Emergent Literacy Practices for Preschool Children with Autism Spectrum Disorders

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ABSTRACT

Literacy is essential to success in education and employment, and in the modern world plays an important role in our daily communication and social participation. The value of literacy is increasingly being recognised and prioritised by government and the business sector in New Zealand. For children with autism spectrum disorders (ASD), literacy learning presents a unique set of challenges. Research suggests that children with ASD are at high risk of poor literacy outcomes, which has implications for their educational success, employment outcomes and social relationships. Given the limited research into the early years of literacy development for children with ASD, this study aimed to explore how children with ASD are engaging with emergent literacy, the strategies that teachers are using to facilitate emergent literacy and the perceived challenges teachers face in supporting emergent literacy development for this group of children.

A mixed methods research design was adopted using an online survey and face-to-face interviews with preschool teachers who had recent experience teaching a child with ASD. Five key findings emerged: (1) variability in teachers' understanding of emergent literacy with embedded literacy learning opportunities being more prevalent than explicit instruction; (2) wide variability in levels of student engagement with emergent literacy opportunities and activities (3) wide range of strategies employed by teachers to support children's emergent literacy learning with high levels of personalisation to children's individual strengths and interests; (4) children's interest level and attention were perceived as the biggest challenge to their literacy development and (5) low levels of professional learning and development (PL&D) in emergent literacy and ASD despite high levels of interest in PL&D in these areas. Participants also identified the need for greater collaboration between speech language therapists and teachers to support the communication skills and emergent literacy development of children with ASD. This study highlights the need for greater professional support for teachers to overcome the challenges identified. This support is essential in order to maximise the literacy learning for children with ASD.

CHAPTER ONE

Introduction

1.1 Introduction

The ability to read and write competently is widely regarded in society as an essential skill for success in education and employment. Moreover literacy provides a source of enjoyment and has become an integral part of the way we communicate and interact online, through the use of e-mail, social media and online communities. In an increasingly digitised and connected world, literacy has become essential to daily communication and social participation. The path to becoming literate commences well before children enter school. From birth, children acquire literacy related knowledge and skills through their interactions and experiences with print and literacy. The term emergent literacy was first used to describe this critical period in literacy development in the early 1960's (Teale & Sulzby, 1986). Research since this time has elucidated the strong links between children's emergent literacy knowledge and their later literacy development (National Early Literacy Panel, 2010).

For children with autism spectrum disorders (ASD), literacy learning presents a unique set of challenges that frequently lead to low levels of literacy. Children with ASD have been shown to pass through the same stages of reading development as their peers without disabilities (Calhoon, 2001; Koppenhaver & Erickson, 2003), however as many as 1 in 5 children with ASD have been found to be unable to demonstrate an ability to read on formal reading assessments (Nation, Clarke, Wright, & Williams, 2006). Children with ASD frequently face communication, sensory, and movement challenges which impact both on their ability to access literacy activities and instruction as well as their ability to demonstrate literacy competence in the expected ways. Compounding the effects of these learning differences is the frequent assumption that they are incapable of learning to read. Assumed lack of competence leads to lowered expectations which shape the subsequent opportunities

available for literacy learning and instruction (Kluth & Chandler-Olcott, 2008; Koppenhaver & Erickson, 2003; Mirenda & Erickson, 2000).

Teachers and speech language therapists have a pivotal role to play in developing the emergent and early literacy skills that underpin the development of conventional literacy skills in children with ASD. Despite the increasing focus on literacy achievement in New Zealand schools (Ministry of Education, 2010a), there is a paucity of evidence documenting effective interventions for this population. This presents a significant challenge to the teachers and speech language therapists supporting these children. In the absence of a strong empirical base to guide educators, there is a strong argument for children with ASD to have access to balanced literacy instruction that is guided by current best practices (Kluth & Chandler-Olcott, 2008; Lanter & Watson, 2008; Mirenda & Erickson, 2000). Indeed it has been shown that providing preschool children with ASD with access to literacy-rich environments where adults facilitate learning through naturally occurring opportunities has a positive impact on emergent literacy development (Koppenhaver & Erickson, 2003).

This thesis seeks to explore the nature of emergent literacy instruction for preschool children with ASD in New Zealand early childhood centres, as well as to identify the challenges facing teachers in supporting these children. These are considered within the framework of Sénéchal, Lefevre, Smith-Chant, & Colton's (2001) 'focused view of emergent literacy', as well as with reference to current best practices in emergent literacy intervention.

1.2 Rationale for This Study

Despite a wealth of research into ASD there has been very little focus on the early literacy development of these children. Literature searches for "emergent literacy" and "autism" yield only 4 studies specifically investigating children with ASD. Although there are considerably more studies that have investigated emergent literacy in teenagers and adults, there appears to be only three studies (Lanter, Watson, Erickson, & Freeman, 2012; Nation et al.,

2006; Rosenberg, 2008) that have investigated the literacy abilities of children. Intervention studies with children with ASD are more common, however, these have been restricted to small scale studies usually involving between 1 and 3 children. Typically the interventions being studied have represented highly clinical situations rather than classroom based or environmental interventions.

1.3 The Research Aims

This research sought to provide some insight into what is happening for young children with ASD in terms of emergent literacy learning and supports in the New Zealand context by answering the following research questions:

(1) What are early childhood teachers' beliefs about emergent literacy?

(2) How do preschool children with ASD engage with emergent literacy opportunities and experiences within the early childhood setting?

(3) What strategies and supports do early childhood teachers employ to facilitate emergent literacy development for preschool children with ASD?

(4) What are the challenges inherent in supporting literacy learning for preschool children with ASD?

(5) What are the professional learning and development needs of early childhood teachers of children with ASD?

1.4 The Research Context

Two hundred and fifty three early childhood centres, in the greater Auckland region were canvassed for potential research participants. Information about the study was distributed and eligible teachers were invited to participate in either an online survey or an interview.

1.5 The Structure of the Thesis

Chapter one has provided an overview of the research carried out for this thesis. Chapter two begins with an synopsis of emergent literacy and explores the links between emergent literacy development and later literacy achievement as well as current best practice in emergent literacy instruction. This is followed by a review of the literature on ASD and emergent literacy, with particular attention given to the challenges that children with ASD face in achieving literacy success. Chapter three outlines the survey and interview methodology underpinning the research alongside the methods used in the data collection phase of the study. Key findings from the research are presented in Chapter four. The findings are then discussed in Chapter five in relation to best practice. Chapter six presents a summary of the limitations of the study along with the final conclusions and possible directions for future research.

CHAPTER TWO

Literature Review

2.0 Introduction

The following sections provide a review of emergent literacy research conducted in the fields of Education and Autism Spectrum Disorders. First, the review examines the construct of emergent literacy, the links between the component skills of emergent literacy and later literacy acquisition, and current best practice in emergent literacy. Second, the review outlines the research examining emergent literacy in children with ASD including recent changes in the diagnostic criteria for ASD, challenges in literacy learning, emergent literacy profiles and interventions. Finally, the review explores the New Zealand context and the importance of best practice for supporting emergent literacy development for children with ASD.

2.1 The Emergence of Emergent Literacy

The term emergent literacy was first used by Marie Clay (1966, 1967, 1972) who is often credited with instigating the establishment of emergent literacy as a field of research and focus of educational initiatives. Clay's (1966) doctoral dissertation documented the early reading behaviours of 5-year-olds, providing evidence that young children are capable of engaging in important reading behaviours when exposed to literacy activities. The findings of Clay's research called into question the doctrine of reading readiness models that dominated the first half of the 20th century. Reading readiness models proposed that children must first acquire a set of prerequisite skills and knowledge before commencing formal reading instruction (Morrow, 2009; Teale & Sulzby, 1986). Clay concluded that there were no grounds for withholding exposure to printed language forms on the basis of maturation.

Although Clay is largely credited with being the pioneer of the field of emergent literacy, it was the work of Teale and Sulzby (1986) which defined the key characteristics of this early period of literacy development. Their work lead to widespread acknowledgement of the new paradigm of emergent literacy in research and educational practice. Teale and Sulzby (1986) argued that the term *emergent literacy* should be used to describe children's early reading and writing behaviours. They suggested the term better reflected the interrelatedness of reading and writing and marked the paradigm shift from readiness models to the understanding of literacy learning as a developmental process. Teale and Sulzby's critical hypotheses about emergent literacy continue to form the basis of our current understanding of emergent literacy (Justice, 2006; Rhyner, 2009). They hypothesized that: (1) literacy begins at birth with key literacy milestones being achieved prior to school entry, (2) literacy and language are reciprocally related, (3) children are active participants in literacy development and their development is mediated by adults in their environment, (4) literacy knowledge is largely acquired through incidental learning, and (5) children's early literacy milestones tend to follow a developmental sequence.

2.1.1 Components of Emergent Literacy and the Underlying Theoretical Framework

Modern interpretation of the concept of emergent literacy is grounded in Teale and Sulzby's (1986) definition which refers to emergent literacy as pertaining to the reading and writing behaviours that precede and develop into conventional literacy (Justice, 2006). Historically researchers have been interested in studying the materials, activities and interactions that play a prominent role in the development of children's emergent literacy (Koppenhaver & Erickson, 2003). This research has given rise to a number of different theoretical models of emergent literacy which seek to describe and organise the components into a comprehensive framework.

Comprehensive models share similarities in their inclusion of the components of (i) conceptual knowledge about literacy, (ii) procedural knowledge related to reading and

writing, (iii) oral language, and (iv) metalinguistic skills (Mason & Stewart, 1990; Sénéchal et al., 2001; Storch & Whitehurst, 2002; Van Kleeck, 1998; Whitehurst & Lonigan, 1998). Where researchers diverge in their models, is in the component knowledge and skills they ascribe to emergent literacy and the patterns of acquisition that characterise typical development (Justice, 2006; Rhyner, 2009).

There is strong support in the literature to indicate that both oral language skills and metalinguistic skills are pivotal in the development of children's literacy skills (Bishop & Adams, 1990; Blachowicz & Fisher, 2008; Catts, Fey, Zhang, & Tomblin, 1999; Scarborough, 1989; Storch & Whitehurst, 2002; Whitehurst & Lonigan, 1998). Early models of emergent literacy (e.g. Mason & Stewart, 1990; Van Kleeck, 1998; Whitehurst & Lonigan, 1998) typically include oral language and metalinguistic knowledge as components. Sénéchal et al. (2001) proposed an alternative model of emergent literacy, which they describe as a 'focused view of the construct of emergent literacy' (p448). In contrast to earlier models, this view proposes that language skills, metalinguistic skills and print knowledge are distinct constructs, which are closely interrelated (see Figure 1). A further departure from earlier models is in the explicit delineation of the components of the construct of emergent literacy into two distinct sub groups: (i) children's conceptual knowledge and (ii) children's early procedural knowledge of reading and writing. Conceptual knowledge relates to understanding of the functions of print and perceptions of the self as a reader. Procedural knowledge pertains to children's understanding of the mechanics of reading and writing. Although the groupings of component skills described in earlier models (Mason & Stewart, 1990; Whitehurst & Lonigan, 1998) align with the notion of conceptual and procedural skills, Sénéchal et al. (2001) were the first theorists to identify and label these distinct groups of skills.

