home and ECE settings.

It will be seen that the physical activity expansive learning framework provides a reflective process by which ECE teachers question (notice), analyse and examine (recognise), implement (respond), reflect (record) and consolidate (revisit) physical activity understanding, practice and opportunity.

The framework is also underpinned by a few key reflective questions that should be asked in sequential order, as below:

1. What physical activity can we see occurring in our centre?
2. How often do we use assessment documentation of children's physical activity?
3. How can we plan for physical activity, ensuring we increase assessment documentation?
4. How do we ensure that we seek parent feedback as we examine potentials and limitations of our increased physical activity assessment documentation?
5. What new practices does the ECE setting need to develop?
6. Are parents and teachers more informed of physical activity practices between the ECE and home settings? If not, how can stronger links be made?
7. Are parents and teachers remaining informed of physical activity practices between the ECE and home settings? If not, what do we need to do differently?

The framework is provided on the next page, with a full explanation on how it can be enacted in the following few pages.

Physical activity expansive learning framework	
Question (notice) The ECE setting *questions* current physical activity practice, including assessment and documentation. The teaching team begin to *notice* what physical activity is, and isn't occurring within the ECE setting.	*Reflective question* – What physical activity can we see occurring in our centre?
Analyse and examine (recognise) The ECE setting *analyses and examines* current physical activity assessment documentation. As awareness develops, the teaching team begin to *recognise* current physical activity practices between the home and ECE settings, and the role that assessment documentation plays.	*Reflective questions* – How often do we use assessment documentation of children's physical activity? How can we plan for physical activity, ensuring we increase assessment documentation? How do we ensure that we seek parent feedback as we examine potentials and limitations of our increased physical activity assessment documentation?
Implement (respond) The ECE setting *implements* the practical applications, always thinking about how physical activity can be enriched. The teaching team *respond* to the analysis of physical learning assessment documentation and consider how they can increase their current practice.	*Reflective question* – What new assessment documentation practices do we need to develop?
Reflect (record) The ECE setting *reflects* on and evaluates the effectiveness of the process. The teaching team reflect and *record* the effectiveness of their current physical activity assessment documentation practices. Teachers consider if stronger links are being made between the home and ECE settings	*Reflective question* – Are parents and teachers more informed of physical activity practices between the ECE and home settings? If not, how can we strengthen this practice?
Consolidate (revisit) New physical activity understanding, practices and opportunities are *consolidated* between the home and ECE settings. It is important for the ECE teaching team to continue to *revisit* their consolidated practices so that old understanding does not become sedimented.	*Reflective question* – Are parents and teachers remaining informed of physical activity practices between the ECE and home settings? If not, what do we need to do differently?

9.8: Unpacking the physical activity expansive learning framework

9.8.1: Question (notice)

The first stage of the physical activity expansive learning framework explains the importance of *questioning* current practice. Engeström and Sannino (2010) discuss how quite often in this questioning stage various forms of conflictual encounters may become evident. The contradictions highlighted between the home and ECE settings in terms of physical activity documentation can be seen as conflictual encounters. While assessment documentation is seen as an essential tool for communication (Carr, 2001) of physical activity, the contradictions that became evident within this thesis meant parents become less reliant on assessment documentation as evidence of their children's physical activity. It may appear that parents do not require, or ask for physical activity assessment documentation, but the ECE setting needs to ensure they review *physical* learning as much as any other area of learning.

Linked to the questioning stage is the assessment documentation terminology of *noticing*. The Ministry of Education (2004) describes 'noticing' as the first part of a progressive filter (as in noticing, recognising, and responding). This thesis links the notion of progressive filters to explain how teachers 'see' (or don't see as the case may be) physical learning. The Ministry of Education (2004) describes how teachers *notice* a great deal as they work with children.

As part of this first stage, the ECE setting asks the reflective question, 'What physical activity can we see occurring in our centre?' This reflective question acts as an initial provocation for their thinking about their physical activity practice.

9.8.2: Analyse and examine (recognise)

In the second stage of the physical activity expansive learning framework, the ECE setting is encouraged to *analyse and examine* their current physical activity practice. During this stage teachers find out why they do what they do in terms of their physical activity practice and assessment and documentation. In the case of this thesis, contradictions in practice were evident. Engeström and Sannino (2010) talk about two types of explanations for contradictions occurring, one being historical-genetic (that is, tracing its origins), and the other is seeking 'to explain the situation by constructing a picture of its inner systemic relations' (Engeström & Sannino, 2010, p. 7).

This thesis promotes the process of 'looking back historically', and also taking a systemic look at existing contradictions. Teachers do not need to have a knowledge about activity theory to consider the relationships between the *elements* of the activity system (Engeström, 1987). Contradictions are obvious when we start to really look back at previous practices and beliefs held by individual teachers and the centre.

By teachers taking a historical analytical perspective it might be seen that over time parents may have developed a lack of reliance on physical activity assessment documentation to tell them that their child is participating in physical activity at the ECE setting. Added to that, ECE teachers may have developed over time a lack of ability to analyse physical learning and are not identifying this form of learning as much as other areas of children's development.

A *division of labour* (Leont'ev, 1978) perspective, the ECE activity system holds the greatest amount of opportunity to provide for children's physical activity as the children are with the ECE setting for up to 40 hours per week. When looking at the historical and systemic perspectives together, it may raise concerns for the ECE teachers in terms of the physical activity being provided for between the home and ECE settings.

As parents and teachers remain unaware of the historical and systemic contradictions (Engeström & Sannino, 2010) related to physical activity assessment documentation in the home and the ECE settings, inconsistencies between understanding and practice will perpetuate. Through the historical and systemic contradictions, *dilemmas*, *conflicts*, *critical conflicts* and *double binds* (Engeström & Sannino, 2011) continue to manifest and in doing so may be presenting a bleak picture of physical activity understanding and practice between the home and ECE settings.

During this stage teachers begin to *recognise* these contradictions in physical activity understanding, practice and opportunities between their ECE setting and the home setting. In this thesis, ECE teachers' recognition of physical activity was limited. The Ministry of Education (2004) discuss how teachers only *recognise* some of what they notice as learning. The physical activity expansive learning framework aims to heighten teacher's awareness in terms of physical activity between the home and ECE settings.

A set of three reflective questions guides the analysis and examination stage. Teachers question how they use assessment documentation of physical activity, how they plan for

physical activity while ensuring they increase assessment documentation, and how they ensure that they seek parent feedback as they analyse and examine physical activity practices.

9.8.3: Implement (respond)

For the physical activity expansive learning framework to be effective teachers need to be responding to children's physical learning needs. However, this thesis found that with the physical activity contradictions between the home and ECE settings, teachers became less likely to *respond* to physical activity learning (Drummond, 1993; Cowie, 2000; Carr, 2001). Niles (2016) discusses how for many teachers the assessment documentation challenge is in differentiating between what they *notice* and what they *recognise*. This can be said to be the case for noticing and recognising children's physical learning. The Ministry of Education (2004) discusses how the difference between *noticing* and *recognising* is in the application of professional expertise and judgments. This thesis believes teachers need to further develop their physical learning professional expertise and judgments.

Links can be seen with the tension between physical activity understanding and a lack of assessment documentation, and the work of Carr (2001) and Meade (2012). Whilst Carr (2001) introduced to the ECE sector the importance of Learning Stories as an ongoing, sociocultural form of assessment documentation, Meade (2012) discussed that teachers were not writing 'narratives of progressive learning' but tended to document more anecdotal snapshots of what was occurring at that time. It is essential that teachers respond to children's physical learning in a progressive manner over time.

It can be seen in this thesis that, while it may be presumed that all ECE teachers are documenting children's ongoing physical learning and development over time, this is not, in fact, the case. The findings from this thesis support the literature that demonstrates that whilst assessment documentation is a key teacher responsibility (Carr, 2001), there are a number of factors that exist that limit assessment documentation as a valid and credible communication tool for learning between the home and ECE settings (for example, Blaiklock, 2010; McLachlan et al., 2010).

A key notion that underpins *expansive learning* (Engeström, 1987, 1989, 1991, 2001) is the role that new knowledge plays as a catalyst to reconcile understanding. The Ministry of Education (2004) refers to the valuable tool that assessment documentation exemplars can play as new knowledge in helping teachers *recognise* some of what they *notice* as learning.

The key reflective question for this stage of the physical activity expansive learning framework is 'What new assessment documentation practices do we need to develop?' To help teachers implement increased physical activity assessment documentation, this thesis provides a useful example of assessment documentation from a teacher within the study (teacher 2, Centre A). It can be seen below how the 'noticing, recognising and responding' (Cowie, 2000; Carr, 2001) framework is used as a way of presenting physical activity assessment documentation.

Noticing:

> (Child's name) you showed quite an increase in your physical abilities. You are currently quite interested in activities that use your gross motor skills, especially climbing and jumping. You persevered in trying to climb the red box, trying different positions to put your hands and feet in. After practising and refining your techniques (child's name) you became confident and were repeating this activity with ease… You have done a lot of climbing on the ladders downstairs and I could see you using the same techniques of moving your hands and feet higher as you climbed further up the box …
>
> Every so often a different challenge gets added to the red box. Two weeks ago it was just the red box to jump up, last week there was a beam as an alternative to climb up and this week there was a ladder. The beam was a little challenging as you kept sliding back down but those great perseverance skills were hard at work and (child's name) I saw you practising and getting further up each time as you refined your technique. It won't be long before you have mastered the beam as well.

In the 'noticing' section above, the ECE teacher demonstrates an awareness of the child's physical progressive learning (Meade, 2012) rather than it just being an anecdotal snapshot of what was occurring at that time. Her writing style is personalised to the child, which indicates she is noticing the child.

Recognising:

> (Child's name) you are currently interested in physical activities, exploring using your whole body. You have been using skills and techniques from activities such as climbing the ladder downstairs and applying these to help you master resources upstairs such as the red box. You have shown great perseverance and determination as you undertake these new challenges.

In the recognising section, the ECE teacher's filter is being applied, where she is analysing the child's physical learning. The teacher is comfortable in making reference to how the child is using his body physically, as well as skills and techniques he is developing. The teacher also makes links to dispositional language (Carr, 2001) such as perseverance and determination.

Responding:

> We will continue to provide you opportunities to revisit these activities and opportunities to continue exploring different physical activities. (Centre A, teacher 2, Learning Story #2)

9.8.4: Reflect (record)

Having implemented the strengthened physical activity assessment documentation practice, the ECE setting needs to assess its effectiveness. It can be seen how physical activity assessment documentation acts as cultural tool (Engeström, 1987, 1989, 1991, 2001) to raise the consciousness about physical activity practice between the home and ECE settings. The reflective question the teachers ask is, 'Are parents and teachers more informed of physical activity practices between the ECE and home settings? If not, how can we strengthen this practice?'

In the brief responding comment in the Learning Story above, it can be seen that the teacher describes to the child and his family that she will remain focused on the child's physical learning. As the teacher shares this assessment documentation with the home setting, she provides new knowledge to the home setting about the child's physical learning.

9.8.5: Consolidate (revisit)

As teachers work through the consolidating stage of the physical activity expansive learning framework practical application of the new physical activity assessment documentation occurs. Engeström and Sannino (2011) discuss the importance of constantly thinking about how practice (in this case physical activity practice) can be enriched and extended. Teachers reflect on and evaluate the effectiveness of the process with the key question being, 'Are parents and teachers more informed of physical activity practices between the ECE and home settings?' As practices are consolidated, new stable forms of physical activity assessment documentation practice occur between the home and the ECE settings.

The physical activity expansive learning framework is a tool for raising teacher awareness of the current contradictions in physical activity understanding and practice between the home and ECE settings. Teacher consciousness is raised through using the physical activity expansive learning framework as a review tool. It is essential that teachers remain focused on physical learning so that their practices do not become sedimented again.