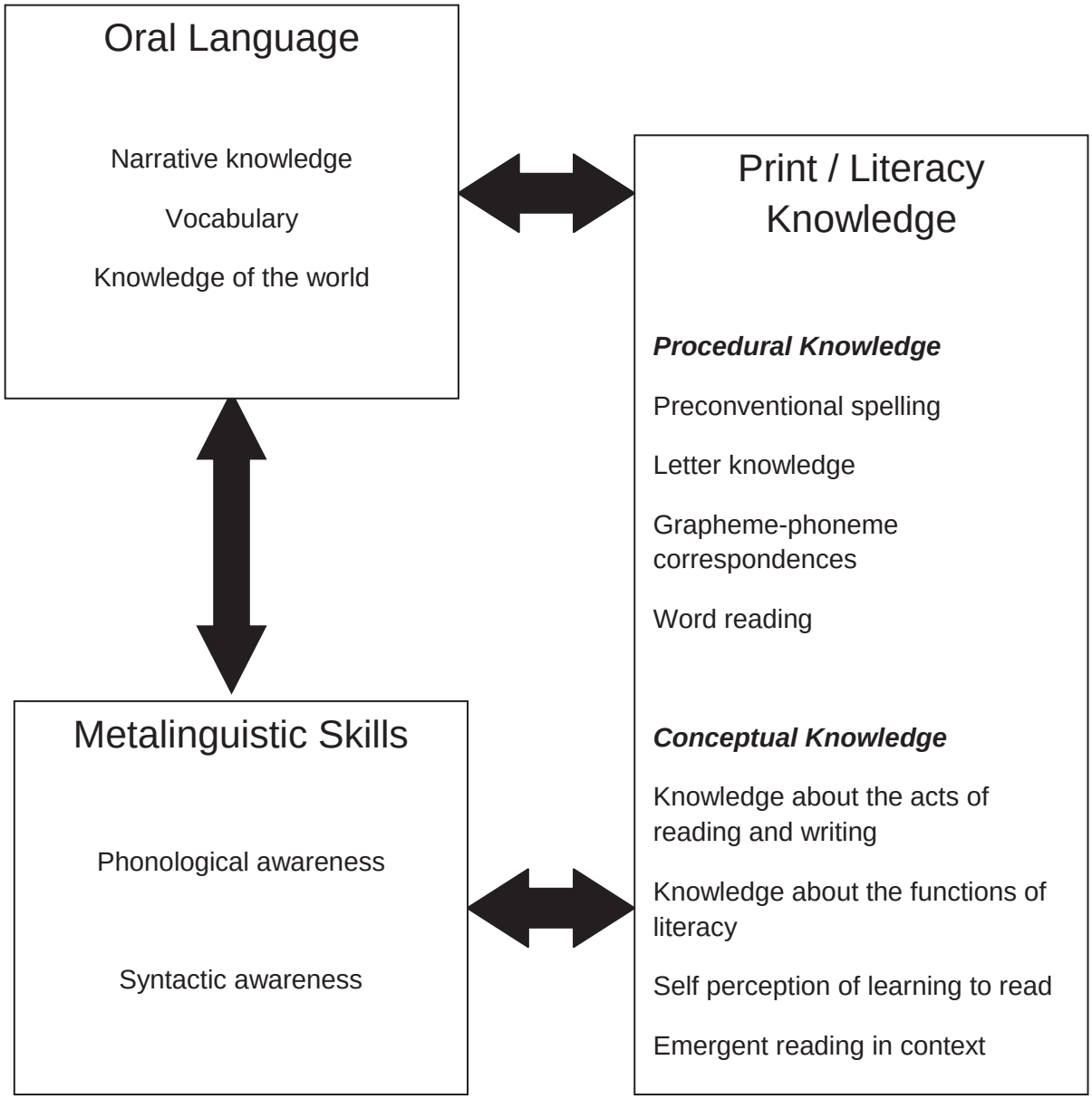
Three sources of support for this alternative view are cited from within the field of emergent literacy research. The first source is the disconnect between the underlying models used by

researchers and the manner in which they conduct their research. Although researchers typically include oral language and metalinguistic skills within the construct of emergent literacy, they typically analyse these as separate constructs (Sénéchal et al., 2001).

There is further support in the body of research investigating the influence of environmental factors. Activities that are positively related to emergent literacy development have been shown to have varying degrees of influence over different skills. Storybook reading influences children's oral language but not print knowledge or phonological awareness (Sénéchal, Lefevre, Thomas, & Daley, 1998). In contrast, direct teaching of letters and letter-sound knowledge is linked to children's print knowledge but not oral language (Whitehurst, Epstein, et al., 1994).

The third source of support is found in the results of empirical tests which show that emergent literacy is not a unitary construct. Models that separate print knowledge from oral language and metalinguistic skills, more accurately encapsulate children's performance than models that combine these components (Lonigan, Burgess, & Anthony, 2000; Whitehurst, Epstein, et al., 1994). In separating the constructs of emergent literacy, oral language, and metalinguistic skills, Sénéchal et al. (2001) acknowledge a close relationship between these constructs but do not identify the strength or nature of these relationships.

Figure 1: Focused View of the Construct of Emergent Literacy



2.2 The Importance of Emergent Literacy for Later Literacy Achievement

The recognition that literacy development commences prior to the onset of formal education has led researchers to view emergent literacy development as a continuum that spans the period before children attain literacy through formal literacy instruction. This perspective recognises the importance of the literacy related behaviours and skills that develop from birth as the foundations for later acquisition of conventional literacy (Justice, 2006; National Early Literacy Panel, 2010; Rhyner, 2009). Conventional literacy refers to the literacy related skills that are typically acquired through formal instruction during the school years. Conventional literacy encompasses the component skills of decoding, oral reading fluency, reading comprehension, writing and spelling (National Early Literacy Panel, 2010).

Researchers have long been interested in the relationships between the component skills of emergent literacy and their impact on later literacy development. Researchers differ in the importance they ascribe to the various emergent literacy skills that precede the development of conventional literacy. Storch and Whitehurst (2002) suggest that these differences may be related to the ages at which researchers assess children's conventional literacy skills. There is support in the literature for the notion that different emergent literacy skills make their most significant contribution at different points in development (Speece, Roth, Cooper, & de la Paz, 1999; Whitehurst & Lonigan, 1998). Thus it is logical that the ages at which children are assessed may give rise to different findings in terms of the relationships between emergent literacy skills and later achievements.

A meta-analysis conducted by the National Early Literacy Panel (National Early Literacy Panel [NELP], 2008) sought to identify interventions and environmental practices in the home and education settings which promote children's early literacy skills. The panel reviewed over 500 published studies in order to identify the emergent literacy skills and abilities that are most strongly related to later literacy achievement. Their findings revealed 10 early literacy skills with moderate to large predictive relationships to later literacy

achievements in reading, writing and spelling. Skills with a large predictive relationship with at least one measure of later literacy achievement included alphabet knowledge, phonological awareness, rapid automatic naming of letters or digits, rapid automatic naming of objects or colours, writing or name writing and phonological memory. Skills with moderate predictive relationships included oral language, concepts about print, print knowledge and visual processing. Not surprisingly, four of these skills: alphabet knowledge; concepts about print; phonological awareness; and oral language are common components in models of emergent literacy. The links between these four early literacy skills and later literacy achievement are outlined in the following sections.

2.2.1 Alphabet knowledge

Longitudinal research has consistently identified alphabet knowledge as a significant predictor of children's later success in reading (Catts, Fey, Zhang, & Tomblin, 2001). Letter name knowledge is often viewed as a landmark in alphabetic literacy acquisition (Whitehurst & Lonigan, 1998). This knowledge is thought to underpin a series of literacy-related skills; the most obvious being letter-sound knowledge and phonemic sensitivity skills (Foulin, 2005) These skills are fundamental to the development of the alphabetic principle, whereby a letter in print represents a phoneme in speech (Vellutino & Scanlon, 1987). This knowledge plays an important role in the foundational stages of learning to read and spell successfully (Bond & Dykstra, 1967; Mutter, Hulme, Snowling, & Taylor, 1997; Scarborough, 1998; Share, Jorm, Maclean, & Matthew, 1984).

Strong support for these relationships exist in the literature. Letter name knowledge at school entry is a strong predictor of children's reading progression in the first two years of school (National Reading Panel, 2000). Letter name knowledge has been shown to be the single best predictor of children's reading achievement at the end of Year 1 (Bond & Dykstra, 1967; Scarborough, 1998; Share et al., 1984) and the second best predictor following phoneme segmentation of reading achievement at the end of Year 2 (Share et al., 1984). A

similar relationship exists for spelling, with letter name knowledge at school entry being a strong predictor of early spelling achievement (Mutter et al., 1997).

2.2.2 Concepts About Print

Concepts about print refer to children's knowledge of print conventions and concepts. It includes awareness that print conveys a message, and awareness of print conventions such as directionality, differences between letters and words, distinctions between upper and lower case letters and features of books (Clay, 1972). This knowledge helps children to understand the arbitrary conventions that are used when spoken language is transformed into the written form (Clay, 2000).

Concepts about print knowledge is strongly correlated with later measures of reading comprehension and moderately correlated with both later decoding and spelling abilities. The strength of these relationships are weakened when other variables are controlled for (National Early Literacy Panel, 2008), however, concepts about print underpin formal reading instruction. Most reading instruction assumes that children have strong concepts about print knowledge, so this knowledge supports children to navigate the early stages of learning to read.

2.2.3 Phonological Awareness

Phonological awareness refers to an understanding of the units of sound that make up spoken words and includes syllable awareness, onset-rime awareness, and phoneme awareness (Gillon, 2004). These skills, are thought to be particularly important for later formal reading instruction, as awareness of the smaller units of sound enables children to map phonemes to graphemes and vice versa, supporting both word recognition and spelling (Bryant, MacLean, Bradley, & Crossland, 1990; Centre for the Improvement of Early Reading Achievement, 2006; Gillon, 2004; Gillon & Dodd, 1994; Hogan, Catts, & Little, 2005;

Lonigan et al., 2000; National Reading Panel, 2000; Stanovich, Cunningham, & Freeman, 1984; Wagner & Torgesen, 1987).

The link between phonological awareness and reading achievement has been extensively documented by researchers interested in the links between emergent literacy skills and later reading performance. Evaluation of correlation studies has shown phonological awareness skills at school entry to be highly predictive of children's reading achievement in their first two years of schooling (National Reading Panel, 2000). Phonological awareness abilities of preschool children more accurately predict their early spelling and reading development than variables such as intelligence scores, age or socioeconomic status (Bryant et al., 1990). Research suggests that skills at the phoneme level are of particular importance (Gillon, 2004). Preschool children's phoneme analysis skills have been shown to be highly correlated with segmentation skills in Year 1. In turn, children's segmentation skills have been shown to be highly predictive of children's reading and spelling abilities at the end of Year 2.

Phonological awareness interventions have been shown to have positive effects on children's literacy skills irrespective of their age or prior literacy knowledge (National Early Literacy Panel, 2010). Given that persistent weaknesses in phonological awareness skills are frequently cited as an underlying cause of reading disabilities in older children (Catts & Kamhi, 2005), the NELP findings suggest that it is advantageous to commence phonological awareness interventions for at risk populations in the preschool years.

2.2.4 Oral Language

The ability to derive or convey meaning in the written form is dependent on an understanding of spoken language. There is debate in the literature surrounding the extent to which oral language skills independently influence literacy development, however, it is widely recognized that oral language skills are crucial in the development of skilled reading. Oral

language skills are thought to play an important role in children's literacy acquisition at different points in their development. Storch and Whitehurst (2002) showed the importance of oral language to literacy development reduced after kindergarten but re-emerged to significantly predict reading comprehension in third grade. Oral language skills at age 3 directly related to comprehensive vocabulary and code related skills in phonological knowledge at age 4 ½. Oral language skills at age 4 ½ related both directly and indirectly to first grade word recognition and third grade reading.

Oral language processes with strong links to reading attainment include vocabulary knowledge (Cunningham, 2005; Nagy, 2005; Whitehurst & Lonigan, 1998), syntactic knowledge (Bishop & Adams, 1990; Scarborough, 2001) and oral narrative skills (Cain & Oakhill, 1996; Vernon-Feagans, Hammer, Miccio, & Manlove, 2001; Westerveld, Gillon, & Moran, 2008). Extensive vocabulary knowledge supports understanding and there is a strong relationship between early vocabulary knowledge and later reading comprehension (Cunningham & Stanovich, 1997; Nagy, 2005). As children begin the process of learning to read, their oral vocabulary helps them to link the written and oral representations. As children become more skilled readers, their vocabulary plays a pivotal role in developing reading comprehension. In the same way, children's syntactic knowledge and oral narrative abilities support their comprehension of written text and story structure.

There is evidence to suggest a language basis of some reading disabilities with oral language difficulties in the preschool years presenting as a significant risk factor for reading difficulties (Catts & Kamhi, 2005; Nagy, 2005; Scarborough, 2001). Differences in oral language and vocabulary skills upon school entry frequently persist and are thought to exacerbate the achievement gap throughout the school years (Blachowicz & Fisher, 2008; Ministry of Education, 2009). Research indicates a positive and moderate association between children's early oral language skills and later reading abilities (Catts, Fey, Tomblin, & Zhang, 2002; Catts et al., 1999; Storch & Whitehurst, 2002). Studies have shown that

children with significant language difficulties at the point of school entry are more likely to become struggling readers than their peers (Bishop & Adams, 1990; Catts et al., 2002). This is of particular significance to the literacy outcomes of young children with ASD as a high proportion of children with ASD exhibit language differences that are markedly different from their peer group (Noens & Van Berckelaer-Onnes, 2005; Wilkinson, 1998) .

2.3 Current Best Practice in Emergent Literacy Intervention

Acquisition of emergent literacy knowledge and skills is supported by rich literacy environments, where language, books, print, pencils and paper are embedded in everyday interactions. Snow et al. (1998) describe rich literacy environments as those where: (1) literacy has a high value; (2) there is an expectation for achievement; (3) reading materials are available and utilised for a variety of functions; (4) children are frequently read to, and (5) there are frequent and varied opportunities for verbal interaction. For the majority of children, inclusion in a literate society where they have access to rich literacy environments and naturally occurring learning opportunities, will be sufficient to develop the necessary skills that underpin conventional literacy achievement (Justice, Chow, Capellini, Flanigan, & Colton, 2003). A number of children, however, will need additional support and require further explicit instruction in specific components. Many of these children are at risk of later literacy difficulties due to factors such as language impairment (Bishop & Adams, 1990; Lonigan et al., 2000), poverty (Whitehurst, Epstein, et al., 1994), or speech impairment (Catts et al., 2001).

The embedded-explicit model (Justice & Kaderavek, 2004; Kaderavek & Justice, 2004) provides a service delivery framework for speech language therapists supporting emergent literacy interventions for at-risk children. Justice and Kaderavek (2004) suggest that efficacy of intervention will be maximised through the synthesis of two different intervention modes under the umbrella of strong evidence based practice. The premise of this model is to provide children with socially embedded opportunities for meaningful, naturalistic literacy

experiences throughout the day, in addition to regular structured learning activities that explicitly target critical components of emergent literacy.

Speech language therapists can promote high quality emergent literacy environments by encouraging and supporting early childhood educators and caregivers to provide socially embedded literacy experiences. Embedded intervention activities primarily focus on utilising literacy activities to enrich and maximise oral language input. Adults support the child's learning by providing oral language input in the context of natural literacy learning opportunities. Intervention is anchored in socially embedded literacy experiences within the home and preschool environments.

Speech language therapists can also play a central role in providing explicit interventions to children at risk in the contexts that facilitate transfer of discrete skills into the context of children's written language experiences and activities. Explicit intervention involves highly structured and sequenced instruction targeted to develop specific skills. Discrete skills that have a key role in children's later literacy acquisition are targeted via explicit instruction. Kaderavek and Justice (2004) identify the domains of phonological awareness, print concepts, alphabet knowledge, writing, narrative and literate knowledge as areas for explicit instruction.

The explicit component of this approach is governed by three overarching principles. These principles are grounded in the research base and are underpinned by best practice in the field of emergent literacy (Kaderavek & Justice, 2004). The first of these principles is described as the '*response to treatment model'*. Children are identified for intensive intervention based on their response to primary interventions. Thus explicit intervention is comprised of whole class instruction that is supplemented by further small group or one to one intensive intervention for those children who do not respond to whole class learning opportunities. The second level of intervention allows for speech language therapists to be

involved in individualising the intervention to meet the specific needs of the children who require explicit emergent literacy intervention.

The second principle of the embedded-explicit model is '*collaboration'*. Within this model collaboration means that both the classroom teacher and the speech language therapist have a shared responsibility for emergent literacy intervention. Typically the classroom teacher takes the lead in delivery of the embedded component and the whole class explicit intervention. While the speech language therapist takes the lead in the delivery of the second level of targeted intervention, they also have a role in the whole class interventions both in terms of planning, delivery through co-teaching and facilitating discussions about children's progress.

The use of '*supportive technique'* is the third principle underpinning the embedded-explicit model. Kaderavek and Justice (2004) identify four supportive techniques that are grounded in the language and literacy research base. These include the use of intermediate targets, context manipulation, dynamic assessment, and cycled targets. Intermediate targets refer to targets that are achievable to the child with intensive adult support. Targets should be challenging but presented in a supported environment with high levels of adult scaffolding to achieve success. Context manipulation refers to creating frequent opportunities for children to use targeted skills across a variety of social, physical and linguistic contexts. Dynamic assessment involves ongoing monitoring of the child's ability to learn a specific skill with adult scaffolding. During this process children are actively involved in learning tasks and adults engage in ongoing monitoring of the child's engagement, support required to completed the tasks and their knowledge of the targeted skill. Finally the goals targeted in the embedded-explicit model follow a cyclic pattern with multiple goals targeted over a period of time.

2.4 Autism Spectrum Disorders Defined

Autism spectrum disorder (ASD) is the collective name used to refer to the group of pervasive neuro-developmental disorders that were first described in the literature in the mid 1940s. Leo Kanner and Hans Asperger both presented detailed case descriptions of children who presented with impaired communication, stereotyped behaviours, a high need for uniformity, and limited affective contact with other people. These early descriptions of autism and Asperger syndrome continue to form the basis of modern diagnostic criteria for ASD (Frith, 2003; Wing, 1996). Until very recently, ASD was an umbrella term that encompassed a cohort of distinct medical diagnoses that shared common features. These diagnoses included autistic disorder, Apserger Sydrome, childhood disintegrative disorder and pervasive developmental disorder-not otherwise specified (PDD-NOS) (American Psychiatric Association, 1994). The less well known disorders of Rett syndrome, Fragile-X and childhood disintegrative disorder have also been associated with ASD (American Psychiatric Association, 1994; Wing, 1996).

The most recent edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) (American Psychiatric Association, 2013a) has seen a major shift in the way that ASD is classified. Concerns about inconsistent application of the four ASD diagnoses used in the previous edition and advances in our understanding of ASD have been the driving forces behind the criteria changes (American Psychiatric Association, 2013b; Gibbs, Aldridge, Chandler, Witzlsperger, & Smith, 2012). The DSM-5 now has one diagnosis of 'Autism Spectrum Disorder' with the diagnostic criteria comprising of deficits in two behavioural domains: (i) social communication and interaction and (ii) unusually restricted, repetitive behaviours and interests. A severity scale is used to reflect the spectrum nature of ASD, enabling clinicians to explain the variations in symptoms, behaviour, and functioning between individuals (American Psychiatric Association, 2013a, 2013b; Lai, Lombardo, Chakrabarti, & Baron-Cohen, 2013). Two further departures from the DSM-IV include the separation of language ability from the diagnostic criteria. Under the DSM-5 an individual

can have ASD with or without a language disorder. Finally the DSM-5 recognises that symptoms should present in early childhood but acknowledges that for some individuals symptoms may not be evident until social demands outstrip the individual's coping mechanisms (American Psychiatric Association, 2013b).

There is wide variability in the estimated prevalence of ASD across different studies. The age of screening and the diagnostic tool used have been found to be strongly correlated to prevalence estimates (Williams, Higgins, & Brayne, 2005). Recent data from the UK reports that autism spectrum conditions affect 1% of the population (Baron-Cohen, 2008; National Autistic Society, 2007). Official New Zealand estimates suggest that 40,000 New Zealanders are affected by ASD (Ministry of Health and Education, 2008). Early field trials of the new DSM-5 indicate high levels of reliability for individuals previously diagnosed with a specific ASD diagnosis under the DSM-IV. Prevalence rates are likely to remain the same, however the changes in the DSM-5 may support earlier diagnosis as the DSM-IV was more aligned with diagnosis in school aged children. Early field trials also suggest that the new criteria may be more sensitive to higher functioning individuals (American Psychiatric Association, 2013b; Huerta, Bishop, Duncan, Hus, & Lord, 2012).

2.5 Challenges in Emergent Literacy Learning for Children with ASD

Children with ASD have been shown to pass through the same stages of reading development as their peers without ASD on the route to becoming skilled readers (Calhoon, 2001; Koppenhaver & Erickson, 2003). Despite these similar trajectories, they face a number of challenges from the earliest stages of their literacy development. These challenges frequently lead to low levels of literacy. Children with ASD can experience difficulties conforming to expected educational norms as a result of their movement, sensory, communication, and learning differences. These differences pose a challenge not only in terms of accurate assessment of an individual's literacy profile but also in planning and

adapting interventions so that the learner with ASD is able to engage and demonstrate their knowledge and skills (Cain & Oakhill, 1996; Carnahan & Williamson, 2012; Kluth, 2003).

2.5.1 The Influence of Assumptions on Literacy Outcomes

Children with ASD are frequently faced with the assumption that they lack the skills to engage with literacy activities and artefacts (Carnahan & Williamson, 2012; Kluth & Chandler-Olcott, 2008; Mirenda, 2003). This assumption can lead to restricted opportunities to participate in literacy experiences from a very early age. In the school years, it may be assumed children with ASD are incapable of learning to read. This assumption may be based on IQ scores as indicated on a cognitive assessment, communication difficulties, or by an inability to demonstrate knowledge and skills in the context of standard classroom activities and assessment tools. Restricted opportunities and inadequate or inappropriate literacy instruction can lead to poor literacy outcomes for children with ASD (Basil & Reyes, 2003; Kluth & Chandler-Olcott, 2008; Koppenhaver & Erickson, 2003; Mirenda, 2003; Mirenda & Erickson, 2000).

2.5.2 Communication Differences

Differences in communication pose the most obvious challenge to literacy learning in terms of a child's ability to demonstrate competence in the expected ways. Many children with ASD are unable to use speech to communicate. Those children who are able to speak often have delayed or atypical speech and expressive language (Noens & Van Berckelaer-Onnes, 2005; Wilkinson, 1998).Young children with ASD may not be able to indicate to caregivers that they wish to engage with books in the same ways that their peers do. A study by Lanter (2009) suggests that despite parental reports of high levels of literacy motivation in children with ASD, only 65% were reported to ask or gesture to their parents to read them a book. Children with ASD often need additional time to process and respond to questions used in verbal discussions. They may also have difficulties comprehending and responding to the typical question formats used in literacy interactions such as shared storybook reading.

Typically children with ASD will find it easier to answer identification questions (e.g. *'what is in the tree*?') than other types of question formats (Lanter et al., 2012).

Social aspects of communication also pose problems for literacy learning and may require adaptations to enable participation. As children progress through formal education, the ability to interact with peers becomes a more important feature of literacy instruction. Children with ASD may find it challenging to participate in pairs or small groups (Kluth & Chandler-Olcott, 2008). Communication differences can make it difficult for children with ASD to demonstrate their literacy knowledge and skills in the expected ways. Different patterns in behaviour and performance pose challenges for teachers trying to make accurate assessments of an individual's abilities, strengths and needs.

In addition to differences in expressive communication, many children with ASD have impaired language comprehension which is an essential component of skilled reading (Cunningham, 1993). Language comprehension difficulties are not unique to children with ASD. They do, however, appear to have an impact on their literacy profiles. Studies consistently show that many children with ASD demonstrate significant difficulties in the area of reading comprehension (Åsberg, Dahlgren, & Dahlgren Sandberg, 2008; Asberg, Kopp, Berg-Kelly, & Gillberg, 2010; Jones et al., 2009; Nation et al., 2006). Aram (1997) suggests that language comprehension difficulties are the underlying cause of reading comprehension difficulties in children with ASD. Children with ASD typically demonstrate strengths in understanding the form of language but have more difficulty understanding language function. Differences in language development such as a propensity for learning nouns over verbs, difficulties with morphological features of language and difficulties with pronouns all impact on children's ability to understand text (Carnahan & Williamson, 2012). Studies suggest that while individuals with ASD may be able to comprehend information, they frequently have difficulties interpreting inferential information (Minshew, Goldstein, & Siegal, 1995; Rumsey & Hamburger, 1988). They experience difficulties integrating information from

multiple sources and rely more heavily on their own knowledge of the world (Koppenhaver, 2010).

Carnahan and Williamson (2012) posit three cognitive processing styles that are common in individuals with ASD which are likely to have a strong influence on the comprehension of written text. These include theory of mind, executive functioning, and central coherence. Differences in cognitive processing for children with ASD in these three areas are thought to contribute to difficulties in inferring information, assuming the perspectives of others, applying relevant knowledge to aid comprehension, integrating new information and assimilating information within text to make sense of the text as a whole. These three difficulties, alongside differences in social communication are thought to influence the way in which children with ASD engage with literacy activities and go some way to explaining the differences in reading comprehension levels that are frequently observed in this population.

2.5.3 Special or Restricted Interests

Restricted interests can negatively impact on the extent of a child's vocabulary and world knowledge. Restricted interests are often viewed as a barrier to literacy learning rather than as a vehicle through which literacy experiences can be expanded (Mirenda, 2003). A child with a severely restricted range of interests may require a high degree of personalisation of literacy materials to enable them to engage and participate in meaningful literacy activities. Using a child's specific interests as a conduit for developing literacy-related knowledge and skills will enable them to be able to write, draw, and communicate about their specific interest and may lead to opportunities to extend their interests and knowledge of the world (Calhoon, 2001; Kluth & Chandler-Olcott, 2008; Mirenda, 2003).