The New Zealand Early Childhood curriculum *Te Whāriki* (Ministry of Education, 2017) endorses the importance of documenting learning to provide for enriched experiences for children. The Ministry of Education (2017) refers to the importance of ECE teachers *recording* and *revisiting* valued learning. Keeping a record of children's progress in their online and hard-copy learning portfolio assessment documentation acts as a cultural tool for providing opportunities for children to revisit their learning at the ECE setting and at home with their family.

As the ECE teachers engage with the physical activity expansive learning framework they expand current knowledge of physical activity. The cultural tool allows ECE teachers to engage in review of their physical activity assessment documentation practice between the home and ECE settings. As physical activity assessment documentation occurs between the home and ECE settings, children can engage in physical activity experiences in increasingly enriched ways. *Te Whāriki* states 'opportunities for children to revisit items in their portfolios invite learning conversations and support self and peer assessment' (Ministry of Education, 2017). This thesis argues that it is essential for teachers to provide physical learning assessment documentation opportunities for children, so they are able to independently revisit their own physical learning, in the ECE setting and at home.

For this thesis, it is proposed that as teachers engage with the physical activity expansive learning framework as a cultural tool, parents and teachers will adapt their physical activity understanding and practice, and new opportunities occur. In doing so, the activity systems' new rules and tools will mediate their understanding of physical activity. Expansive learning (Engeström, 1987, 2001) is underpinned by the notion of consciousness-raising. However, people can hold highly sedimentary beliefs and values, and whilst the identified contradictions can be resolved, inevitably new contradictions are stimulated to occur. As new contradictions occur, parents and teachers can revert to their previously held sedimented beliefs.

Engeström (1987, 1999) contends that it is important for members of the activity system to not just adjust to and accept the conflicting ideas in a regimented, passive manner but to actively explore the contradictions in understanding and collectively work through them. This thesis demonstrated how consciousness-raising underpins the *tertiary* and *quaternary* contradictions (Engeström, 1987, 2001) as offering a dynamic and transformative framework for changing old ways of physical activity thinking into new ideas between the home and ECE settings.

It is proposed therefore that ECE teachers revisit the physical activity expansive learning framework repeatedly and on a regular basis, thereby ensuring development continues to happen, so that the new practices do not become sedimented.

As the ECE teachers revisit physical activity understanding, practice and opportunities, they now do so with an enriched appreciation of their responsibility as ECE teachers. *Te Whāriki* (Ministry of Education, 2017) uses the terminology of *kaiako responsibilities* as a reminder to ECE teachers of their requirement as leaders of teaching and learning. These kaiako responsibilities are a timely reminder to ECE teachers as they develop children's physical learning.

Therefore, this thesis encourages teachers to refer to *Te Whāriki* (Ministry of Education, 2017, p. 59) and (in the case of physical learning) add the word 'physical' in front of the word 'learning', in the following way. In doing so, it is the responsibility of kaiako (teachers):

- to be knowledgeable about children's [physical] learning and development and able to identify their varied abilities, strengths, interests and learning trajectories;
- to be able to integrate [physical learning] domain knowledge into the curriculum;
- to be able to engage in dialogue with parents, whānau and communities to understand their priorities for curriculum and [physical] learning;
- to be attentive to [physical] learning and able to make this visible through assessment practices that give children agency and enhance their mana;
- to be knowledgeable about and able to try alternative ways to support and progress children's [physical] learning and development; and,
- to be committed to ongoing professional development that has a positive impact on children's [physical] learning.

  (Ministry of Education, 2017, p. 59).

Te Whāriki (Ministry of Education, 2017) provides a clear mandate for teachers to have knowledge of physical learning and integrating that knowledge into the curriculum. Teachers also have a responsibility for assessing children's physical learning knowledge and supporting their associated working theories. Teachers are required to share children's physical knowledge with parents, and together with parents, whānau and the community, kaiako (teachers) are responsible for considering different ways in which they can further develop children's knowledge of their physical learning and associated working theories. Finally, it can be seen that teachers are responsible for continuing to build on their professional development in terms of their physical learning knowledge. Teachers are required to grow this knowledge so that they can create positive outcomes for children's physical learning alongside their parents and whānau.

This thesis has offered the physical activity expansive learning framework combined with a reminder of the *kaiako responsibilities* as one way that teachers and parents can grow their knowledge of children's physical learning between the home and the ECE settings. In doing so, parents and teachers can work together to strengthen understanding, practice and opportunities for physical activity between the home and ECE settings.

9.9: Concluding the discussion chapter

The notion of contradictions is not always one that people associate with development, but this chapter has demonstrated how by recognising contradictions in understanding and practice that new opportunities for physical activity can be provided. With the development of the physical activity expansive learning framework, ECE teachers can move from limited physical activity communication between the home and ECE settings. This framework demonstrates how Engeström's (1987) *tertiary* and *quaternary* contradictions position assessment documentation as an opportunity for transformation and development of physical activity between the home and ECE settings.

The physical activity expansive learning framework allows for new knowledge about physical activity in the home and ECE settings to be viewed as a *tertiary* contradiction (Engeström, 1987). Through assessment documentation parents and teachers access new knowledge of tensions in physical activity understanding and practice between the home and ECE activity systems. Parents and teachers' *rules* (Engeström, 1987) have the potential to realign physical activity provision.

Chapter Ten: Conclusion

10.1: Introduction

This thesis concludes by drawing together the discussion on physical activity understanding, practice and opportunity between the home and ECE settings, and considers it in terms of key contributions to the ECE sector and to research. The contribution of the physical activity expansive learning framework will be discussed in detail. These key contributions are then positioned in terms of the limitations of the scope of the thesis. A final discussion is held in terms of implications for the key contributions and future research implications arising from this thesis. The chapter will finish with a final concluding statement.

The following three sections describe the seven identified areas where this thesis contributes new knowledge and addresses current gaps in the literature on physical activity between the home and ECE settings. The key contributions are divided into the three areas, that is, contributions related to understanding, practice, and opportunity. The seven key contributions this thesis makes as new knowledge in terms of physical activity research between the home and ECE setting are:

Understanding:

1. A definition of physical activity for children under five years of age.
2. Recognition that both parents and teachers clearly understand that the ECE setting is responsible for children's physical activity

Practice:

3. Parents having a high trust in the ECE setting providing for their children's physical activity.
4. The lack of, if any, assessment documentation of physical learning occurring in the ECE setting.
5. Teacher's belief in the limited physical activity occurring in the home setting that differs to examples of physical activity discussed by parents.

Opportunity:

6. ECE teachers are not necessarily aware that they hold the responsibility for providing for children's physical learning requirements.
7. Development of the 'physical activity expansive learning framework' as a tool for development and transformation of physical activity learning.

The seven contributions are explained in detail in the next three sections.

10.2: Contributions in terms of physical activity understanding

From an 'understanding' perspective, this thesis has two key contributions to research. Previously there was a gap in the literature in terms of providing an evidenced definition of what physical activity looks like from an ECE perspective. Therefore, the first key contribution in terms of *understanding* was the development of a definition of physical activity for children under five years of age. The definition developed within this thesis provides a common understanding for parents and teachers of physical activity between the home and the ECE settings. Sources such as New Zealand Ministry of Health (2017), Goodway and Robinson (2006), Emberson, 2016), Brockman et al. (2011), Carlson (2011), Cliff and Janssen (2011) were drawn on to create the physical activity definition. This definition can help form a shared understanding for parents and ECE teachers as they consider what physical activity looks like between the home and ECE settings. The definition is:

> Physical activity experiences are when children under five years of age are regularly engaged in light, and moderate to vigorous intensity physical experiences which are spontaneous and planned and facilitated by adults and children, within the home, ECE setting, and the broader community.

A second key contribution is that both parents and teachers clearly understand that the ECE setting is responsible for children's physical activity. While literature such as Irwin et al. (2005), and Tucker et al. (2011) illustrate confusion as to who is responsible for physical activity, this was not the case in this thesis. However, this understanding seems to have a caveat, and that is that the ECE setting seems only to be responsible for children who attend the ECE setting for the large majority of their parents' working week.

10.3: Contributions in terms of physical activity practice

It is at this point that this thesis provides a third key contribution, that parents have a high trust in the ECE setting providing for their children's physical activity. With an identified gap in the literature pertaining to physical activity practice within the home and ECE settings, this contribution is essential. Parents in this thesis steadfastly believed the ECE setting was providing for their children's physical learning.

The fourth contribution from a practice perspective is that there is little, if any, assessment documentation of physical learning occurring in the ECE setting. Whilst parents and teachers are in agreement that the ECE setting is responsible for physical activity, and parents have a high trust in this physical activity occurring, the parental belief occurs based on little, if any, assessed evidence by the teachers. This contribution creates an alert that parents may, in fact, not be informed as to how much physical activity their children are actually engaged in within the ECE setting.

The fifth contribution is that teacher's hold a belief that limited physical activity is occurring in the home setting that differs from examples of physical activity discussed by parents. This thesis states that the contradictions between physical activity understanding and practice between the home and ECE settings continue to be a significant influencing factor for limited physical activity provision.

10.4: Contributions in terms of physical activity opportunity

From the perspective of having the opportunity in terms of the amount of time the children spend at the ECE setting, this thesis contributes the sixth area of new knowledge, that is ECE teachers are not necessarily aware that they hold the responsibility for providing for children's physical learning requirements.

The seventh and final area of key contribution is the development of the physical activity expansive learning framework as a tool for development and transformation of physical activity learning. The physical activity expansive learning framework is a key contribution for teachers as they develop physical activity understanding and practice between the home and the ECE setting. The physical activity expansive learning framework provides teachers with the ability to question, analyse, model, examine, implement, reflect and consolidate (Engeström & Sannino, 2011) new physical activity assessment documentation practices.

Assessment documentation is a key tool in New Zealand (Carr, 2001) as a means to mediate understanding and practice between the home and the ECE settings. The physical activity expansive learning framework allows for the potential to bring understanding, practice and opportunity together to create a new stable form of physical activity practice between the home and the ECE setting. It is the hope of this researcher that as teachers use the framework and begin to question their current physical activity assessment documentation practices that they will identify new insights and physical activity practices in the home and ECE settings will be positively impacted.

10.5: Practical implications resulting from the findings

The implications resulting from the seven contributions in terms of understanding, practice and opportunity have the potential to effect change in the area of physical activity between the home and the ECE settings. The development of a definition of physical activity for children five years of age and under can allow for a common understanding when assessing physical activity between the home and ECE settings.

The physical activity contradictions between the home and ECE settings as identified in this thesis can act as a focal point by which the ECE setting can measure its own physical activity practices. The practical implications of the physical activity expansive learning framework used conjointly with exploring contradictions in practice, allows a potential for effecting changed practice in physical activity between the home and the ECE settings.

The implications for the home setting from the results of this thesis can be the development of a growing awareness of the types of physical activity their child is involved in within the ECE setting, allowing parents to make informed decisions as to what physical activity needs to look like in the home setting.

The greater implication from this thesis is that a balanced approach to children's physical activity occurs between the home and ECE settings, each being aware as to how they need to adapt the balance of children's physical activity depending on children's level of engagement between the two settings.

10.6: Limitations of the scope of the thesis

The seven key contributions to new physical activity knowledge between the home and ECE settings is positioned considering the limitations of this study.

The scope of this thesis was that it was set within the home setting and the ECE setting. Therefore, the findings were based purely on the understanding of those parents and teachers who took part in the study. Interviews played the main role as forms of data collection, and the data content was limited by the questions that were asked.

It was essential for this thesis that parents' views were ascertained and within this, the data was limited by the perspectives of the specific parents that were interviewed. These parents all demonstrated a strong belief in physical activity for their children, and it might be said that the data was limited since only parents who showed an interest in physical activity wanted to participate in this study. In the same way, the views of the teachers only pertained to the context within which they taught. Both ECE settings were community-based with a parent committee. Other types of ECE settings may have provided for different results.