2.5.4 Sensory Challenges

Sensory differences have widely been described in the literature with regards to individuals with ASD (Frith, 2003; Gillberg, 2002; Wing, 1996). Educators have described children who

respond in unusual ways to books such as smelling, touching, or manipulating a book in a specific way. A child may find it difficult to remain in close proximity to other children as is required when sitting on the mat for story time or working in a group for an instructional activity. An acute sense of smell may interfere with the child's ability to concentrate on other aspects of a book or make it impossible for a child to engage with certain materials that have a particular smell (Kluth & Chandler-Olcott, 2008; Mirenda, 2003; Vacca, 2007). Similarly in a learning environment, children may experience sensory overload from the auditory or visual stimuli present making it difficult to attend to literacy activities or instruction (Carnahan & Williamson, 2012). Acknowledging atypical responses or sensory behaviours and seeking to understand how they can be accommodated for in literacy instruction is a vital step in helping a child with ASD to succeed in literacy learning.

2.5.5 Movement Differences

Individuals with ASD frequently experience delays in their motor skills and development (Landa & Garrett-Mayer, 2006) and often display difficulties with movement (Provost, Lopez, & Heimerl, 2007). These difficulties can manifest in a variety of ways such as an unusual gait, excessive movements, repetitive stereotyped movements (e.g. rocking, hand flapping), difficulty imitating movement, or difficulty with physical transitions (National Institute of Mental Health, 2004; Wing, 1996). Movement difficulties can impact on a child's ability to participate in a number of aspects of literacy instruction such as sitting for sustained periods of time, turning pages, tracking print, raising one's hand to indicate a desire to participate or handwriting.

Many children with ASD experience motor planning difficulties (Frith, 2003). Motor planning difficulties involve difficulty planning sequences of coordinated movements as well as difficulty executing motor plans even when they are known (Gowen & Hamilton, 2013). Motor planning difficulties affect children's ability to learn through imitation, and when combined with sensory needs, can make writing challenging. In some cases children may avoid writing

altogether. There are many ways, however, that technology and adaptive equipment can be used to encourage emergent writing skills. Unfortunately children often do not have access to these technologies in a timely manner that enables these skills to be fostered from an early age (Breit-Smith & Justice, 2012)

2.6 Literacy Profiles in Children with ASD

Over the past decade there has been a small body of research focusing on emergent literacy learning in children with ASD. Initial descriptions of emergent literacy skills in this population were the result of two doctoral studies: Rosenberg (2008) and Lanter (2009). These studies involved 32 children with ASD between the ages of 4 and 6 years and 41 children between the ages of 4;0 and 7;11 years respectively. Both groups exhibited wide variability in achievement both across and within component skills of emergent literacy with high levels of impaired oral language skills a salient feature. Assessment of emergent literacy skills was possible for all participants, however, Rosenberg reported an increased likelihood of stopping subtests prematurely in participants with more severe ASD.

As a group, children with ASD perform below average on assessments of emergent literacy skills. Children are more likely to show mastery or a complete lack of skills, rather than a typical distribution across scores that is observed in children without disabilities. Studies consistently report wide heterogeneity in individual abilities. High levels of oral language impairment are common (Lanter, Freeman, & Dove, 2013; Lanter et al., 2012; Rosenberg, 2008). Children with ASD demonstrate relative strengths in print awareness and alphabet knowledge alongside relative weaknesses in oral language skills and print conventions (Lanter et al., 2012; Rosenberg, 2008). Lanter et al. (2013) suggest that for children with ASD there is a '*disassociation of procedural and conceptual print related skills*' (p. 21).

Collectively these studies point to the importance of oral language skills in overall emergent literacy development for children with ASD. Rosenberg (2008) reported a high correlation

between receptive vocabulary and overall emergent literacy for children with ASD (r_s >.7) as measured on the Test of Preschool Early Literacy (Lonigan, Wagner, & Torgesen, 2007) and the Phonological Awareness Literacy Screening for Preschool (Invernizzi, Meier, Swank, & Juel, 2004). Lanter et al. (2012) also acknowledged the importance of oral language for this population. Their study documented strong correlations between language abilities and total emergent literacy scores (ρ =.56, *p* <0.01). Moderate correlations between language abilities and other component skills were found for letter name identification (ρ =.34, *p* =.02), letter sound correspondence (ρ =.42, *p* =.00), environmental print (ρ =.40, *p* = 0.01), print concepts (ρ = 0.35, *p* =.01), emergent writing (ρ =.47, p<.01). These relationships are consistent with findings in typically developing children (National Early Literacy Panel, 2010; National Institute of Child Health and Human Development Early Child Care Research Network, 2005).

2.6.1 Continuity Between Emergent Literacy and Conventional Literacy Profiles

Comparison between emergent literacy studies and those focusing on conventional literacy reveal continuity of trends. Nation et al. (2006) investigated the reading skills of 41 children with ASD ranging in age from 6 to 15 years. In order to include a broad range of participants, clinicians were asked to refer children with any level of measurable language skill. Nine of the 41 participants were unable to demonstrate an ability to read on the assessment tasks used in the study. These children were among the youngest in the study. The results of the remaining 32 participants showed wide heterogeneity of individual reading skills with standard scores ranging from floor to ceiling levels. As a group, mean scores were within the normal range for reading accuracy (word reading and non-word reading) and 1SD below the mean for reading comprehension. Impaired reading comprehension relative to strong decoding skills was the most prevalent profile and this has consistently been reported in other studies (Åsberg et al., 2008; Calhoon, 2001; Mayes & Calhoun, 2003b; Minshew, Goldstein, Taylor, & Siegal, 1994).

As with emergent literacy, vocabulary and oral language comprehension were found to be important, with strong correlations to reading comprehension. The link between oral language impairments and reading difficulties is widely accepted by researchers in the field of literacy (Cain & Oakhill, 2007; Catts & Kamhi, 2005). The identification of strong correlations for vocabulary and oral language skills with other component literacy skills suggests a similar relationship exists for children with ASD. That these relationships are evident in emergent and conventional studies suggests that both vocabulary and oral language play a pivotal role in the attainment of literacy skills for children with ASD irrespective of age and skill level.

2.7 Emergent Literacy Interventions for Children with ASD

Research focusing on effective literacy interventions for children with ASD is in the preliminary stages. To date research has predominantly focused on interventions targeting conventional literacy skills, however there is a small but growing body of research focused on emergent literacy interventions for this population (e.g. Bellon, Ogletree, & Harn, 2000; Koppenhaver & Erickson, 2003; Koppenhaver, Erickson, Harris, et al., 2001; Koppenhaver, Erickson, & Skotko, 2001; Pamparo, 2012; Travers et al., 2011). In order to develop emergent literacy skills, children need access to quality literacy materials, and opportunities to engage with these materials in supported interactions that take place in naturally occurring situations (Sénéchal et al., 2001; Teale & Sulzby, 1986). There is emerging evidence to suggest that these children do indeed benefit from the same materials, experiences and interactions as their peers without ASD.

2.7.1 Environmental Interventions

Children with ASD have been shown to benefit from literacy interventions that increase the quality of literacy materials and experiences in natural learning environments. Koppenhaver and Erickson (2003) investigated the impact of providing access to a print-rich environment and increasing natural learning opportunities for three preschool children with ASD. At the

beginning of the study, none of the children engaged in self-selected literacy activities due to the lack of available materials and tools. The children were allowed access to a small selection of books for a few minutes each day and were given structured writing activities 2-3 times a week. During the intervention phase, the researchers increased natural learning opportunities for emergent literacy. Text was integrated into existing routines, a range of reading and writing materials were introduced and made freely available, and natural learning opportunities were used to talk about literacy materials and events with researchers drawing attention to the form, content, and use of written language.

At the completion of the 5 month intervention phase, all three children were reported to spend 30% or more of their free time engaged in literacy-related activities. The researchers also documented qualitative gains in the children's self-selected and independent book reading, and emergent writing. These findings suggest that children with ASD can benefit from access to the same materials, tools, and adult supports that are known to underpin emergent literacy development for children without disabilities. Encouraging access to literacy rich environments and experiences by sharing information with parents and educators is an important first step in supporting children with ASD to achieve their literacy potential.

2.7.2 Shared Storybook Interventions

Shared storybook reading in the preschool years is known to be beneficial to the development of children's language, vocabulary and communication skills (Mol, Bus, de Jong, & Smeets, 2008; Sénéchal & Cornell, 1993) as well as supporting growth in emergent literacy knowledge (Teale & Sulzby, 1986). The shared experience of looking at a book with a child provides a natural platform for imitating, labelling, and expanding language and vocabulary. In addition to the benefits for children's language, shared storybook reading also supports the development of children's print concept knowledge (Stewart & Lovelace, 2006; Whitehurst & Lonigan, 1998). Through shared storybook reading, young children begin to

understand book conventions, (e.g. how to hold a book) print conventions (e.g. directionality of reading) and print form (e.g. words are made up of letters).

To date there has been limited research investigating the efficacy of shared storybook interventions with young children with ASD. There is tentative evidence to suggest that repeated storybook reading leads to improvements in spontaneous oral language. Bellon et al. (2000) presented a single case study involving a child described as 'high functioning' and may not be applicable to individuals with more complex presentations. Older children with ASD have been found to benefit from storybook based interventions. Colasent & Griffith (1998) investigated the effects of thematic storybook reading with older children with ASD. Thematic storybook reading was an effective strategy for improving the recall of oral narratives and the quality of story writing. Research with other populations with complex communication and learning needs suggests that storybook interventions are beneficial for these populations (Aram, Most, & Mayafit, 2006; DesJardin, Ambrose, & Eisenberg, 2009; Justice, Skibbe, McGinty, Piasta, & Petrill, 2011).

Studies involving girls with Rett Syndrome, a syndrome previously associated with ASD in the DSM-IV (American Psychiatric Association, 1994) demonstrated gains in communication and vocabulary use from storybook based interventions. (Koppenhaver, Erickson, Harris, et al., 2001). Individuals with Rett syndrome experience significant difficulties with communication and learning, and the findings may be applicable to children with ASD. Wide and varied reading is known to make a positive contribution to children's vocabulary and these studies suggest that storybook reading may be beneficial in developing the literacy skills of children with ASD.

2.7.3 Dialogic Reading

Whitehurst et al. (1988) hypothesised that the greatest benefits from shared storybook reading would occur when parents employed techniques that encouraged children's active

participation in storybook reading. Numerous studies have trialled dialogic reading, a style of interactive reading designed to optimise parental input during shared storybook reading. In dialogic reading, adults are trained to use five types of questions that encourage children to talk about the pictures as well as a series of language stimulation prompts. Dialogic reading has been shown to have significant benefits for typically developing young children and children with language delays with gains in vocabulary and mean length of utterance (Arnold, Lonigan, Whitehurst, & Epstein, 1994; Whitehurst, Arnold, et al., 1994; Whitehurst, Epstein, et al., 1994; Whitehurst et al., 1988).

There is emerging evidence to suggest that similar benefits exist for children with ASD. Two recent dissertations have studied the impact of a dialogic style reading interventions on the oral language skills of young children with ASD (Pamparo, 2012; Plattos, 2011). One of these, Pamparo, focused specifically on preschool children with ASD and involved 14 children aged between 3:0 years and 5 years 7 months. Participants were engaged in a dialogic reading intervention 3-4 times per week over the course of the 5 week intervention. Comparison of baseline and post intervention data indicated that gains in book specific vocabulary were greater for dialogic reading than for traditional book reading. Moderate improvements were also observed in the participants' definitional vocabulary knowledge. Researchers also reported qualitative and quantitative improvements in verbal participation and gains in listening comprehension from pre to post test. Although these results have not yet been published, and so must be treated with caution, they suggest that dialogic reading is an intervention that is worthy of further investigation for its potential benefits on the oral language skills of young children with ASD.

2.7.4 Technology Based Interventions

There is a cluster of research investigating the efficacy of computer based literacy interventions with older children with ASD (Basil & Reyes, 2003; Coleman-Martin, Heller, Cihak, & Irvine, 2005; Heimann, Nelson, Tjus, & Gillberg, 1995; Tjus, Heimann, & Nelson,

1998), however until very recently this method of intervention has not been trialed with the preschool population. Travers et al. (2011) conducted a study comparing two instructional conditions for teaching alphabetic skills to preschool children with ASD. The study compared the effects of teacher led group instruction and multimedia computer assisted instruction. Both instructional conditions were effective in developing children's letter name knowledge within a relatively short time frame. Comprehensive assessment of participants' emergent literacy skills was not conducted so it is difficult to know if alphabet knowledge was an area of weakness. Alphabet knowledge is frequently an area of relative strength for children with ASD (Lanter et al., 2012). This makes it difficult to accurately evaluate the value of the two interventions; however the positive results tentatively suggest that preschool children with ASD benefit from explicit alphabet instruction. It is possible that other discrete emergent literacy skills may be amenable to explicit instruction.

2.8 The New Zealand Context

Official New Zealand estimates suggest that 40,000 New Zealanders are affected by ASD, with as many as 8000 of these individuals participating in the early childhood and compulsory education sectors (Ministry of Health and Education, 2008). The shift in policy direction within New Zealand towards inclusive education over the past 20 years (Ministry of Education, 2010b) means the majority of children with ASD are included in mainstream settings. High rates of early childhood participation in New Zealand (Ministry of Education, 2014) mean that it would be reasonable to expect that the majority of children with ASD will have had some experience of early childhood education prior to school entry.

Current educational policy in New Zealand recognises the importance that literacy plays in successful outcomes for children with a strong focus on literacy in the New Zealand Curriculum (Ministry of Education, 2007) and in National Standards (Ministry of Education, 2010a). There is currently a strong emphasis on raising literacy achievement in the compulsory school sector (Ministry of Education, 2007, 2010a) with particular emphasis on

priority learners such as Maori and Pasifika children (Ministry of Education, 2013; Te Tāhuhu o te Mātauranga Ministry of Education, 2013).

Although there are not specific mandates relating to the early childhood sector, the New Zealand early childhood curriculum Te Whāriki, (Ministry of Education, 1996) recognises the importance of literacy development in the preschool years with emergent literacy an integral component of the communication strand. Te Whāriki promotes a socio-cultural perspective which informs emergent literacy practices within the early childhood centre.

> Te Whāriki states that "*the languages and symbols of children's own and other cultures are promoted and protected in an environment where children; develop non-verbal communication skills for a range of purposes, develop verbal communication skills for a range of purposes, experience the stories and symbols (...)of their own and other cultures, and discover and develop different ways to be creative and expressive"* (Ministry of Education, 1996: p. 16).

The flexible nature of Te Whāriki allows teachers to facilitate emergent literacy through activities and interactions that are meaningful and engaging. A holistic perspective is encouraged whereby infants, toddlers and young children engage with literacy in ways that reflect their growing expertise.

A report by Education Review Office (2011a) suggests that emergent literacy teaching and practices vary across centres. High quality teaching and practices were observed in centres where teachers had in-depth knowledge and understanding of emergent literacy and how children's literacy learning developed. Instances of poor quality literacy practices were accompanied by a lack of engagement of the children with literacy. There has been some criticism that the flexible nature of Te Whāriki leads to wide variation in the quality of curriculum and teaching practice (Smith, 2011; Woulfe, 2014). It has been argued that flexibility and the non-prescriptive nature allows teachers and early childhood centres the

freedom to implement the curriculum according to their own interpretation. This is thought to lead to less emphasis on the communication strand and focus on the oral language and emergent literacy skills that provide a strong foundation for success in the school years (Education Review Office, 2013; Smith, 2011).

The challenge facing teachers of children with ASD is the lack of empirical evidence documenting effective teaching strategies and interventions specifically for this population and age group. The New Zealand Autism Spectrum Disorders Guideline (Ministry of Health and Education, 2008) is a wide-ranging guide to evidence based practice for children and adults with ASD. Although the ASD Guideline does not specifically review the evidence base for literacy intervention, a number of the recommendations are pertinent to the provision of literacy instruction for this population. Recommendation 3.2.1.9 states that "*literacy instruction should be provided using multiple instructional strategies and building on the child's special interests*" (p.95). Furthermore the guideline recommends that "*interventions should take place in natural settings, using natural routines and natural consequences*" (p.95). These recommendations guide professionals to provide dynamic literacy instruction that is grounded in the child's natural learning environment and functional to their everyday life. In the absence of a strong evidence base specific to this population, these recommendations align with the philosophy of Te Whāriki and serve to guide teachers and speech language therapists to apply principles of evidenced based interventions in ways that are functional and meaningful to children with ASD.

CHAPTER THREE

Methodology

3.1 Introduction

This chapter outlines the methodological approaches underpinning this research study. It begins by outlining the research questions and explains the rationale for adopting a mixed methods approach over a single quantitative or qualitative approach. The limitations of these approaches are explored. It continues with an explanation of the survey and interview data collection methods and the analytical framework that was used to analyse the qualitative data. Instrumentation and procedures are described in detail. It concludes with a summary of the ethical considerations relating to human participants.

3.2 The Research Questions

Early childhood teachers with experience teaching preschool children with ASD were surveyed and/or interviewed to explore the following research questions:

(1) What are early childhood teachers' beliefs about emergent literacy?

(2) How do preschool children with ASD engage with emergent literacy opportunities and experiences within the early childhood setting?

(3) What strategies and supports do early childhood teachers employ to facilitate emergent literacy development for preschool children with ASD?

(4) What are the challenges inherent in supporting literacy learning for preschool children with ASD?

(5) What are the professional learning and development needs of early childhood teachers of children with ASD?

The focus of each component of the study varied slightly. The survey covered all five research questions, while the interview focused on questions 2, 3, 4, and 5.

3.3 Participant Recruitment

Participants were recruited through early childhood centres in the greater Auckland area. Eligibility criteria included: (i) currently teaching in an early childhood centre and (ii) experience of teaching at least one child with ASD within the past 3 years. Teachers were approached via their centre, or the Auckland Kindergarten Association (AKA). AKA Head teachers were emailed information (see appendix D) about the study via a representative from AKA. Information was also disseminated in one of the weekly newsletters sent out by the AKA. A total of 107 kindergartens receive this newsletter. Eligible teachers were invited to participate in the anonymous online survey and/or interview.

Early childhood centres not linked to AKA in the northern Auckland region were phoned by the researcher to ascertain whether they had had children with ASD attending within the last 3 years. Forty of the 146 centres contacted met this criterion. These centres were emailed information about the study inviting eligible teachers to participate in the anonymous online survey and/or the individual interviews. A follow up letter (see appendix E) was sent one month later to remind them of the study and encourage eligible teachers to consider participating.

3.4 Methodological Approach

Combining research methods can be a useful way of compensating for the limitations of individual research methodologies (Patton, 2002). This approach is commonly referred to as mixed methods research (MMR). MMR designs are a relatively young research methodology, first appearing in the literature around the early 2000's. MMR arose in response to the perceived and real limitations of both quantitative and qualitative research methods when used in isolation (Caruth, 2013).

The limitations of quantitative research include its reliance on the reliability and efficacy of the instruments, constraints on data through the use of tightly controlled instruments, and its de-contextualized nature whereby data is analysed in isolation rather than in the context of the whole. Qualitative research also comes with its own limitations such as selection bias influencing the quality of data, restricted generalization, and greater reliance on the skill and rigor of the researcher (Lund, 2012; Patton, 2002). Overall, quantitative research is thought to lead to greater objectivity and generalizability, while qualitative research lends itself to greater depth of understanding and contextualisation of the research data (Lund, 2012; Patton, 2002).

The combination of quantitative and qualitative research methods in MMR is thought to be conducive to more robust research and offers researchers the opportunity to gain broader insights into the research hypothesis and research questions (Creswell, 2012b). Lund (2012) describes four main advantages of MMR designs: (1) the ability to answer a combination of exploratory and confirmatory questions; (2) the combination of quantitative and qualitative perspectives may enrich results and facilitate analysis; (3) the possibility for increased validity of inferences through the convergence of data across both methods and finally (4) the possibility that divergence of the data has greater potential to generate new theoretical insights.

In the present study, the combination of two data collection methods, a survey and interviews, enabled both quantitative and qualitative data collection through the use of a broader range of question types. MMR design was deemed appropriate to mitigate against the possibility of low data yields. Additionally the combination of survey and interview data was felt to give wider insight into teachers' experiences and practices. It was hoped that the use of both would help to clarify and extend the findings of each, providing a wider range of both mutual and opposing views and experiences.

3.5 Data Collection Methods

As outlined above, two data collection methods were employed in the current study, an online survey and face to face interviews.

3.5.1 Survey methodology

Survey research lends itself to gathering information from a large sample of people. As a research methodology, surveys represent a relatively quick, cost effective way of gathering data. Although surveys are widely used, Ary et al. (2008) point out that crafting a high quality survey requires careful planning and implementation in order to achieve valid and reliable results. Cresswell (2012a) outlines a number of potential problems with survey questions including questions that are unclear, multiple questions within one question, negative wording, inclusion of jargon and unbalanced response options. Instrument quality directly influences the nature and validity of data collected (Denscombe, 2010; Patton, 2002). Problems associated with instrumentation can be minimised through the use of pretesting. Pretesting of a survey prior to administration is an important part of the survey design process and involves peer and target audience evaluation, review, and feedback of the survey questions. This contributes to evaluation of the quality of the instrument and its usability (Dillman, 2007).

The type and format of a survey is important to consider, particularly in relation to the population being sampled. Surveys can be delivered in a variety of ways, all of which are relatively low cost, however each method comes with its own strengths and weaknesses. For example, mail surveys are convenient to administer and non-threatening but have a tendency to be slow and experience low response rates. Directly administered surveys involve the researcher being present and this typically results in high response rates, however this comes at the cost of flexibility both in terms of delivery and the time that the survey can be completed (Dillman, 2007). In the age of the Internet, online surveys present a

new and growing option for survey research (Dillman, 2007).

3.5.2 Online survey methodology

Web based surveys are becoming increasingly common in commercial and research activities (Buchanan & Hvizdak, 2009; Creswell, 2012a; Dillman, 2007). There are a plethora of websites such as SurveyMonkey®, QuestionPro(TM) and SoGoSurvey where researchers can quickly construct and administer an online survey. Online surveys present a time and cost efficient method of data collection, they have the benefit of allowing respondents to complete the survey at any time that is convenient to them, and significantly reduce data input time required prior to analysing the data (Dillman, 2007; Rosenberg, 2008).

Online surveys are well suited to computer literate populations, are convenient for the researcher and have the potential for quicker response times. As with all research methods, this mode is not without weaknesses. These include that participants require access to technology (e.g. computer, Internet), participants' identity may not be able to be verified and difficulties getting sufficient participation from potential participants. Additionally software limitations may constrain question types or response categories (Dillman, 2007).

3.5.3 Interview methodology

Interviews are a simple and widely used method in qualitative research as they enable researchers to explore perspectives by obtaining data directly from an individual (Patton, 2002). Interviews provide an opportunity to understand the meaning that individuals construct as a result of their experiences and context. The benefit of interviews over other types of qualitative methods is the opportunity to explore participants' responses in more detail. This helps to put the data into context, assisting the researcher to make sense of people's behaviour, opinions, beliefs and feelings. Interviews allows us to explore the perspectives of another and in terms of qualitative research, the underlying assumption is that these stories are both meaningful and valuable (Patton, 2002).

The inherent weakness of the interview process is that the quality of the data produced is highly reliant on the skill and technique of the interviewer. Effective technique relies on the interviewer:

- Providing an environment where interviewees will feel at ease and where disruptions can be kept to a minimum
- Getting interviewees permission to record interviews to increase accuracy of the data analysis
- Posing well crafted open-ended questions that keep the interview focused on the key content
- Creating a conversational tone through active listening
- Seeking clarification when the interviewee's response is not fully understood (Denscombe, 2010; Patton, 2002)

It is not only the skill of the interviewer that can influence the data collection, the researcher's own beliefs or assumptions can influence both how they act and respond in an interview situation as well as the interpretation of data. Indeed the very presence of an interviewer can impact on how participants respond, potentially leading to discrepancies between what participants report and the actual reality. Research bias can be difficult to fully exclude in a study, however, it is important for researchers to be aware of its presence and consider how they may have influenced the results (Creswell, 2012b; Patton, 2002).

The advantages of using interviews as a mode of data collection include the opportunity to gain a richer understanding through exploring participants' responses in greater depth and detail. Additionally interviews present a time-efficient way to gather data. The amount of data that can be gathered in an hour long interview surpasses what might be gathered in an observation of a similar length.

3.5.4 Semi structured interviews

A semi structured interview allows the interviewer to gather data in a conversational format through the use of a set of basic predetermined questions that guide the interview. As is typical with most interview formats, these questions tend to be open-ended in nature (Ary, Sorensen, & Walker, 2014; Denscombe, 2010). This confers the interviewee the freedom to respond as they see fit, both in terms of the nature and amount of information that they share (Denscombe, 2010). Additionally, open ended questions typically result in less structured and uniform responses than those obtained through closed questions, leading researchers to gain a more comprehensive understanding of participants' opinions and feelings (Patton, 2002). In contrast to a structured interview format, a semi structured interview gives the researcher more freedom to respond to information as it arises in the interview, potentially gathering a more complete picture of participants' responses.