The fact that the teachers in the specific ECE settings were interviewed together, as were the parents, may have limited the information. Whereas, if individual interviews were held for every participant in the study a broader set of perspectives may have been collected.

The thesis findings were limited to the small number of ECE centres that contributed to this study. However, by interviewing and employing analysis techniques that drew down and gained saturation of the data, rich material was able to be sought and analysed. By adapting the interview process from semi-structured to more of an unstructured approach all possible opinions were sought.

The study was limited to the literature that was sourced at the time, however, a new review of literature was undertaken in the last year of the writing process to ensure up-to-date material was provided. At the end of writing this thesis, the updated version of *Te Whāriki* (Ministry of Education, 2017) was written. Had this updated version been written earlier stronger links could have been made to *Te Whāriki* (Ministry of Education, 2017) and the understanding, practice and opportunities for physical activity between the home and the ECE settings. While links were made to the kaiako responsibilities in the literature and discussion chapters, this thesis was limited due to the release date of *Te Whāriki* (Ministry of Education, 2017) as to whether strong links could be made to research data.

10.7: Future work

Because of the increased amount of new knowledge that came from this study, it provides several avenues for further study. Four options are provided below.

The first area for exploration could occur into the use of the physical activity expansive learning framework as a tool for development and transformation of physical activity learning. The first piece of work that could occur is the development of a resource for ECE teachers that would accompany the physical activity expansive learning framework. The resource might include key contributions from this study, as well as the example of assessment documentation (teacher 2, Centre A). Having created the resource, action research could then be entered in a small number of ECE settings, taking the key learning from this thesis and applying it with the use of the physical activity expansive learning framework and the assessment documentation example. This form of intervention-based research aligns with the expansive learning approach (Engeström, 1987, 1999) adopted in this thesis. The notion of contradictions would be continued through as a provocation for teachers as they reflect on their physical activity assessment documentation practice. Parents would be participants in the study as would teachers, where their feedback would be sought as to physical activity understanding and practice between the home and ECE settings.

Secondly, the in-depth knowledge gained in this thesis as to parent and teacher understanding that the ECE setting is responsible for children's physical activity and parents' high trust in the ECE setting providing for their children's physical activity could be the focus of a new study on parent and teacher understanding of physical activity. A stronger exploration would take place solely into how parents and teachers form their interpretation of physical activity understanding and how this might lead to the practices that are enacted.

A third area for further study could be to take the knowledge gained in this thesis about limited assessment documentation of physical learning as the focus of another study on why limited physical activity assessment documentation may be occurring. The study could look further into whether teacher beliefs in terms of physical activity in the home setting influences a possible lack of assessment practice. It would further strengthen, or dispute, the finding in this thesis that ECE teachers are not aware that they have responsibility for providing for children's physical learning requirements.

A fourth area of research could be to take the definition of physical activity for children under five years of age developed in this thesis and create a new study focusing on the definition in terms of the current physical activity guidelines. This would provide further evidence in a much-needed area, where ECE teachers and parents could evaluate the existing physical activity practice offered to children alongside the definition and the guidelines.

Due to the small amount of research that was previously performed in physical activity between the home and the ECE settings, that the contributions from this thesis open up a number of areas for further study. This is a much-needed area for researchers and teachers to be considering so that stronger levels of physical activity can occur between the home and ECE settings.

10.8: Concluding statement

This thesis began with the claim that parents may believe physical activity occurs in the ECE setting whilst teachers might believe it occurs in the home setting. As such the research wished to explore understanding, practice and opportunity in terms of who is responsible for physical activity between the home and the ECE settings. Throughout this thesis, literature about physical activity in the home and ECE settings highlighted a high level of sedentary physical activity. Strong links were made to literature and this thesis in terms of contradictions identified in physical activity between the home and the ECE settings.

Using cultural-historic activity theory, this thesis has shown several contradictions within and between the elements of the home and the ECE activity systems. From these findings, the thesis has proposed a new physical activity expansive learning framework. This framework provides a unique means of development and transformation of physical activity between the home and ECE activity systems. It is proposed that this process of development and transformation increases the possibility that young children will have access to physical activity experiences.

In a period when increased obesity and sedentary activity due to screen use is rising worldwide amongst children, any advance in knowledge that increases physical activity provision for young children should be highly valued. This thesis did more than just contribute ‘any’ advance in knowledge. This thesis drew to the reader’s attention seven key areas that address previous gaps in knowledge in terms of what parents and teachers are thinking about physical activity. It was found that, in fact, not a lot of thinking is occurring about children’s physical learning and this should be sending alarm bells to the ECE sector and parents. However, the contribution of this thesis, especially in the form of the physical activity expansive learning framework, recognises the importance of parents and teachers being aware of children’s physical learning.

This is a timely piece of research. The physical activity expansive learning framework is a much-needed evaluation tool with the sole purpose being to heighten ECE teachers' and parents' awareness and development of authentic physical activity experiences between the home and ECE settings.

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Appendices

Appendix A: Ethics approval

From: Res Ethics <**Res.Ethics@acu.edu.au**>

Date: 16 December 2014 1:38:39 pm AEDT

To: Suzy Edwards <**Suzy.Edwards@acu.edu.au**>, 'Deborah Ryder' <**daryde001@myacu.edu.au**>

Cc: Joce Nuttall <**Joce.Nuttall@acu.edu.au**>, Res Ethics <**Res.Ethics@acu.edu.au**>

Subject: 2014 247V Ethics application approved!

Dear Applicant,

Principal Investigator: A/Prof Susan Edwards
Student Researcher: Deborah Ryder
Ethics Register Number: 2014 247V
Project Title: Unearthing contradictions in physical activity provision between home and ECE setting
Risk Level: Low Risk
Date Approved: 16/12/2014
Ethics Clearance End Date: 30/11/2015

This email is to advise that your application has been reviewed by the Australian Catholic University's Human Research Ethics Committee and confirmed as meeting the requirements of the National Statement on Ethical Conduct in Human Research.

This project has been awarded ethical clearance until 30/11/2015. In order to comply with the National Statement on Ethical Conduct in Human Research, progress reports are to be submitted on an annual basis. If an extension of time is required researchers must submit a progress report.

Whilst the data collection of your project has received ethical clearance, the decision and authority to commence may be dependent on factors beyond the remit of the ethics review process. The Chief Investigator is responsible for ensuring that appropriate permission letters are obtained, if relevant, and a copy forwarded to ACU HREC before any data collection can occur at the specified organisation. Failure to provide permission letters to ACU HREC before data collection commences is in breach of the National Statement on Ethical Conduct in Human Research and the Australian Code for the Responsible Conduct of Research. Further, this approval is only valid as long as approved procedures are followed.

If you require a formal approval certificate, please respond via reply email and one will be issued.

Decisions related to low risk ethical review are subject to ratification at the next available Committee meeting. You will be contacted should the Committee raises any additional questions or concerns.

Researchers who fail to submit a progress report may have their ethical clearance revoked and/or the ethical clearances of other projects suspended. When your project has been completed please complete and submit a progress/final report form and advise us by email at your earliest convenience. The information researchers provide on the security of records, compliance with approval consent procedures and documentation and responses to special conditions is reported to the NHMRC on an annual basis. In accordance with NHMRC the ACU HREC may undertake annual audits of any projects considered to be of more than low risk.

It is the Principal Investigators / Supervisors responsibility to ensure that:
1. All serious and unexpected adverse events should be reported to the HREC with 72 hours.
2. Any changes to the protocol must be approved by the HREC by submitting a Modification Form prior to the research commencing or continuing.
3. All research participants are to be provided with a Participant Information Letter and consent form, unless otherwise agreed by the Committee.

For progress and/or final reports, please complete and submit a Progress / Final Report form:
http://www.acu.edu.au/research/support_for_researchers/human_ethics/forms

For modifications to your project, please complete and submit a Modification form:
http://www.acu.edu.au/research/support_for_researchers/human_ethics/forms

Researchers must immediately report to HREC any matter that might affect the ethical acceptability of the protocol eg: changes to protocols or unforeseen circumstances or adverse effects on participants.

Please do not hesitate to contact the office if you have any queries.

Kind regards,
Kylie Pashley
on behalf of ACU HREC Chair, Dr Nadia Crittenden

Ethics Officer | Research Services
Office of the Deputy Vice Chancellor (Research)
Australian Catholic University

Appendix B: Information letters

TITLE OF PROJECT: Physical activity at home and in the Centre

PRINCIPAL INVESTIGATOR: Susan Edwards

STUDENT RESEARCHER: Debbie Ryder

Dear Participant,

The research project:
You are invited to participate in a project about young children's physical activity. This research is about the physical activity that children participate in their homes and centres. This project is looking at physical activity play of children aged up to five years. This investigation aims to strengthen parent and teacher awareness of physical activity in the home and ECE setting. Similarities and contradictions in physical activity provision will be explored, as will the types of physical activity communication that occurs between home and ECE setting. There are no foreseen possible risks or discomforts associated with participating in this project. You may be slightly inconvenienced by participating in two interviews.

What will be required of you should you wish to participate:
If you decide to participate in this project you will be invited to attend two interviews, and asked to record your child's physical activity. The first interview will be with other parents. The second will be with parents and teachers. The focus of these first two interviews will be on previous photographs and notes that you will be requested to take of your child's physical activity. Similarities and contradictions in physical activity will be explored. Note: these photographs will be given back to you at the completion of the research project.

Benefits of participating in the research:
You may benefit from participating in this project because you might find that it is an interesting opportunity to discuss your child's physical activities. The findings from this research will be of interest to other parents and teachers to help gain an understanding of what physical activity looks like between the home and early childhood education setting.

Publishing and presenting the research
This research will be published in journals about young children's physical activity play experiences and presented at conferences about early childhood education.

Ability to withdraw from the research:
You are free to refuse to consent to participate in this project without having to justify your decision, or to withdraw consent and discontinue participation in the study at any time without giving a reason.

Use of a pseudonym
If you decide to participate in this project a pseudonym will be used to protect your identity. This means that in any publications arising from the research that you and your child will not be identifiable. If you wish to have your own and your child's first name used instead of pseudonym this can be arranged. If you choose this option it is important to know that confidentiality cannot be guaranteed.

Queries and/or complaints:
Any questions regarding this project should be directed to the Student Researcher:

Debbie Ryder
Ph: 044797792 or 021773589
Email: dryder@clear.net.nz

If you are interested in finding out the results of this project you can email the above address for a copy of the findings.

This study has been approved by the Human Research Ethics Committee at Australian Catholic University.

In the event that you have any complaint or concern, or if you have any query that the Investigator has not been able to satisfy, you may write to the Chair of the Human Research Ethics Committee care of the nearest branch of the Research Services Office.

Research Ethics Manager (ResEthics.Manager@acu.edu.au)
Office of the Deputy Vice-Chancellor (Research)
Australian Catholic University
North Sydney Campus
PO Box 968
North Sydney, NSW 2059

Any complaint or concern will be treated in confidence and fully investigated. The participant will be informed of the outcome. If you agree to participate in this project, you should sign both copies of the Consent Form, retain one copy for your records and return the other copy to the Student Researcher.

Debbie Ryder
Student Researcher

INFORMATION LETTER FOR TEACHERS

TITLE OF PROJECT: Physical activity at home and in the Centre

PRINCIPAL INVESTIGATOR: Susan Edwards

STUDENT RESEARCHER: Debbie Ryder

Dear Participant,

Research project:
You are invited to participate in a project about young children's physical activity. This research is about the physical activity that children participate in their homes and centres. This project is looking at physical activity play of children aged up to five years. This investigation aims to strengthen parent and teacher awareness of physical activity in the home and ECE setting. Similarities and contradictions in physical activity provision will be explored, as will the types of physical activity communication that occurs between home and ECE setting. There are no foreseen possible risks or discomforts associated with participating in this project. You may be slightly inconvenienced by participating in two interviews.