The use of a question guide in semi structured interviews assists with obtaining consistent information from the interviewees. This standardisation ensures that a complete data set is collected for each participant, allows for comparability of their responses, and permits pretesting or peer review to be employed prior to data collection to ensure validity to the research topic and questions (Patton, 2002). At the same time, the interviewer can modify or deviate from the guide in response to unanticipated responses or issues that are raised during the interview.

As described in the previous section, interviewers need to employ a range of techniques to ensure that high quality data is obtained in a semi structured interview. In addition to the points made above, the interviewer conducting a semi structured interview needs to ensure that:

- Vague and ambiguous language is avoided
- Questions are relevant and linked to the focus of the research

- The conversational tone is used to gain further insight where necessary through the careful use of prompts and probes
- They are able to be flexible and respond to the content of the interviewees' response (Ary et al., 2014; Patton, 2002)

3.6 Instruments

The questions for each of the instruments were developed with reference to a number of sources. These sources included Sénéchal et al.'s, (2001) 'focused view of emergent literacy' and the key components of emergent literacy from the meta-analysis of emergent literacy research conducted by NELP (National Early Literacy Panel, 2004). Content was also drawn from previously published surveys exploring emergent literacy practices with young children with disabilities (Al Otaiba, Lewis, Whalon, Dyrlund, & McKenzie, 2009; Erickson, Clendon, Abraham, Poston, & Van de Carr, 2005; Murphy, Hatton, & Erickson, 2008) and a recent doctoral dissertation exploring the emergent literacy beliefs of preschool teachers in inclusive settings (Rohde, 2011).

3.6.1 Online Survey

The survey instrument was specifically designed and administered using SurveyMonkey® , a web based survey program. As well as cost and time considerations on the part of the researcher, the use of an online survey in this study was felt to be convenient to participants.

The survey instrument (see Appendix F) included 38 questions. These were a mix of quantitative and open ended questions. The format for the questions varied and included Likert scale ratings (*n* = 5), forced choice responses (*n* = 10), multiple choice responses (*n* = 9) and open ended responses (*n* = 14). The survey was divided into 8 sections: (1) centre information; (2) professional learning and development; (3) beliefs about emergent literacy; (4) approach to emergent literacy instruction in the centre; (5) background information on the

child with ASD; (6) the child's engagement with emergent literacy; (7) competencies; and (8) challenges.

Sections (1) and (2) contained a series of questions pertaining to the respondent's current early childhood centre as well as their work experience, training and professional learning. Sections (3) and (4) contained questions designed to capture information about the respondent's concept of emergent literacy, teaching philosophy and the literacy materials or opportunities available in their current centre. Respondents were asked to rate a series of statements about the teaching of emergent literacy using a five point scale (strongly agree, agree, neutral, disagree, strongly disagree) to indicate their level of agreement.

To complete section (5), respondents were asked to think about a child they were either currently teaching or had taught recently with a diagnosis of ASD. Background data was collected about these children including: diagnosis if known, supports received from outside agencies and mode of communication. Where respondents identified that they were currently teaching a child with ASD, they were also asked about the child's current individual plan (IP).

The final three sections focused more specifically on emergent literacy and children with ASD. Section (6) included a range of questions exploring the child's engagement with emergent literacy and the strategies used by the respondents to support this. Section (7) required respondents to rate how competent they felt teaching specific components of emergent literacy using a scale of 1 - 4 (1 = no experience, 2 = novice, 3 = competent, 4 = highly competent). The final section, (8), asked respondents to consider the challenges they faced as teachers supporting emergent literacy for children with ASD, the strategies that they felt most effective for this population, and the types of support and training that would facilitate this work.

As is common practice in similar studies (e.g. Murphy et al., 2008; Rohde, 2011), a draft copy of the survey was sent to two experts in the literacy and/or ASD fields. The experts were asked to review and give feedback on the survey content in relation to the research questions. This draft survey instrument was then piloted with two independent teachers, again reflecting standard practice in similar studies (e.g. Al Otaiba et al., 2009; Sutherland, Gillon, & Yoder, 2005). The teachers were asked to complete the survey and provide feedback on their overall impression and to comment on the relevance and comprehensibility of the questions. This feedback was incorporated into the final instrument and included rewording of two questions to help improve their clarity.

3.6.2 Semi Structured Interview

For the semi structured interview, an interview guide consisting of 15 questions was prepared (see Appendix G). The content sources for the 15 questions were the same as those outlined in Chapter 3.6. The questions were designed to elicit similar information to the survey along with some background information to give a context to participants' responses. There was particular emphasis on research questions 2, 3, and 4 in the interview questions as it was felt that these were the areas where the opportunity to explore participants' responses in detail would help elucidate the survey data.

Prior to conducting the interviews, the interview guide was discussed with a supervisor and input sought from two experts in the literacy and/or ASD fields. The experts were asked to review and give feedback on the interview guide in relation to the research questions.

3.7 Procedures

Participants were invited to participate in the study via the procedures outlined above in the recruitment section. Participants could participate in one or both components of the study. Email and written communication about the study contained a URL link to the online survey hosted on the SurveyMonkey® website. Survey participants were advised that the online

survey would take 30 minutes to complete at a time that was convenient to them. Due to the anonymous nature of the survey, participants were unable to exit the survey and complete at a later time. To help mitigate against data validity concerns related to eligibility, a series of questions at the start of the survey were used to screen participants. Access to the remaining part of the survey was based on respondents' answers to these questions.

Participants interested in completing the interview component of the study were asked to contact the researcher by email or phone. Arrangements were made to complete the interview in person at a time and location that was convenient. Interview participants were advised that the interview would take a maximum of 60 minutes.

3.7.1 Digital Recording and Transcription

Each interview was digitally recorded using a Sony IC Recorder (model ICD PX720). The recorder was placed on the table between the interviewer and interviewee. Recordings were downloaded onto a desktop computer for analysis. Digital recordings of the interviews were transcribed by a third party with experience in interview transcription.

3.7.2 Member Checking

A copy of the transcription was sent to the participant for verification of accuracy. Participants received an electronic and hard copy form of the transcription. They were asked to read and verify the accuracy of the transcription and amend any errors. Participants were free to request that specific information be omitted from the study. Any amendments in the returned transcriptions were made by the researcher and the final copy resent for verification. At this point, participants were asked to sign a transcript release authority form (see Appendix C) authorising the use of their interview transcript in the study.

3.8 Data Analysis Framework

Although both survey and interview research can be conducted in a myriad of ways, there

are well established processes through which researchers collate, analyse, and interpret the qualitative data. The first step involves organising the data into a format that aids analysis. Survey data may already be in a format that is conducive to analysis, or it may need to be entered into a database. Interview recordings are transcribed and if necessary uploaded into an appropriate qualitative analysis software package. Once the data has been collated, the researcher reads through each interview, survey, or set of survey responses to establish a sense of the data as a whole. The next step involves coding or assigning categories to the data. This can be done manually or within a software data analysis package (Creswell, 2012a).

Coding of the data helps to identify patterns, themes, and unique responses within the data and the researcher must carefully consider the types of codes in relation to their research questions. Coding systems can either be deductive or inductive. Deductive coding is constrained by a predetermined framework, whereas inductive coding is unconstrained and grows out of the data set (Patton, 2002).

3.8.1 Data Analysis Procedures

All completed survey data was extracted from SurveyMonkey® and imported into a specifically designed Microsoft Excel2007™ spreadsheet. In keeping with the descriptive nature of this study, a descriptive analysis of the data from each section of the survey was conducted. The data from all constrained questions was analysed through the use of descriptive statistics. Due to the small size of the study, these were predominantly reported as frequency counts. All responses from free field questions (ie. participants' written responses) in sections (3), (4), (6) and (8) were read through to gain a sense of the data as a whole. The responses for each question were then re-read and coded using a process of inductive analysis (Patton, 2002) to look for themes, patterns and categories within the data set for each question.

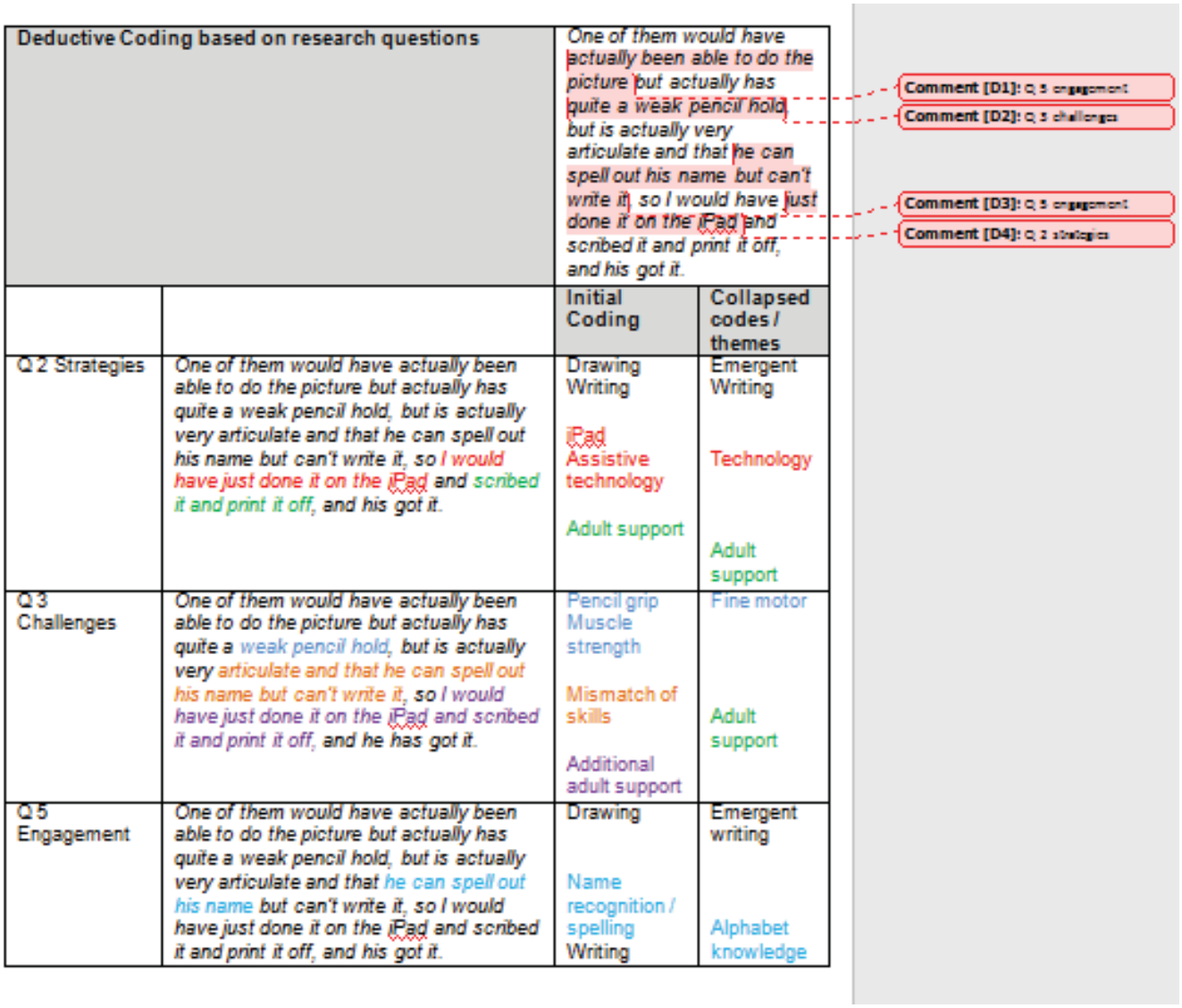
A preliminary exploratory analysis of the interview data was conducted. Each interview transcription was read through in its entirety to gain a sense of the interview as a whole. The transcripts were then re-read and coded using a mixture of deductive and inductive analysis (Patton, 2002). In this instance deductive codes were based on the research questions. Each interview was read through with meaningful units of text coded according to research questions 2 through 6. Coding was performed using the Microsoft Word2007™ 'Insert Comment' review function as described by Chenail (2012).