What will be required of you should you wish to participate:
If you decide to participate in this project you will be invited to attend two interviews, and asked to record your (study) child's physical activity. The first interview will be with other teachers. The second will be with parents and teachers'. The focus of these first two interviews will be on previous photographs and notes that you will be requested to take of the your (study) child's physical activity. Similarities and contradictions in physical activity will be explored. Note: these photographs will be given back to you at the completion of the research project.

Benefits of participating in the research:
You may benefit from participating in this project because you might find that it is an interesting opportunity to discuss your (study) child's physical activities. The findings from this research will be of interest to other parents and teachers to help gain an understanding of what physical activity looks like between the home and early childhood education setting.

Publishing and presenting the research
This research will be published in journals about young children's physical activity play experiences and presented at conferences about early childhood education.

Ability to withdraw from the research:
You are free to refuse to consent to participate in this project without having to justify your decision, or to withdraw consent and discontinue participation in the study at any time without giving a reason.

Use of a pseudonym
If you decide to participate in this project a pseudonym will be used to protect your identity. This means that in any publications arising from the research that you and your (study) child will not be identifiable. If you wish to have your own and your (study) child's first name used instead of pseudonym this can be arranged. If you choose this option it is important to know that confidentiality cannot be guaranteed.

Queries and/or complaints:
Any questions regarding this project should be directed to the Student Researcher:

Debbie Ryder
Ph: 044797792 or 021773589
Email: dryder@clear.net.nz

If you are interested in finding out the results of this project you can email the above address for a copy of the findings.

This study has been approved by the Human Research Ethics Committee at Australian Catholic University.

In the event that you have any complaint or concern, or if you have any query that the Investigator has not been able to satisfy, you may write to the Chair of the Human Research Ethics Committee care of the nearest branch of the Research Services Office.

Research Ethics Manager (ResEthics.Manager@acu.edu.au)
Office of the Deputy Vice-Chancellor (Research)
Australian Catholic University
North Sydney Campus
PO Box 968
North Sydney, NSW 2059

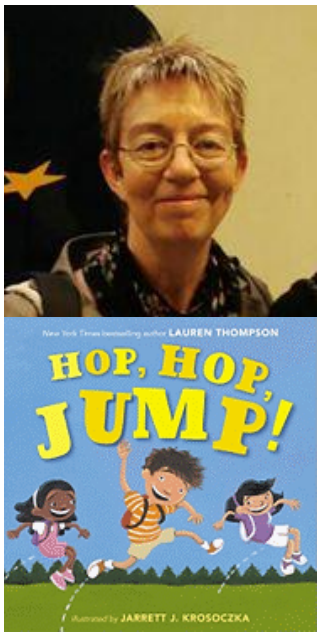
Any complaint or concern will be treated in confidence and fully investigated. The participant will be informed of the outcome. If you agree to participate in this project, you should sign both copies of the Consent Form, retain one copy for your records and return the other copy to the Student Researcher.
Debbie Ryder
Student Researcher

INFORMATION and CONSENT LETTER FOR CHILDREN

ACU
AUSTRALIAN CATHOLIC UNIVERSITY

ACU | education

My name is Debbie Ryder



I am writing a book about what children play at home and at their child centre

I would like your mum or dad to take a photograph of you playing and to show this to me

Is it ok for your mum or dad to take a photograph of you and show it to me

🙂 ☹

INFORMATION LETTER FOR CENTRE MANAGEMENT

TITLE OF PROJECT: Physical activity at home and in the Centre

PRINCIPAL INVESTIGATOR: Susan Edwards

STUDENT RESEARCHER: Debbie Ryder

Dear Centre Management,

Research project:
Your Early Childhood Education centre is invited to participate in a project about young children's physical activity. There are no foreseen possible risks or discomforts for the early childhood education centre associated with participating in this project. The early childhood education centre may be slightly inconvenienced by the researcher attending a committee meeting (if possible) to explain the project to parent and teacher representatives and to collect consent forms for interested participants. Interviews will be audio-recorded. Two parents and two teachers from your early childhood education centre may benefit from participating in this project because they might find it interesting to talk about children's physical activity.

What will be required of you should you wish to participate:
If you decide to have your early childhood education centre participate, you will be asked if the researcher can attend a committee meeting where the researcher would like to explain the project to parent and teacher representatives, and invite them to participate. The researcher would also come into the early childhood education centre to collect disposable cameras and notes (from participating parents and teachers). Note: photographs will be given back to participants at the completion of the research project.

Parents and teachers will be asked to participate in two interviews and photograph and take notes about their (study) child's physical activities. Ideally, these interviews will be conducted at the early childhood education centre outside of centre hours. This will of course depend on your approval. Alternative premises will be arranged should this not be suitable.

Benefits of participating in the research:
The findings from this research will be of interest to parents and teachers in regards to what physical activity looks like between the home and early childhood education setting.

Ability to withdraw from the research:
You are free to refuse to have your early childhood education centre participate in this project without having to justify your decision, or to withdraw consent and discontinue participation in the study at any time without giving a reason.

Use of a pseudonym:
If you decide to participate in this project a pseudonym will be used to protect the identity of your early childhood education centre. This means that in any publications arising from the research that your early childhood education centre will not be identifiable. If you wish to have your early childhood education centres name used instead of pseudonym this can be arranged. If you choose this option it is important to know that confidentiality cannot be guaranteed.

Queries and/or complaints:
Any questions regarding this project should be directed to the Student researcher:
Debbie Ryder
Ph: 04 4797792 or 021773589
dryder@clear.net.nz

If you are interested in finding out the results of this project you can email the above address for a copy of the findings.

This study has been approved by the Human Research Ethics Committee at Australian Catholic University.

In the event that you have any complaint or concern, or if you have any query that the Investigator has not been able to satisfy, you may write to the Chair of the Human Research Ethics Committee care of the nearest branch of the Research Services Office.

Research Ethics Manager (ResEthics.Manager@acu.edu.au)
Office of the Deputy Vice-Chancellor (Research)
Australian Catholic University
North Sydney Campus
PO Box 968
North Sydney, NSW 2059

Any complaint or concern will be treated in confidence and fully investigated. The participant will be informed of the outcome. If you agree to participate in this project, you should sign both copies of the Consent Form, retain one copy for your records and return the other copy to the Principal Investigator.

Debbie Ryder
Student Researcher

Appendix C: Consent forms

CONSENT FORM for Parents
Copy for Participant to Keep

TITLE OF PROJECT: Physical activity at home and in the centre

PRINCIPAL INVESTIGATOR: Susan Edwards

STUDENT RESEARCHER: Debbie Ryder

I ..... *(the participant)* have read (*or, where appropriate, have had read to me)* and understood the information provided in the Letter to Participants. Any questions I have asked have been answered to my satisfaction. I agree to participate in two interviews of approximately 60 minute's duration each, realising that I can withdraw my consent at any time (without adverse consequences). I agree that research data collected for the study may be published or may be provided to other researchers in a form that does not identify me in any way.

I have read the information letter and understand what this project is about.
I am interested in participating in the project.
I provide the following contact details so that the researcher can contact me to organise my participation

NAME OF PARTICIPANT: .....
SIGNATURE..... DATE: .....

Mobile number

Email .....

SIGNATURE OF PRINCIPAL INVESTIGATOR DATE: .....

SIGNATURE OF STUDENT RESEARCHER DATE: .....

CONSENT FORM for Parents

Copy for Researcher to Keep

TITLE OF PROJECT: Physical activity at home and in the centre

PRINCIPAL INVESTIGATOR: Susan Edwards

STUDENT RESEARCHER: Debbie Ryder

I ..... *(the participant)* have read (*or, where appropriate, have had read to me)* and understood the information provided in the Letter to Participants. Any questions I have asked have been answered to my satisfaction. I agree to participate in two interviews of approximately 60 minute's duration each, realising that I can withdraw my consent at any time (without adverse consequences). I agree that research data collected for the study may be published or may be provided to other researchers in a form that does not identify me in any way.

I have read the information letter and understand what this project is about.
I am interested in participating in the project.
I provide the following contact details so that the researcher can contact me to organise my participation

NAME OF PARTICIPANT: .....
SIGNATURE..... DATE: .....

Mobile number

Email .....

SIGNATURE OF PRINCIPAL INVESTIGATOR DATE: .....

SIGNATURE OF STUDENT RESEARCHER DATE: .....

CONSENT FORM for Teachers
Copy for Participant to Keep

TITLE OF PROJECT: Physical activity at home and in the centre

PRINCIPAL INVESTIGATOR: Susan Edwards

STUDENT RESEARCHER: Debbie Ryder

I ..... *(the participant)* have read (*or, where appropriate, have had read to me)* and understood the information provided in the Letter to Participants. Any questions I have asked have been answered to my satisfaction. I agree to participate in two interviews of approximately 60 minute's duration each, realising that I can withdraw my consent at any time (without adverse consequences). I agree that research data collected for the study may be published or may be provided to other researchers in a form that does not identify me in any way.

I have read the information letter and understand what this project is about.
I am interested in participating in the project.
I provide the following contact details so that the researcher can contact me to organise my participation

NAME OF PARTICIPANT: .....
SIGNATURE..... DATE: .....

Mobile number

Email .....

SIGNATURE OF PRINCIPAL INVESTIGATOR DATE: .....

SIGNATURE OF STUDENT RESEARCHER DATE: .....

CONSENT FORM for Teachers
Copy for Researcher to Keep

TITLE OF PROJECT: Physical activity at home and in the centre

PRINCIPAL INVESTIGATOR: Susan Edwards

STUDENT RESEARCHER: Debbie Ryder

I ..... *(the participant)* have read (*or, where appropriate, have had read to me)* and understood the information provided in the Letter to Participants. Any questions I have asked have been answered to my satisfaction. I agree to participate in two interviews of approximately 60 minute's duration each, realising that I can withdraw my consent at any time (without adverse consequences). I agree that research data collected for the study may be published or may be provided to other researchers in a form that does not identify me in any way.

I have read the information letter and understand what this project is about.
I am interested in participating in the project.
I provide the following contact details so that the researcher can contact me to organise my participation

NAME OF PARTICIPANT: .....
SIGNATURE..... DATE: .....

Mobile number

Email .....

SIGNATURE OF PRINCIPAL INVESTIGATOR DATE: .....

SIGNATURE OF STUDENT RESEARCHER DATE: .....

CONSENT FORM for Centre Management
Copy for Centre Management to Keep

TITLE OF PROJECT: Physical activity at home and in the Centre

PRINCIPAL INVESTIGATOR: Susan Edwards

STUDENT RESEARCHER: Debbie Ryder

I ..... *(the participant)* have read (*or, where appropriate, have had read to me)* and understood the information provided in the Letter to Participants. Any questions I have asked have been answered to my satisfaction. I agree to two parents attending …… Early Childhood Education Centre plus two teachers from the centre, being invited to participate in two interviews of approximately 60 minutes duration each. I also agree to the two teachers photographing and taking notes of the two study children at the centre, on two occasions during the duration of the research. I realise that permission for this research to be conducted through …… Early Childhood Education Centre can be withdrawn at any time (without adverse consequences). I agree that research data collected for the study may be published or may be provided to other researchers in a form that does not identify ……. Early Childhood Education Centre in any way.

I have read the information letter and understand what this project is about.
I am interested in participating in the project.
I provide the following contact details so that the researcher can contact me to organise my participation

NAME OF PARTICIPANT: .....
SIGNATURE..... DATE: .....

Mobile number

Email .....

SIGNATURE OF PRINCIPAL INVESTIGATOR DATE: .....

SIGNATURE OF STUDENT RESEARCHER DATE: .....

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CONSENT FORM for Centre Management

Copy for Researcher to Keep

TITLE OF PROJECT: Physical activity at home and in the Centre

PRINCIPAL INVESTIGATOR: Susan Edwards

STUDENT RESEARCHER: Debbie Ryder

I *..... (the participant)* have read (*or, where appropriate, have had read to me)* and understood the information provided in the Letter to Participants. Any questions I have asked have been answered to my satisfaction. I agree to two parents attending …… Early Childhood Education Centre plus two teachers from the centre, being invited to participate in two interviews of approximately 60 minutes duration each. I also agree to the two teachers photographing and taking notes of the two study children at the centre, on two occasions during the duration of the research. I realise that permission for this research to be conducted through ……. Early Childhood Education Centre can be withdrawn at any time (without adverse consequences). I agree that research data collected for the study may be published or may be provided to other researchers in a form that does not identify ……. Early Childhood Education Centre in any way.

I have read the information letter and understand what this project is about.
I am interested in participating in the project.
I provide the following contact details so that the researcher can contact me to organise my participation.

NAME OF PARTICIPANT: .....
SIGNATURE..... DATE: .....

Mobile number

Email .....

SIGNATURE OF PRINCIPAL INVESTIGATOR DATE: .....

SIGNATURE OF STUDENT RESEARCHER DATE: .....

Appendix D: Phone call script

Script of what will be said on phone call to centre to be invited to attend committee meeting to talk to the research project.

Hello,

My name is Debbie Ryder. I am a PhD student looking to undertake an investigation into physical activity provision between the home and ECE setting. There is currently a gap in research in this area. I have just received ethical approval to precede with the investigation, and so I am currently looking for four centres to perform this investigation in. Therefore, the reason I am ringing is that I would like the chance to come and speak to your parents and teacher at a committee meeting at some point that is convenient with you over the next month or two, to discuss the possibility of seeking participants. I only need two teachers and two parents from each of the four centres as participants. I would be providing information letters and consent forms and would talk through these with your committee. I would probably need about 20 minutes.

Thank you

Appendix E – Original research plan and timeline

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Time period	Data collection and initial analysis – Phase One
Beginning April 2015	Over the same one week period – parents and teachers are asked to photograph their study child (only) involved in physical activity.
	At the end of the week – parents and teachers fill out the physical activity template in regards to the physical activity the child has been involved in
Second week of April	I collect the cameras and physical activity templates at a suitable time at the four centres
Mid – end April	I print photographs and perform a brief initial analysis of the photographs and physical activity templates, and use them to guide the semi-structured interview questions (as below) Anecdotal notes are taken in research journal
Early – mid May	All parents meet and attend a semi-structured interview – where photographs act as a provocation for the interview. Interview is taped and anecdotal notes taken in research journal
Early – mid May	All teachers meet and attend another semi-structured interview – where photographs act as a provocation for the interview. Interview is taped and anecdotal notes taken in research journal
End May – mid July	Overall analysis is performed at the end of phase one – to guide the phase two investigation.
Will use the mid-year break as a mid-way point for the data collection	**Data collection and initial analysis – Phase Two**

Beginning August	Over the same one week period – parents and teachers are asked to photograph their study child (only) involved in physical activity.
	At the end of the week – parents and teachers fill out the physical activity template in regards to the physical activity the child has been involved in
Second week of August	I collect the cameras and physical activity templates at a suitable time at the four centres
Mid – end August	I print photographs and perform an initial analysis of the photographs and physical activity templates, and use them to guide the semi-structured interview questions (as below) Anecdotal notes are taken in research journal
Early September	All parents and teachers meet and attend one semi-structured interview – where photographs act as a provocation for the interview. Interview is taped and anecdotal notes taken in research journal
Mid-September – November 2015	Overall analysis is performed at the end of phase one – to guide the phase two investigation.

Data collection timeline

Proposal confirmation	End of June 2014
Ethics approved	End September 2014
Recruitment process	October/November 2014
Participant selection	November/December 2014
Investigation	February – October 2015 (See Table 4 on previous page for detail)
Findings chapters	January – May 2016
Literature Chapter	June – September 2016
Theory Chapter	October 2016 – January 2017
Methodology Chapter	February 2017 – May 2017
Discussion Chapter	June 2017 – Sept 2017

Conclusion and Introduction Chapter	October 2017 – December 2017
Hand in to supervisors for final review	February 2018
Pre-submission seminar	May 2018
Make suggested amendments	June/July 2018

Appendix F: Phase One interview questions for teachers and parents

1. *Let's look at the types of photographs you took of the child's physical activities* – Can you each tell me a bit about the process of taking the photographs of your/the child's physical activity experiences

Task: Now, can you each put your own photographs in piles of similar types of physical activity	1a. What can you tell me about what you have found when looking at your different piles of photos?
Task: Now, if it's ok with you both, let's put all the photos together in piles of similar types of physical activity	1b. What can you tell me about what you have both found when looking at your piles of photos?

2. *These first set of questions looks at what 'physical activity' means for you:*

2a. How would you describe the meaning of physical activity?
2b. If I were to use the term 'structured physical activity' – what would this mean to you?
2c. What do you think 'unstructured physical activity' looks like in your setting?
2d. If I were to link 'active play' to physical activity – what might this look like?
2e. What other words do you think of when considering young children's physical activity?

3. *The next set of questions looks at who provides physical activity opportunities:*
3a. Who would you say is most responsible for providing for physical activity experiences for children under five years of age?

3b. Who do you feel plays a key part in being responsible for physical activity provision for ‘under five year olds’? Explain why you think they play a key role.
3c. What setting does physical activity for under five year olds occur within?

4. *The next set of questions explores the types of physical activity that are provided*
4a. What types of physical activities do you think young children might be engaged in and/or provided in the *home* setting? (Think about the terms we used previously, but also describe what actual activities you are referring to)
4b. What types of physical activities do you think young children might be engaged in and/or provided in the *ECE* setting? (Think about the terms we used previously, but also describe what actual activities you are referring to)
4c. Why do you think specific physical activities occur within particular setting?

5. *The last set of questions explores factors that constrain and/or support physical activity provision*
5a. What factors do you think *support* physical activity provision in the home setting?
5b. What factors do you think *constrain* physical activity provision in the home setting?
5c. What factors do you think *support* physical activity provision in the ECE setting?
5d. What factors do you think *constrain* physical activity provision in the ECE setting?
5e. Are there other factors that we have not discussed that you think constrain and/or support physical activity provision in the home and ECE setting?

Appendix G: Phase Two interview questions for parents

I want to start by revisiting your meaning of physical activity that you have been considering over the last week or more.

How would you now define physical activity and how do your photos help explain this definition?

The role of the child in physical activity provision:

1. When we discussed 'unstructured' physical activity you talked about it being 'non-parent directed'. You also linked rough and tumble play and imagination to 'unstructured' physical activity**. Is there anything you would like to change and/or add to that definition of unstructured physical activity?**

2. In our previous discussion, you linked 'the child making a decision' to undertake a physically active experience as being linked to the 'structured' aspect of structured physical activity. **Do you think therefore, that 'structured' physical activity might not just be based on 'parent-led' decision making, but also on 'child led' decision-making?**

3. In the interview you discussed viewing unstructured and structured physical activity from the child's perspective. You talked about viewing 'unstructured' physical activity as when children are 'engaged with other people' in the physical activity, whereas you talked about 'structured' physical activity being when the child was engaged with an item. What are your thoughts on this now? **Do you want to change or add to that meaning of structured and unstructured physical activity from a child's perspective?**

4. In the previous interview you made the statement that you believe the child should have a 'sense of responsibility' for their own physical well-being. This links to some research perform by Reunamoa, et.al (2013) who also talks about the importance of children needing "to take responsibility for their own [physical' wellbeing … (p. 14). **What do you think needs to occur in the**

home and ECE setting for children to take responsibility for their own physical well-being?

The role of the parent in physical activity provision:

5. *'Structured' physical activity* **–** When we discussed 'structured' physical activity you linked it to when children are engaged in authentic, everyday tasks; when it involves organised physical activity outside of the home, i.e. gym classes that are carried out in an organised way. You talked about it being when you having 'more of an awareness' of the types of activity your child was engaged in. **Is there anything you would like to change and/or add to that definition of 'structured' physical activity?**

6. In the previous interview you believed parents are the most responsible for their child's physical activity**.** One of you discussed how this starts at the point of looking for the right type of type of centre for your child. In doing this search for the right centre you made the comment that "Physical activity is not seen as the 'crucial' thing parents are looking for, but it is important". **What do you see as being crucial for your child's well-being when looking for a centre?**

7. The role of the parents was discussed in the previous interview when it was discussed by yourselves that parents 'offer children choices' as to what physical activity they want to be engaged in, i.e (before going to the park – do you also want to take your bike…). You also discussed offering guidance around when is and is not the right time to carry out physical activity. **Do you want to extend further on the role of the parent in children's physical activity?**

8. Your own personal beliefs and values in regards to physical activity seemed to be a driving force for you to encourage the same interest in your children. **I wonder where your values and beliefs have stemmed from in regards to physical activity?**

9. In the previous interview we talked about physical activity provision being an attitudinal thing for parents. We talked about how you both have your own interest in physical activity and that this follows through to the provision for

your children. **Do you think physical activity attitudes can differ from parent to parent?**

10. It was evident in the last interview that there was a clear intent demonstrated to prepare children for engaging with the environment safely. This did not mean children were restricted in any way; in fact we discussed parents having a 'high trust' approach. **What are your thoughts as to whether there is a link between parents having a high trust model in regards to physical activity provision and competence and capability in their child?**
11. We talked last time about parent participating with their child's physical activity experiences and the importance of this. **Have you given this any further thought? In what ways might parents participate with their children's physical activity?**

The role of the teacher in physical activity provision:

12. When I asked the question in the last interview, as where do you think the centre fits in with playing a key role in children's physical activity provision you didn't reply to start with, and then your answer referred to the large amount of time children spend in ECE setting. Your answer did not at any time refer to teachers playing an important role in physical activity provision. **I wonder if you have given that any more thought, and what are your thoughts now about the role of the ECE setting in regards to physical activity provision?**
13. The role of photos came up in the previous discussion as the one way you sometimes knew what physical activity experiences might be occurring for your child at the centre. **What role do you think photos can play in communicating children's physical activity learning? Do you see them as an adequate form of communication in themselves?**
14. There was brief mention in the interview of a learning story where it was mentioned your child was involved in an experience of climbing the tree. It was stated in the interview that there were elements of physical activity in the story but it was not purely about physical activity. **Have you experienced any change in the type of learning stories that are being written, i.e. are any of the stories more inclusive of physical activity experiences?**

15. When asked previously what type of physical activities might occur in the ECE setting you thought it was the same type of activity that happened in the home setting. **Have you given any additional thought to this?**

Appendix H – Physical Activity Template

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For the purpose of this research – physical activity is viewed as 'any activity at home or in the centre where children use their large muscles and get puffed'.

Please tick the types of physical activity your child was involved in when you photographed them:

- ○ Ball play
- ○ Running
- ○ Riding bike or ride-one trike
- ○ Walking
- ○ Climbing
- ○ Active play inside the house/centre
- ○ Active play in the neighbourhood
- ○ Active play on an early childhood education centre trip
- ○ Organised sport/fitness programme
- ○ Other – please describe below:

Do you think that these photographs are representative of the normal type and amount of physical activity you provide for children?

Yes

No

What other types of physical activity do you normally provide?

- ○ Ball play
- ○ Running
- ○ Riding bike or ride-one trike
- ○ Walking
- ○ Climbing

- Active play inside the house/centre
- Active play in the neighbourhood
- Active play on an early childhood education centre trip
- Organised sport/fitness programme
- Other – please describe below

Which (if any) of the following factors might restrict physical activity experiences from happening regularly?