Figure 2 illustrates the coding process used in the data analysis process. Where a participant's response related to more than one of the research questions, all of the relevant codes were attached. All data that did not relate to the research questions was extracted and placed in a separate document. This data contained important information relating to the context and settings which the participants were describing, as well as background information about each participant. The data relating to each research question was then collated and further analysed using inductive coding. Using a thematic approach this involved looking at each research question individually, re-reading through the data and labelling individual units of text with codes based on its overall content. The data was then organised into these codes and analysed for patterns and commonalities that could be collapsed into themes (Creswell, 2012a). Figure 2 provides an illustration of this process.

3.8.2 Triangulation

Triangulation forms an important part of the analysis and interpretation phase of research and serves to strengthen the study through the combination of methods. This can take the form of employing multiple methods of data collection, data sources, or research approaches (Creswell, 2012a; Patton, 2002). Studies that employ only one method are more vulnerable to the inherent weaknesses associated with each. Ideally triangulation should be an integral part of all research but depending on the nature of the study, it can come at a considerable

Figure 2: Example of Coding and Data Analysis Process



Deductive Coding based on research questions		One of them would have actually been able to do the picture but actually has quite a weak pencil hold, but is actually very articulate and that he can spell out his name but can't write it, so I would have just done it on the iPad and scribed it and print it off, and his got it.	
		Initial Coding	Collapsed codes / themes
Q 2 Strategies	One of them would have actually been able to do the picture but actually has quite a weak pencil hold, but is actually very articulate and that he can spell out his name but can't write it, so I would have just done it on the iPad and scribed it and print it off, and his got it.	Drawing Writing iPad Assistive technology Adult support	Emergent Writing Technology Adult support
Q 3 Challenges	One of them would have actually been able to do the picture but actually has quite a weak pencil hold, but is actually very articulate and that he can spell out his name but can't write it, so I would have just done it on the iPad and scribed it and print it off, and he has got it.	Pencil grip Muscle strength Mismatch of skills Additional adult support	Fine motor Adult support
Q 5 Engagement	One of them would have actually been able to do the picture but actually has quite a weak pencil hold, but is actually very articulate and that he can spell out his name but can't write it, so I would have just done it on the iPad and scribed it and print it off, and his got it.	Drawing Name recognition / spelling Writing	Emergent writing Alphabet knowledge

cost and this will ultimately impact on the extent to which it can be incorporated (Patton, 2002). The purpose of triangulation is to test for consistency. Exploring the presence of consistencies or inconsistencies offers an opportunity to gain further insight into the relationships between the inquiry approach and the phenomenon under study. In the present study data, pertaining to research questions 2, 3, 4, and 5 was triangulated by comparing the responses from the two data sets. Cross tabs between participants' responses to different questions and their biographical data were also conducted to analyse for patterns and discrepancies in the data.

3.9 Ethical Considerations

Quality research is founded on sound ethical principles. Researchers who employ ethical practices increase the trustworthiness of their research by being honest about the aims and limitations of the research (Denscombe, 2010). Ethical approval for this study was obtained from the Massey University's Human Ethics Committee (see appendix H). This application outlined all the procedures and ethical considerations for the study. Additional ethical approval was sought and granted by the Northern Kindergarten Association and Auckland Kindergarten Association. These organisations have their own procedures for approving research that involves their staff. Seeking their approval was necessary to ensure that teachers from a range of early childhood facilities were included in the study. This study involved gathering data that related to children, therefore, careful consideration was given to the ethical considerations of research involving young people and vulnerable populations.

3.9.1 Informed Consent

There are a number of ways that researchers can engage in ethical practice, including protecting participants from harm and ensuring that they gain informed consent from participants. Informed consent requires that sufficient information is provided to potential participants, which enables them to make an informed decision about their participation. This extends to making participants aware that they can withdraw this consent at anytime (Creswell, 2012b; Denscombe, 2010). In order to satisfy informed consent, a detailed Information Sheet (see Appendix A) was supplied to all potential participants outlining: (a) the purpose and procedures of the study, (b) the extent of involvement, (c) their rights and (d) information on how to withdraw from the study. Survey participants' consent was assumed by their participation and completion of the survey, this was signalled at the start of the survey.

Prior to commencing each interview, participants were invited to ask any questions they had about the study. They were then asked to sign an Informed Consent document (see

Appendix B) signalling their consent to participate in the study under the conditions described. At this time participants were informed that they would have the opportunity to read and amend the written transcript of their interview. Once they had reviewed the transcript, they were asked to complete a Transcript Authority Release Form (see Appendix C) authorising the use of the transcript in the research study.

3.9.2 Confidentiality

Alongside informed consent, issues of confidentiality are also paramount. (Cohen, Manion, & Morrison, 2013; Creswell, 2012b; Patton, 2002). While anonymity can be easily achieved in large scale research studies through the use of coding systems, it can be more difficult to safeguard participants' identities in smaller scale research or where extensive detailed information is being collected about a person or setting.

Confidentiality was addressed through the use of anonymity in the survey which did not require participants to reveal any personal information about themselves or the children with ASD that they had taught. For the interview participants, confidentiality was handled through the deletion of identifiers (Cohen et al., 2013) to ensure that links could not be made between participants' responses and their identity (Creswell, 2012a). These participants were assigned a number according to the component of the study that they had participated in, for example, S1 for survey participant one, I10 for interview participant ten. In the instances where teachers revealed the names of individual children they had taught, pseudonyms were used to protect the child's identity.

3.9.3 Compensation

Researchers must also consider issues of compensation and the extent to which the any compensation my influence their results. In today's busy society, compensation is increasingly common as research plays a greater role in commercial activities as well as in the traditional domain of academic research (Grant & Sugarman, 2004).

Participation in the interview involved a time commitment and potentially incurred costs for participants travelling to the interview. Interview participants were compensated for their time with a $25 voucher as approved by the MUHEC. Information pertaining to the compensation was outlined at the end of the information sheet (see Appendix A)

3.10 Conclusion

The methodological considerations outlined here provide justification for the procedures and tools employed in this study. As this study involved the sharing of information about young children, careful consideration was given to ethical issues to ensure that young children's privacy was not compromised. The mixed methods approach was an ideal choice for this study as it allowed for an in depth examination of the teacher's beliefs, experiences and opinions in relation to the research questions identified.

CHAPTER FOUR

Results

4.0 Introduction

The purpose of this study was to explore the ways in which preschool children with ASD engage in emergent literacy opportunities, how early childhood teachers support their emergent literacy development, and the inherent challenges in facilitating emergent literacy learning for young children with ASD in the early childhood setting. Survey and interview results are presented separately. Descriptive statistics are provided for each component of the study followed by the results addressing each of the research questions. Interpretation and discussion of the main findings are explored in Chapter 5.

4.1 Survey Results

Twenty one early childhood teachers participated in the online survey. Five of the teachers did not complete the survey in its entirety. Their data was excluded from the study, resulting in 16 participants.

4.1.2 Centre Information

Table 1 outlines the participants' experience, qualifications and centre demographics. The majority of teachers (*n* = 10) were employed in private daycare / preschool facilities. This was followed by public kindergarten (*n* = 4) and private sessional kindergartens (*n* = 2). All teachers reported having at least three years of teaching experience and the majority (*n* = 9) reported having more than 10 years of experience. A range of class sizes were reported. The majority of participants reported having a class size of between 31-40 children (*n* = 9). Small class sizes of 11-20 children was the least commonly reported (*n* = 1). The remaining teachers reported class sizes of 21-30 (*n* = 3) and 41-50 (*n* = 3).

Table 1: Background Information of Survey Participants							
Participant ID	**Facility**	**Number of children**	**Age Range of Children**	**Qualifications**	**Years teaching experience**	**Number of children with ASD taught**	**Recent experience teaching child with ASD**
Teacher S1	Daycare / Preschool	31-40	2 - 6 years	Bachelor of Education (ECE)	6 - 10 years	3 - 5	Current
Teacher S2	Daycare / Preschool	31-40	3 - 5 years	No teaching qualification - currently training	3 - 5 years	2	Current
Teacher S3	Daycare / Preschool	31-40	3-5years	Diploma of Teaching (ECE)	10+ years	3 - 5	2012
Teacher S4	Daycare / Preschool	31-40	3 - 5 years	Bachelor of Arts with Honours	10+ years	More than 10	Current
Teacher S5	Daycare / Preschool	21-30	0 to 5	Diploma of Teaching (ECE)	10+ years	3 - 5	Current
Teacher S6	Daycare / Preschool	31-40	3months - 2years	Bachelor of Teaching (ECE)	3 - 5 years	First experience	Within last 8 months
Teacher S7	Daycare / Preschool	41-50	2 to 5 years	Bachelor of Education (ECE)	10+ years	More than 10	Current
Teacher S8	Daycare / Preschool	31-40	3 1/2 - 5 years	Bachelor of Education (ECE)	6 - 10 years	3 - 5	Within last 8 months
Teacher S9	Daycare / Preschool	21-30	3-5 years	Bachelor of Education (ECE)	3 - 5 years	2	2012
Teacher S10	Private (sessional) Kindergarten or Preschool	21-30	2 1/2 to 5 ys	Bachelor of Education (ECE)	6 - 10 years	3 - 5	Current

Teacher S11	Daycare / Preschool	11-20	4-5 year olds	Bachelor of Education (ECE)	3 - 5 years	2	Current
Teacher S12	Public Kindergarten	31-40	3 - 5 years	Diploma of Teaching (ECE)	10+ years	More than 10	Current
Teacher S13	Public Kindergarten	41-50	4 – 5 years	Diploma of Teaching (ECE)	10+ years	More than 10	Current
Teacher S14	Public Kindergarten	31-40	3 – 5 years	Bachelor of Education (ECE)	10+ years	6 - 10	Current
Teacher S15	Private (sessional) Kindergarten or Preschool	31-40	3 and 4 year olds	Bachelor of Education (ECE)	10+ years	3 - 5	Current
Teacher S16	Public Kindergarten	41-50	3-5 years	Bachelor of Education (ECE) Graduate Diploma of Teaching (ECE)	10+ years	More than 10	Current

4.1.3 Child Information

Teachers were asked a series of questions about a child with ASD that they were currently teaching or had taught recently. The most commonly reported diagnosis for this child was autism (*n* = 12) followed by ASD (*n* = 4). Teachers reported that the children used a variety of modes of communication. The majority of children were reported to use more than one mode of communication (*n* = 13). Gesture was the most commonly reported mode (*n* = 11), followed by speech (*n* = 10). Other modes were less common and included sign language, either New Zealand sign or Makaton (*n* = 3), Picture Exchange Communication System (*n* = 2), choice boards (*n* = 2), a symbol book (*n* = 1) and an augmentative or alternative communication device (*n* = 1).

4.1.4 Support from External Agencies

All 16 of the children received some professional or paraprofessional support from the Ministry of Education. Fifteen children received support from an early intervention teacher. Thirteen children had input from a speech language therapist. Two of these children also accessed private speech therapy input. Ten children received individual support from an education support worker. Six children received occupational therapy support from their local child development service. One of these children also accessed input from a private occupational therapist.

4.1.5 Individual Plan Information

All of the 12 teachers currently teaching a child with ASD reported that the child had an IP in place. Table 2 details the number of children having IP goals in the different skill areas. Eleven of the 12 teachers identified the areas currently targeted in the child's IP. Equal numbers of children were reported having goals in social interaction and toileting (*n* = 9). Communication was the next most common target area (*n* = 7), closely followed by behaviour (*n* = 5). Only one child had emergent literacy specific goals as part of their current IP.

Table 2 Targets of Current Individual Plan Goals	
Social Interaction	9
Toileting	9
Communication	8
Behaviour	5
Understanding Language	4
Play Skills	4
Physical Skills	2
Other	2
Emergent reading skills	1

The sections below describe the survey results as they relate to each of the six research questions.

4.2 Early Childhood Teachers' Beliefs about Emergent Literacy?

Teachers' beliefs about emergent literacy are strongly linked with their teaching intentions and classroom practices (Fang, 1996). Previous studies have found variability in teachers' knowledge and beliefs about emergent literacy (Hindman & Wasik, 2011) and that teachers with greater levels of knowledge tend to utilise superior teaching practices (Wasik & Hindman, 2011). Teachers participating in the survey gave a wide range of responses to open ended questions about their understanding of emergent literacy. A number of teachers described very discrete skills, for example, "*interest in books, symbols, letters*" or "*being able to use writing tools and being able to recognize print*". A number of the teachers referred more generally to oral language and communication skills either in isolation or as the underlying basis for the development of literacy abilities, for example, *"awareness of communication for multiple methods"* and "*learning to talk - children learning to recognise that shapes and symbols can represent objects and can tell stories".*

One teacher described how emergent literacy develops rather than describing the concept,

> *"Immersing children in a literacy rich environment by reading stories, explaining what you are doing, pointing out and identifying things around you, engaging in meaningful conversations, modelling 'how to write and the purpose of writing' (e.g. writing a shopping list, recording the child's voice in a learning story, writing a letter or postcard), widening the child's vocabulary and understanding of how things work, how to ask and answer questions, how to hold a pencil correctly and form the letters of the alphabet using Casey the Caterpillar from the onset of showing an interest in writing (for example their name)".*

This description reflects a comprehensive understanding of emergent literacy including both reading and writing. Four teachers indicated that emergent literacy pertained to the literacy related knowledge and skills that precede formal education, for example, describing emergent literacy as "*the reading and writing knowledge / skills that children develop before they actually learn to read and write*". There were no marked differences between these five teachers and the other teachers in the group, except that they all had less than 10 years of teaching experience.