- Not enough hours in the day
- Other more pressing requirements/routines (either as a parent or teacher)
- No direct access to outdoor spaces for child to actively and safely play unsupervised
- Concerns about child's safety, for example regarding playing too vigorously or climbing trees
- Other – please describe below

Appendix I – The analysis process in terms of the four contradiction types.

Primary contradictions – Within the analysis of the research data for this thesis any tension within one element (subject, tool, object, rules, community, and division of labour) of the home and/or ECE activity system will be identified as a *primary* contradiction. In searching for *primary* contradictions it will be acknowledged that the activity can re-surface within the everyday context of the home and/or ECE activity system in various forms. The *primary* contradiction will also be analysed as linked to other types of contradictions (*secondary*, *tertiary* and *quaternary*) occurring within and between the home and ECE activity systems (Engeström, 1987, 1999; Foot & Groleau, 2011). A primary contradiction would be identified in the research study as in either the subject, tool, object, rules, community, *or* division of labour element of the home *or* the ECE activity system.

Secondary contradictions – For analysis of the research data for this thesis tensions that occur between elements (between subject, tool, object, rules, community, and division of labour) of the home and/or ECE activity system will be identified as a *secondary* contradiction (Engeström, 1987, 1999). In searching for *secondary* contradictions, tensions will be identified that are initially prompted by a primary contradiction. The secondary contradiction only occurs in relation to a primary tension, or alternatively, it may also be linked to a tertiary and/or quaternary contradiction. However, a secondary contradiction will not be analysed as a separate entity in itself (Engeström, 1987, 1999; Foot & Groleau, 2011). Therefore, within the study, a secondary contradiction will be identified as existing between two elements (tools, object, community, division of labour and subject) of either the home activity system or the ECE activity system.

Tertiary contradictions – The third level of analysis that might be identified within the research is when there might be a clash *within* the object of one activity system. For example, there might be a clash in how every day physical experiences are understood *within* the home activity system *or* the ECE activity system, but not in both activity systems at the same time. Therefore within the study a tertiary contradiction will be identified when new knowledge is being introduced into the home *or* ECE activity system, where it is recognised that the outcome of this process will be to resolve one or more *secondary* contradictions that are occurring within that activity system (Engeström, 1987, 1999; Foot & Groleau, 2011).

Quaternary contradiction – On a fourth level, *quaternary* contradiction clashes might be identified within the home *and* ECE activity system experienced as the new ideas (tertiary contradictions) raised in the other activity system (i.e. home or ECE activity system) influences the inter-related activity system. In this way, the analysis shows how the home and ECE activity systems are constantly working through tensions and contradictions *within* and *between* the elements of the systems as a whole. The research study will analyse ways in which new knowledge (tertiary contradiction) has (or could) resolve one or more *secondary* contradictions within an activity system (for example home activity system). The research study will analyse a *quaternary* contradiction as being when there is a disturbance (as in a ripple effect) of knowledge about every day physical experience within and between the home and the ECE activity system/s (Engeström, 1987, 1999; Foot & Groleau, 2011).

Appendix J – How contradictions in physical activity *understanding* influence *practice*

Difference between ECE and home	What the difference looks like from an understanding or practices perspective	How to think about difference in understanding and practice from a contradictions perspective
ECE setting		
Teachers believed that parents prefer their child to be engaged in structured physical experiences	If teachers have an ***understanding*** that parents do not value unstructured physical learning experiences then they may not document it as a ***practice***.	There is a ***primary*** type contradiction within the ***rules*** element of the ***ECE activity system*** in terms of physical activity understanding and practice.
Teachers articulated that the ECE setting is responsible for physical activity yet there is limited documented evidence of physical learning by teachers	Teachers ***understand*** that the ECE setting is responsible for children's physical activity from a pragmatic, rather than a philosophical perspective. Therefore, there is no link between the pragmatic notion of the ECE setting being responsible and the practice of documenting physical activity.	There is a ***secondary*** type contradiction between the ***rules*** and *tools* of the *ECE* ***activity system***. Because teachers appear to not have a philosophical understanding of the value of physical activity learning their practice does not include assessment documentation as a tool for communication of children's physical activity learning between the home and ECE setting.
Home setting		
Parents are of a firm belief that the ECE setting is responsible for their child's physical learning because of long hours the child attends	Parents ***understand*** that due to their child attending the ECE setting for long hours that this means the child is engaged in regularly physical activity in the ECE setting.	There is a ***primary*** type contradiction within the ***rules*** of the ***home activity system*** understanding in terms of children being engaged in physical activity due to long hours of attendance.
Parents' believed the ECE setting was responsible for providing physical learning	Parents have a high trust ***understanding*** that physical learning is being provided in the ECE setting. However this based on limited, if any assessment documentation as	There is a ***secondary*** type contradiction between the ***rules*** and ***tools*** of the ***home activity system***. Parents understand that physical activity occurs at the ECE setting even though parents are not receiving regular physical activity assessment documentation (tool) as

experiences for their child.	evidence of this practice.	a practice between the home and ECE setting.

Appendix K: Researcher Journal Notes

Start of research Journaling – Early 2015

Recruitment process (5/04/15):

I began the recruitment process in the beginning of 2015. My aim was to recruit four centres with two teacher and two parents at each centre. I chose community based centres where I knew the Head Teacher. This initial recruitment and selection process took longer than I thought, with the final outcome being that I had to re-look at how many centres/participants I would have in the study. It was very difficult getting parent participation in the study. This could be reflective of a lack of interest in the topic; parents being too busy, or possibly even because this topic might make parents feel that they are being questioned on how much physical activity they are providing for their children.

I ended up with only being able to get three centres interested in participating.

The first centre was the only centre that represented my aim of having 'two teachers, two parents and two children. The recruitment process for this centre seemed fairly straightforward. .

The teachers from the second centre were very keen to participate and in the end all six teachers became participants. Getting an equal number of parents was difficult, however. Eventually three parents said they would participate (one being the head teacher of the centre who also had their child attending).

The third centre was unable to get parent participation at all, however there were two teachers who were very interested to participate. This left me with a dilemma of what to do with this teacher interest. In the end I asked the head teacher of this centre, if they would like to act as 'critical friend's' to the research. I will discuss the research with them and seek their feedback at the end of phase one and two (anonymity will apply to the centre names and participants).

Data collection process 5/08/15

Once the recruitment and selection process had been decided on I moved on to interviewing the centre with two teachers, two children two parents as participants. This did not take a lot of arranging and the interviews went well.

However, it was the second centre that I had a lot of difficulty arranging the interviews for, both for the parents (to start with) and the teachers. Multiple emails went back and forth, but still it was difficult to pin them down to a specific data and time. I eventually organised a time to drop the cameras off to the teachers and parents with written instructions as to what to do, including filling out the 'physical activity template'. More emails went by for a time to arrange to have all the cameras back (including the parents). I finally picked them up, only to find that there were only one parents photos developed (one camera was empty) and the other not even used in the first place. It then took many weeks after that for the interview time to be sorted out. Ringing the parents helped. Every time I would ring the centre, the head teacher wasn't there, and would get back to me, but didn't. I had another teacher's email that I used additionally to the head teachers and found this was helpful.

In hindsight, having prior knowledge of the centre (and knowing them quite well), may have worked against the initial process. However, it was brought to my attention that the head teacher was going through personal issues, and this was affecting the communication process. Whilst regular contact with the research centre is important, it is not necessarily the answer. Centres do not necessarily want to be continuously bombarded by the researcher, and after all, they are doing a favour by participating in the research process.. Knowing this centre as I do, I have an existing relationship with them I do not want to disrupt by becoming too pushy. So allowing time within your research schedule for these types of delays is very important. Getting the balance of communication right I think also depends on your project. For example, if you are consistently researching over a period of time than regular contact might be the answer, but if you are researching in 'phases' which may be separated by a few months, than regular communication is not needed. However, the risk here is that you once again have to get the participants on board, encourage their interest again etc. This has proved to be an interesting area of learning for me from the investigation process, and one that I will continue to grapple with as I precede through the phase one interviews for the second centre, and the phase two interviews for both centres.

10/08/15

In hindsight, I found that I adopted a pragmatic approach to my research study. With a number of aspects not going to plan, a 'what works best' approach freed me up to

gather and analyse data in a way that suited the participants and strengthened the results. Whilst as well planned timetable catered for interviews happening at certain times, and transcribing occurring at another, instead an iterative, inductive process of data collection and analysis was adopted that in the end provided stronger, more varied results.

12/08/18

Just a thought has come to me after having completed the first phase one interviews is that 'trips into the community' seem to be something that both the childcare centres and parents are discussing as something they value when looking at physical activity. Parents say that the centre either does lots of them (or thinks they do more of them then they actually do). Teachers value them greatly and either make every effort to take a trip at a moments notice or feel that they want to but are think they haven't got the correct ratio to do so.

15/08/15

The difference between the two case studies – participant wise, is that in the AP case study all the members of the teaching team are participants, including the head teacher. This enables almost a professional development, definitely teacher inquiry approach to occur to thinking about physical activity. In the AP case study the head teacher demonstrates a form of articulation of physical activity that is representative and supported by the teaching team. So, whilst at first the idea of interviewing the whole team seemed to be a bit daunting as to whether this might create a lot of cross talk in the interview, the phase one interview was not like this at all. Instead what was evident was a teaching team articulating their emerging understanding of what physical activity means to them. The presence of the head teacher seemed to show leadership and direction and a high level of articulation of her teaching teams ideas.

'Physical learning' came through as a term that the AP case study thought was more appropriate than physical activity – this needs to be defined more fully.

19/08/15

What role does culture play in regards to physical activity? Brief mention was discussed by a teacher at AP about parent commitments, I.e., parental responsibilities with Samoan families, i.e. church etc. This needs to be followed

through more. Also when asked – *What factors do you think support physical activity provision in the ECE setting? The* HT replied – I *guess it would be similar, theoretically to what supports it in the home isn't it?* I didn't follow up on this, and it seems to be quite a significant response.

29/08/15

A couple of things I am thinking about when transcribing the interviews are:

The case studies have become quite different in the data collection process. For HP it seemed important to ask the teachers in the second phase to write a learning story about physical activity as a form of communication. Whilst they weren't shared with the parents (which is interesting in itself) they learning stories acted as a very effective provocation for the teachers to explain their understanding of physical learning for their research child. It allowed them to lead their own discussion on physical activity with the photos and story as the catalyst for their thinking. The learning stories also acted as a provocation for the parent interviews as I gave them to them before the interview and they referred to them during the interview as well.

In the analysis it would be valuable to use aspects of the learning story writing as a central point and then have links to the teacher's discussion and parent's perspective coming off it. Looking at this not only from a socio cultural perspective, but from a 'contradictions' perspective. Look for examples of the different contradictions in actions. Then think about how the HP case study relates to the AP case study in regards to those different contradictions

31/08/15

Contradictions in data collection for both case studies – The data collection process has certainly not been the same for both centres. Whilst initially I thought I would be using the same questions for both centres – for phase one and two, this was not how the data collection process occurred. In the first phase this did occur for both centres, i.e. being asked the same questions.

Similarities across both contexts in regards to teacher participants:

Both sets of teachers working within a community based inner city centre which is run by a parent committee

Contradictions across both contexts in regards to teacher participants:

Whilst the teachers for HS were the required number of two (that were asked for by me) – the AP researchers included all of the teaching team – thus allowing a larger picture of the whole centre practice to be demonstrated

Whilst HS's teacher participants did not include the centres head teacher – AP's participants did. *(I think this made a difference to what was being said, how it was being said, and examples of physical activity practice they were all able to recall as a team)*

With the two HS researchers – one worked in the 'infants and toddlers' and one worked with the older children – whereas all of the AP researchers worked with children over two years of age (as the centre does not take infants and toddlers). *(This may have a strong baring on the ability to readily access the community (i.e. no children in prams having to be pushed – which determines how many teachers need to go out)*

From the perspective of the parents the similarities and contradictions seemed more subtle:

Similarities across both contexts in regards to the parent participants:

Both sets of parents send their children to a community based inner city centre which is run by a parent committee

Of the two parent participants at each centre – one of them held positions on the parent committee (or their partners did)

All sets of parents worked, but not necessarily all worked full time – they were able to take the time to attend interviews

Contradictions across both contexts in regards to parent participants:

Similarities or contradictions across both contexts in regard to the children participants:

Age was the only thing that seemed to be different across the contexts and that was that one child at HS was an infant and toddler (18 months – two at the time of the research)

Due to these contradictions in contexts it meant that different questions needed to be asked in the second phase for each centre:

31/08/15

The learning stories are helping within the research context, because as they were discussed first in the interview it allows for a 'shared context' to come back to within the interview.

(*The questions and responses in HS's second interview to do with trips – seemed to have an 'adult' influence to it – either from that of the teachers or the parents. Don't forget in the AP interview to ask about the value from the children's perspective.)*

11/09/15

I'm not sure if it is in the actual HS phase two parent interview or beforehand but when I showed the parents the learning story that had been written by the teacher of their child's physical activity (on my request) she said something to the effect of "Oh she is already doing that at home" (when referring to a challenging physical activity experience the child was seen to be doing in the learning story). The parent talked about the child going to gym and doing balancing on a beam at the gym. This led me to ask the parent what she thought about the times when the teachers are talking about something the child has achieved at the centre, when in actual fact they brought that learning from their home life experiences. The parent said something to the effect of "Oh well we just don't say anything….." (The other parent agreed). **This is an interesting point that needs to be followed up on**.

Levels or layers of activity play – refer to second interview with parents at HS (in the first question and refer to question four content a well) for a discussion on this. Although it is just something said by these two parents it seems like it bares sore importance and **worth looking into more.**

19/010/15 – I was asked to offer my feedback to a new Obesity Plan that the government had released, and thought it would be good to put it in my journal (see below)

Childhood obesity plan review

The *Childhood obesity plan* looks at offering the '*targeted initiative'* of families having access to physical activity programmes. However when you click on the 'Active

Families' programme that you are directed to, your child has to be of school age, so this immediately cancels out those children under five years of age.

The second aspect of the plan is the *'increased support'* plan, with links made to increasing the focus on kiwi sport to low participation groups. However, on reading further, it appears this may be limited to school aged children in low participation areas, so once again not increasing support for children under five years of age.

In the third area of the plan, i.e. '*broad population approaches',* there is discussion on 'physical activity guidelines for under 5's'. This is in reference to the already existing 'Active Movement' set of information related resources for those who care for under-fives. Whilst these are resources that cover age and stage appropriate fundamental movement skills and activities, they are not official Ministry of Education guidelines for physical activity provision for under-fives, they are merely 'information' related. It is good to hear the plan say that the 'evidence to support physical activity, fundamental movement skills, sedentary behaviour and sleep is being reviewed'…. and 'the Active Movement resources will be updated in line with current evidence'. However what I found anecdotally within the data collection stage of my research (data collection just completed) is that the parents and ECE centres were not very aware of these resources. There did seem to be a need (by both parents and teachers) for Ministry of Education guidelines to be provided in the area of physical activity provision.

On a slightly other note, but still related to physical activity – another area that is coming through my data is the link between trips/outings into the community that ECE centres take and physical activity. It appears that there needs to be more clarity at the very least from the Ministry of Education about ratios size when on outings. The ability for teachers to take children out into the community, where physical activity can occur in an everyday, real-life context is hampered by the ECE settings ability to offer the 'correct' ratio, whilst still have a fully functioning centre at the same time. It seems that many centres are either unable to meet the required ratio, or misinformed of what the ratios are. This is an area I will follow through with my research.

21.10.15 – Activity Theory

The main claims of activity theory are that human action are always situated, enmeshed in, and shaped by context (Lofthouse and Leat, 2013). In this research study the *context* is the home and the ECE setting for children under five years of age. Human actions are engaged in *activity*, and in most cases, a number of activities at one time. The activity that this study is focusing on is the provision of children's physical learning experiences. The activity of children's physical learning provision is collective by nature and is viewed as being set within a historical time frame, where the activity is influenced by both present and past activities. There is a collective non-tangible *object* held by parents, teachers and the community that physical learning provision is essential for young children's holistic development. From a tangible perspective the object of physical learning provision shapes as well as is shaped by the surrounding world (Engeström, 1999). The effects of which may, or may not have a beneficial influence on children's physical learning. Parents and teachers are constrained by existing limits and boundaries that may challenge their ability to provide for physical learning in the way in which they would prefer.

Leont'ev's notion of 'division of labour' helps to differentiate between what is accomplished *collectively* or *individually*. In regards to the provision of physical learning experiences for young children labour may or may not be divided collectively or individually. Leont'ev integrated mediation through human and social relationships into Vygotsky's original mediational triangle, placing human mediated action within associated social activities (Leont'ev, 1978). The role of human mediated action in regards to physical learning provision is a key aspect to this research study, i.e. exploring the collective role that parents and teachers play providing for children's physical learning experiences. Stetsenko and Arievitch, (2004) argues that Cultural Historical Activity Theory (CHAT) views human development as a process of collective and collaborative transformation. CHAT researchers are interested in the inter-penetration (Stetsenko and Arievitch, 2004; Blunden, 2007) of cognitive processes between individuals and groups. It is this 'inter-penetration' which allows parents and teachers to work together to achieve collectively on providing for physical learning experiences for children.

Engeström (1987, 1999) expanded on Vygotsky's original mediating triangle by including three societal contextual factors: community, rules, and division of labour (Leont'ev, 1978).

Written documentation, ……. were the *tools/signs* acted as mediating artefacts that influenced the way parents and teachers provided for physical learning experiences for young children in this study (Kaptelinin, Kuutti, & Bannon, 1995).

Parents and teachers came together in one of the centres within a sense of *community* which demonstrated their distributed thinking around physical learning provision (Engeström, 1999).

The interpretation of formal *rules* featured strongly within the study, in regards to the way the Ministry of Education regulations were interpreted. Implicit informal values, beliefs, perceptions determined how these rules were interpreted. Home and centre norms or conventions governed the way that physical learning was provided for by both (Engeström, 1999).

The division of labour describes roles and tasks (Leont'ev, 1978). Division of labour was a key point especially for one centre in regards to the ability for the teachers to take children out on trips as this relied heavily on parents helping out. The reluctance of parents meant that these trips were limited for one centre. In a functioning activity system everyone is involved in carrying out a particular activity within the system. This was very evident in another centre where the parents had ensured that the centre was staffed is such a way that these trips could occur for some children, whilst the remainder of the children stayed in the centre. This division of labour also determines who holds the power and status in regards to decision making. Power was a shared process amongst both centres parents and teachers. The way in which labour is 'divided' within the activity system provides another level of analysis for how the activity system is functioning to meet its outcome.

Figure 2 below

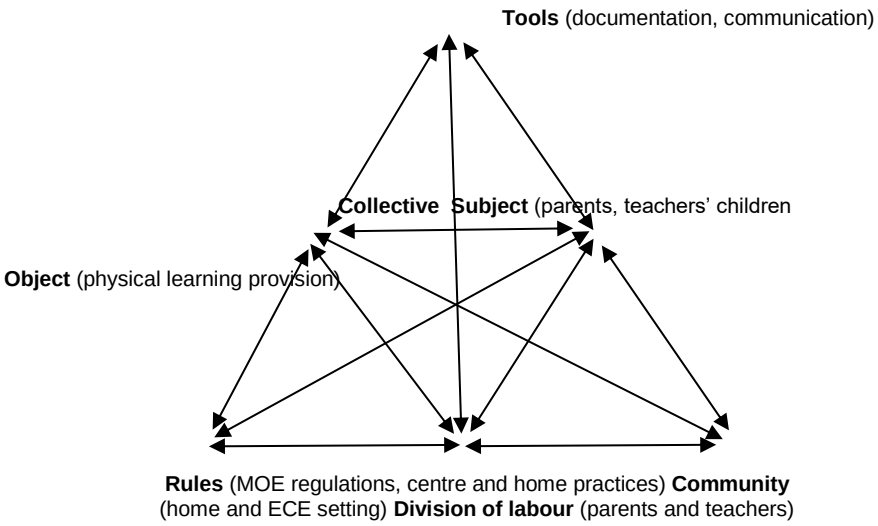

Figure. 1 represents "the modelling of human activity as a systemic formation" as it relates to physical learning provision for children under five years of age (Engeström 1987, p. 78).

Third generation activity theory that includes the addition of a secondary system (or networked systems), thereby introducing concepts of *social transformation* that occur within and *between* the activity systems. A concept of special interest within this third generation of activity theory is the conflicting nature of how people interact. Instability is seen as the 'motive force of change and development' (Engeström 1999 p.9) and the way people transition and reorganise themselves *within and between* activity systems are understood as part of the evolving process of social transformation. Within the research study teachers and parents exist alongside each other with the object of providing for children's physical learning experiences. This notion of 'instability as a motive force of change and development' introduces us to the theoretical concept of 'contradiction', which is foregrounded within the theoretical approach to this proposed investigation.

24.10.15

How my definition of physical activity has changed over time, including how it is changing now in response to my data

My definition of physical activity seems to be undergoing quite a change process as I progress through this research process. Prior to beginning my PhD when I was teaching in early childhood education I held a view that physical activity for children

under five years of age was something that just occurred naturally as the child grew and developed. I was of the opinion that all children had the 'natural' ability to provide for their own physical experiences as they develop physically, and that very little additional support was needed in these first five years. Even as an early childhood teacher my focus was probably more on the child's social, rather than their physical, development. I was however a keen believer in the influence of the natural world on children's holistic development, and this belief included (albeit on a minor level) an awareness of how nature can naturally provide for children's physical activity experiences. This would include for example ensuring that the infant and toddlers were provided with large logs to physically negotiate, large tree stumps to climb up and over etc. Therefore at this stage I would have defined physical activity more from the perspective of physical *interaction,* i.e. physical experience.

It was this belief in the physical experiences that the natural world affords that initially provoked a research topic interest. However, I was soon to discover that I needed to be more specific with my research topic and find an area that was currently lacking in the literature. Hence, my move towards the terminology 'physical activity', and the adoption of this term made me rethink physical activity all together. Whilst I originally came from a more philosophical based approach to thinking about physical experiences for the very young child, literature was pushing my definition in a very different direction. As I searched data bases within the education sector many authors were discussing nature and its influence on children's holistic learning. I needed to find a new angle, one that had not yet been explored. As I realised that I needed to look at this nature-based or outdoor learning from a completely different perspective I began to explore medical literature. All of a sudden my philosophical approach to all things physical, began to take on a more of a scientific approach. The literature discussed such aspects as the need to measure adequate amounts of physical activity. The physical activity literature offered a completely different perspective on my original belief that all children under five years are naturally physically fit. The literature discussed obesity as just one of the many issues very young children are encountering when they do not experience adequate levels of physical activity.

In my research proposal I defined physical activity for children under five years of age used as: 'any activity at home or in the centre where children use their large

muscles and get puffed'. This definition drew on Carlson (2011) argument for the importance of *big body play*, and also aligned with Brockman, Jago and Fox (2011) understanding of *active play*. I was to found out later in the data collection process that the definition of physical activity being where children 'get puffed' was not an accurate one as both parents and teachers did not think it applied. The definition that parents and teachers offer for physical activity is yet to be analysed within the data.

It can be seen therefore that I began the research investigation with quite a physiological definition to physical activity, one that was to be later challenged by the participants and the overall data. After the first phase had finished it dawned on me that there was something about 'trips into the community' that somehow seemed like a common practice for both the parents and the teachers. For one of the ECE centres 'trips out into the community' was a practice that happened without a second thought, however with the other centre there were a number of restraints that limited the teachers ability to take the children out (as much as they wished they could). Parents at both centres believed in the benefits of taking trips out into the community, either when the child was at the centre or at home. Parents saw the physical benefits for their children in this activity. The teachers, whilst they might prioritise the practice of taking the children out into the community, did not necessarily view it from the perspective of physical activity provision. However, in the second phase interview when this was raised again, teachers clearly say there was a connection. One parent talked about the 'everyday learning' that occurs for children when they are out in the community, and it makes me think about another definition of physical activity, i.e. 'everyday physical activity'.

So it is this definition I am sitting on currently. It does seem that the closer the parent/centre relationship the more 'every day physical activity' is occurring in both the centre and the home. This notion is something I will explore further with the third centre/teachers that I will meet with. I also want to explore further with them what role documentation might play in this relationship between parents, teachers and 'everyday physical activity'.

My research question: What physical activity provision for preschool aged children is occurring within and between the home and ECE settings, and what contradictions are apparent within that provision?

Object of analysis (a process that groups items that interact with one another): *physical activity provision*

Unit of analysis: (the 'what' or 'who' that is being studied, i.e. individuals, groups, social organizations and social artefacts – my addition): *children five years of age and under*; and the *home* and *ECE setting*

The process of analysis involves paying attention to the meanings ascribed to social phenomena of *physical activity provision*, by looking at *perspectives* and *experiences* of parents and ECE teachers.

So how do we 'get at' meanings?

Emic perspectives – making meaning from the perspectives and experiences that are meaningful to the individual who is a participant within that culture, also known as an 'insider's view'.

Etic perspectives – making meaning from the perspectives and experiences that are meaningful to the observer/researcher, also known as 'outsiders view', i.e. recorded in research journal.

Priori concepts – considering the concepts that are assumed in the research question – and are independent of experience/research investigation.

Sensitising concepts – considering suggesting direction to look in derived from relevant literature in Grounded Theory approach.

Example of 'priori' concepts and 'sensitising' concepts

Example research question: What discursive practices enable and constrain university early childhood graduates to enact the role of pedagogical leader in prior-to-school settings?

PA within 'All Parents' Interacting Activity System **PA within 'All Teachers' Interacting Activity System**

PA within and between 'Parent and Teacher' Collective Interacting Activity System

Figure 2: Adapted from Engeström's (1987) third generational interacting activity systems: A CHAT analytical framework for exploring physical activity (PA) provision within and between the home and the ECE setting.

Object 1 – relates to 'physical activity provision' *within* each of the two separate activity systems, i.e. each ECE setting (teachers, children, and parents). Each ECE setting is viewed as their own 'physical activity provision' activity system. *Contradictions* will be analysed within the different nodes of each of the 'physical activity provision' activity system (each ECE setting)

Object 2 – relates to 'physical activity provision' *across* the parents of both activity systems, and across the teachers of both 'physical activity provision' activity systems. *Contradictions* will be analysed within the different nodes of each of the 'physical activity provision' activity systems (parent activity system and teacher activity system)

Object 3 – relates to 'everyday physical activity' *within* and *between* the 'parent' and 'teacher' interacting activity systems. *Contradictions* will be analysed within the different nodes of each of the 'physical activity provision' activity systems (parent activity system and teacher activity system)

Analysis and theory building process:

A three stage CHAT driven analytical process will occur: 1) Analyse physical activity provision contradictions within the nodes of each ECE setting (parents and teachers in *each* setting); 2) Analyse physical activity provision contradictions across the nodes of all parents (from both ECE settings) and across analyse all teachers (from both ECE settings); 3) Draw together analysis of everyday physical activity provision contradictions within and between the nodes of the interacting activity system as a whole (all teachers and parents).

The 'physical activity provision' theory building that will occur from using the three stage CHAT driven process of analysis (as described above) uses a semiotic approach (l*ink to literature*). At each of the three stages of analysis the data will be reduced by the semiotic process of searching for repetition of words, phrases, localised language, signs etc.

Once the data has been reduced semiotic analysis will then identify contradictions or tensions, more specifically contradiction will be analysed at the level of rules; tools; division of labour; community.

Once the data has been analysed thematic claims can be made as to what physical activity provision looks like within and between the home and the ECE setting.

20/11/15 – after Joce's comments

Analytical and theory building process for exploring physical activity provision within and between

Analysis and theory building process:

A three stage CHAT driven analytical process will occur: 1) Analyse physical activity provision contradictions within the nodes of each ECE setting (parents and teachers in *each* setting); 2) Analyse physical activity provision contradictions across the nodes of all parents (from both ECE settings) and across analyse all teachers (from both ECE settings); 3) Draw together analysis of everyday physical activity provision contradictions within and between the nodes of the interacting activity system as a whole (all teachers and parents).

The 'physical activity provision' theory building that will occur from using the three stage CHAT driven process of analysis (as described above) will occur through looking for repetition of words, phrases, localised language, signs etc.

Once the data has been reduced analysis will then identify contradictions or tensions, more specifically contradiction will be analysed at the level of rules; tools; division of labour; community. (How will I trace the dynamism of this process – see below)

Once the data has been analysed thematic claims can be made as to what physical activity provision looks like within and between the home and the ECE setting.

2/12/15 – How will I trace the dynamism within/between each system, i.e. objects of activity, rules, tools, etc., are not stable.

When exploring physical activity provision (look at changing this to something less specific) I need to articulate how I will *demonstrate* the *dynamic nature of change* that occurs *within and between the activity systems of the home and the ECE setting over time* and *through use*, i.e. rules can become temporary objects of activity; objects of activity from one system can become divisions of labour in another system, and so forth.

When analysing physical activity provision within and between the home and the ECE setting can I use the 'contradictions' analysis (i.e. primary, secondary, tertiary or level four – see in box below) to demonstrate the dynamic nature of change over time and through use, or do I need to analyse these level first and then look at change over time and through use?

Primary level – the contradictions in physical activity provision as it relates *within any corner of an activity system (home or ECE setting)*
Secondary level – The contradictions in physical activity provision *between two corners of an activity system (home or ECE setting).*
Tertiary level – The contradictions in physical activity provision that arises *when the object of a more developed activity is introduced into either activity system (home* or *ECE setting).*
Level Four – The contradictions in physical activity provision that occurs *between activity systems* (home and ECE setting).

Excursions

Within Centre A

Centre A demonstrates similarities in physical activity practice both within and between the home and the ECE setting. One of the areas that the similarities show up in is in relation to 'excursions'. Parents seem to enjoy taking their children for excursions as an everyday experience and talk about benefits for both the child and the family as a whole. Parents talk about experiencing their local community together, including walks around the neighbourhood, parks etc. The teaching team at Centre A also appeared to like taking the children out on excursions in the local community and parks, not only for the children's benefit but also for the centre as a whole. It's evident therefore that regular excursions are a common physical activity experience within and between the homes of those parents who were interviewed and this ECE setting. For this centre 'regular' excursions meant that they occurred at least two or three times a week and occasionally two or three times a day. It seemed that parents and teachers were aligned with the same *object* of a strong belief in the value of excursions.

Excursions are woven into the fabric of the culture Centre A. Excursions are a 'must do' for the Centre A teachers and the routines will be rearranged no matter what it takes to ensure they happen regularly. Excursions are 'second nature' to the way this centre operates. Teachers will give up lunch breaks, non-contact time if need be, so the excursions will happen. It's what they do there.

Within Centre B

The parents at Centre B also talk fondly of taking their children out into the community, especially to parks, playgrounds, beaches and local bush surrounds. This was an experience enjoyed by the parents that were interviewed, as well as understanding of the physical benefits for their children. However, when the teachers at Centre B were interviewed, whilst they understood the benefits of taking the children out into the local community they were limited in their ability to do so due to the required 'regulated ratio'. Planned excursions occurred at times and were enjoyed by everyone (including parents who were required to make up the adult to child ratio), but these did not happen on a regular basis.

At Centre B the teaching and learning operates 'within the centre boundaries'. Excursions are not seen as a regular part of the teaching and learning experiences within this centres operation. A big part of the reason Centre B do not take excursions regularly is due to their strict adherence to meeting the 'required' ratios as stated in their excursion policy.

4/01/16 – Changes to ECE Regulations and the ripple effect it had on the industry

The 1998 ECE Regulations did not mention anything to do regulatory requirements about taking children on excursions. Prior to this ECE centres ensured that they had an adequate number of staff (or parents) when out on excursions. There was no talk of 'risk assessment' on excursions, and most ECE centres generally took trips or excursions in the local community quite frequently.

The amended Education (ECE) Regulations 2008 were introduced and with them came a number of changes that link to excursions. A number of key factors were being highlighted. *Risk* was now introduced as a factor for ECE centres when considering taking children out of the centre. Therefore the teachers were required

to assess how they are going to manage the level of risk the children would be involved with. Many ECE centres interpreted this as a need for 'risk assessment reconnaissance' where someone would go out first along the path of the proposed journey and ensure there was limited risk to the children's safety.

*Not only were centres now required to '*assess management of risk' *on the local community walk, they had to now determine the appropriate adult child ratio that would alleviate the risk from occurring. The ratio could be no less than the required adult: child ratio the centre was licensed for. The responsibility was quite firmly put with the ECE centre to determine what they saw as the appropriate ratio for the different levels of 'risk' they were subjecting the children to.*

Consent, parental knowledge of excursion and communication also became key factors that influenced ECE centres excursion practice. Parents were required to give consent on enrolment for their children to go on *regular* outings as part of the everyday teaching and learning. This would include walks etc. within the local community. If a special outing or excursion was planned parents were to be informed prior to the event. A centre cell phone and first-aid kit was always to be taken on the excursion for safety purposes.

How centres have interpreted the excursion regulations

An interesting factor has been how the ECE industry as a whole have ensured they assess risk and set the adult child ratios accordingly. It seems that as a whole the ECE industry has created what would appear to be their own ratios for risk whilst on excursions. Now we are seeing every excursion policy across almost all ECE centres stating a ratio when on walks or near water, that is higher than their usual centre ratio. An ECE wide phenomenon has occurred now across all centres where now all teaching staff believe that the increased ratios are the *regulated* ratios, when in fact they are not. There is still no regulation for ratios on excursions (although they can't be worse than the regulated minimum ratios that apply when children are at the centre) and there never has been.

So how has this phenomenon occurred, where the ECE community has created their own unregulated ratios on excursions? Ann Pairman talks about when she was giving licensing advice when she worked for Early Childhood Development Unit

other similar myths were occurring in ECE. For example teachers would talk about ‘required’ policies, required number of beds in sleep rooms, required fence height etc. All of which was actually not ‘required’ at all. Ann talks about in her time preparing resources for ECDU to support those people giving advice to centres it became clear the ‘regulatory myths’ were often shared by and sometimes even started by these MOE staff. As individual MOR staff went out to centres to advise them on licensing criteria they were called upon for their judgement as to what constituted this, or that according to the Regulations, and this advice also differed markedly between regions. I quote Ann directly below:

Another current MOE staff advisor that was contacted talked about being heartened in hearing that centres are adopting higher than the minimum ratios [in centre excursion policies] as it indicates they are completing the process set down in the regulations ‘as expected’. She talks about knowing that a lot of services adopt a 1 adult to 2 children when on excursions near water. She referred to this general practice of adopting higher ratios is a combination of requirements of HS17 and what services see as best practice. It can be seen therefore that the MOE view a higher ratio when on excursions as ‘best practice’. However, therein lies the rub – centres cannot afford to resource these higher ratios when on excursions and so there are limited regular excursions occurring.