The majority of teachers indicated disagreement with three of the four emergent literacy belief statements, Table 3 details teachers' responses to each of the four statements. Strongly disagree was the most common response (*n* = 9) to the statement that 'direct instruction in emergent literacy should not begin until children start school' followed by disagree (*n* = 4). Similarly high numbers either strongly disagreed (*n* = 8) or disagreed (*n* = 6) with the notion that children with ASD are not ready for emergent literacy instruction prior to starting school. The majority of teachers also either strongly disagreed (*n* = 6) or *disagreed* (*n* = 8) that strong speech and language skills are a prerequisite for commencing emergent literacy learning. The idea that children do better when specific emergent literacy

skills are explicitly taught elicited more varied responses. The most common response was agree (*n* = 7) followed by neutral (*n* = 5), strongly disagree (*n* = 2), disagree (*n* = 1) and strongly agree (*n* = 1). Analysis of teachers' background and experience revealed that the three teachers who disagreed or strongly disagreed with this statement were kindergarten teachers. Although all ranges of experiences were represented across the spectrum of responses, teachers with 10+ years teaching experience were more likely to report agreement with this statement.

Table 3
Survey Respondents' Emergent Literacy Beliefs

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Children will best learn emergent literacy skills when specific skills (e.g. alphabet letter or rhyming) are targeted for instruction	2	1	5	7	1
Children should have strong speech and language skills in place before they are introduced to emergent literacy learning	6	8	1	0	1
Children with ASD are not ready for emergent literacy instruction in preschool	8	6	2	0	0
Direct instruction in emergent literacy should not begin until children start school	9	4	2	1	0

4.2.1 Importance Placed on Components of Emergent Literacy

The next section of the survey looked at teacher perceptions of the importance of the components of emergent literacy. These components were drawn from each of the three constructs of the 'focused view of emergent literacy' (Sénéchal et al., 2001). They have all been shown to have moderate to large predictive relationships with later literacy abilities namely decoding, reading comprehension and / or spelling (National Early Literacy Panel, 2010).

Table 4 details the importance that teachers placed on various components of emergent literacy. Teachers demonstrated high levels of agreement in the importance they placed on three of the five components. A large vocabulary was the most common component to be ranked as *highly important* (*n* = 4*)* followed by phonological awareness (*n* = *2)* and the ability to name letters (*n* = 1). The majority of teachers rated strong phonological awareness (*n* = 10), letter naming (*n* = 10) and strong print concept knowledge (*n* = 9) as *important.* Less importance was given to children's 'ability to write letters' with the majority of teachers (*n* = 11) ranking this component as *somewhat important*. Three teachers ranked this writing component as *important* (*n* = 3) and two teachers ranked it as *not important* (*n* = 2). These two teachers both had more than 10 years experience, worked in daycares and reported having professional learning and development (PL&D) in emergent literacy. There does not appear to be any pattern to the teachers who rated writing as important, with a range of centres, levels of experience and PL&D reported.

Table 4

Importance Placed on Various Components of Emergent Literacy

	Not at all important	**Not important**	**Somewhat important**	**Important**	**Most important**
A large vocabulary	0	1	4	7	4
Strong phonological awareness skills	0	1	3	10	2
Ability to name letters of the alphabet	0	1	4	10	1
Strong concept of print knowledge	0	0	7	9	0
Ability to write letters	0	2	11	3	0

4.2.2 Availability of Emergent Literacy Artefacts

Children's emergent literacy development primarily occurs as a result of incidental learning (Teale & Sulzby, 1986). This learning occurs in environments where literacy learning is embedded in natural learning opportunities in print rich environment. Print rich environments are those were a wide range of literacy materials and artefacts are available and print is

used for a variety of functions and purposes (Justice, 2006; Justice & Kaderavek, 2004). In order to explore the nature of the print environment in the centres where the teachers worked, they were asked about the availability of various literacy artefacts in their centres.

All teachers reported having a wide range of both reading and writing materials and tools available within their centres. Children's pictures books (*n* = 16), printed signs (*n* = 15) and posters (*n* = 14) were the most commonly reported types of reading material available. The least common types of reading material were TV guides (*n* = 1), eBooks (*n* = 6) and children's magazines (*n* = 6). The number of different types of reading materials available ranged from 5 - 11 (*M* = 8, *SD* = 2.10). Chalkboards / white boards, pencil and paper, crayons / felt tip pens, and painting were the most commonly reported (*n* = 16) writing materials available. Keyboards and computers were the least common (*n* = 11). Overall teachers reported a lower number of different types of writing materials compared to reading materials, with between 5 - 7 different types per centre (mean = 6, SD = 0.96).

4.3 Engagement with Emergent Literacy

Teachers reported various levels of engagement with different emergent literacy and oral language activities within the early childhood centre. Table 5 outlines the frequency of engagement in different activities. The most common activities for children with ASD to engage in were mat time, reading or browsing a book of their choice and whole class storybook reading. The least common activities for children to engage in were oral language activities and small group storybook reading.

Table 5

Frequency of Engagement in Emergent Literacy Activities for Children with ASD

	At least once a day	About 3 times per week	At least once a week	Occasionally (not on a regular basis	Hardly ever
Mat time	9	3	0	2	2
Reading or browsing a book of their own choice	8	2	1	2	3
Whole class storybook reading	7	4	0	2	3
Letter based or alphabet activities	7	2	1	0	5
Small group storybook reading	6	3	0	4	3
Whole class oral language activities	5	0	1	3	5
Drawing or writing activities	5	3	3	1	4
Small group oral language activities	3	0	1	5	6

4.4 Teaching Practices and Strategies

There is a limited evidence base to guide teachers in supporting literacy learning for children with ASD. The purpose of this section of the survey was exploratory in nature and sought to identify current practices and investigate how these relate to current best practice in emergent literacy. Fifteen teachers responded to the question asking what emergent literacy teaching practices they felt were most effective for children with ASD. Teachers gave varied responses, however, there were some commonalities. These included getting to know and following the child's interests (*n* = 3), utilising visual supports (*n* = 3), developing and supporting the child's communication skills (*n* = 3) and reading to them (*n* = 2). One teacher indicated that being responsive to the individual child's needs by "*working with the child, getting to really know them in order to support them effectively"* as well as "*being patient"* and "*moving slowly and consistently at the child's pace".* Developing gross motor skills, engaging outside support, having pictures they can relate to, and name recognition also featured in teachers' responses (each *n* = 1). One teacher indicated that they didn't perceive

any differences between supporting a child with ASD as compared to a child without ASD indicating that "*lots of opportunities to explore books, print"* was a priority for these children.

Teachers described a wide variety of strategies that they employed to encourage the development of various components of emergent literacy. All 16 teachers responded with strategies for shared storybook reading, alphabet knowledge, oral language and independent book exploration. Fifteen teachers responded with strategies for print concepts and 14 teachers with strategies for vocabulary development and writing. The question which asked about strategies for phonological awareness was the least answered question with 12 teachers responding. The following sections describe the strategies reported in each of these areas.

4.4.1 Shared Storybook Reading

Shared storybook reading is an important vehicle for developing children's vocabulary and oral language skills (Mol et al., 2008; Sénéchal & Cornell, 1993) as well as their print concept knowledge (Stewart & Lovelace, 2006; Whitehurst & Lonigan, 1998). All 16 teachers responded with strategies they employed to support children's engagement in shared book reading. Three teachers reported having children with ASD who demonstrated a natural interest in books which enabled teachers to engage them in shared storybook reading. Using the child's special interests was the most commonly cited strategy (*n* = 8). Teachers reported *"choosing books that specifically interest him"* and using books that *"they are familiar with"* at mat times as a way to encourage participation.

Two teachers reported allowing the child to choose the book for mat time to encourage their participation in group storybook reading. Three teachers reported generally encouraging participation in mat times and large group storybook reading. They talked about the need to personally invite and encourage the child to join mat times and indicated the need to persevere, for example, "*as for mat time, it took a little while for him to sit and respond, but*

we consistently encouraged him and now he loves mat times and group reading situations". Having adult support to either engage in the shared storybook reading or withdraw when needed was identified by two teachers.

4.4.2 Independent Book Exploration

Access and availability was the most commonly cited strategy with seven teachers describing an environment where books were available and accessible to the child. Two teachers, specifically described having materials available at eye level. Two teachers mentioned making a space available for the child to independently explore books. One teacher described specifically choosing books that were able to *"handle rough treatment"* as the child would often explore books in a variety of non-conventional ways, for example, by mouthing or throwing them.

Utilising a child's special interest or a current fascination was cited by four teachers as a strategy employed to encourage the child's independent book exploration. The use of direct adult support was reported by three teachers, either by offering 1:1 opportunities to look at a book with an adult or having times of the day where all children were encouraged to look through books. Two teachers described working with children who freely explored books. One of these children was described as loving books and often needing *"encouragement to try other activities"*. One teacher described meeting a child's sensory needs by providing an area with soft snugly blankets and cushions in the library area where they could also access books and independent exploration could be encouraged.

4.4.3 Phonological Awareness

Phonological awareness is an important precursor skills for the development of children's later reading and spelling abilities (Bryant et al., 1990; Gillon, 2004; Gillon & Dodd, 1994; Stanovich et al., 1984; Wagner & Torgesen, 1987). Two of the twelve teachers who responded indicated that they felt the child that they were working with was not yet ready for

instruction in phonological awareness. Two of the remaining 10 teachers, gave general answers relating to placing emphasis on words, rather than specific strategies to develop phonological awareness skills. Of the remaining eight respondents, two reported having a structured programme (e.g. Letter Land or Jolly Phonics) that was used as a centre wide approach to developing children's phonological awareness skills. Four teachers reported using songs, music and rhymes. Two teachers specifically discussed segmenting words into their component phonemes, for example,

> "*One of our teachers has phonic training and she sounds words out to all the children - he listens and is picking up how to sound out words. She also uses phonics a lot when talking to him - sounding out the words for him."*

4.4.4 Alphabet Knowledge

Alphabet knowledge plays an important role in children's later development of decoding and spelling skills (National Early Literacy Panel, 2010). The literature suggests that the most effective strategies for developing children's alphabet knowledge include exposure to a print rich environment where alphabet teaching is incorporated into natural learning opportunities (Neuman & Roskos, 1990), opportunities to write (Welsch, Sullivan, & Justice, 2003), and reading storybooks that include explicit letter identification (Justice & Ezell, 2002). Two of the teachers responded that this was not an area specifically targeted. One indicated that they had not yet begun to target alphabet knowledge with the child. This teacher had also indicated that the child was not ready for phonological awareness instruction and had rated both these areas as being '*somewhat important'* to children's later literacy success. Another teacher indicated that the child was not really interested in the alphabet: "*The child is encouraged to participate in activities but it is not an interest and often has limited success*".

The most commonly reported strategies were singing songs and using music (*n* = 5), encouraging participation in existing alphabet activities (*n* = 5) and name recognition activities (*n* = 5). Teachers reported encouraging children to participate in activities that were

part of the centre routines such as ‘letter of the week at mat time’ and finding their name to put up on the wall as part of their signing in routine. Talking about the letters within a child's name and writing the child's name on work they produced, were the primary ways that teachers used the children's names to develop alphabet knowledge. Three teachers reported talking about letters during naturally occurring interactions with the child either through their engagement with letters (e.g. magnetic alphabet, or when writing) or talking about the letter that an object starts with.

4.4.5 Print Concepts

Understanding the rules that govern print and it’s various forms and functions support children to make the connections between oral and written language (Clay, 2000). Although the connections between concept about print knowledge and later literacy achievements are not as strongly correlated as other variables (National Early Literacy Panel, 2010), this knowledge underpins formal literacy instruction and helps children navigate the expectations and print based vocabulary they encounter at school. Typically as a group children with ASD exhibit relative strengths in the procedural aspects of print awareness compared with other components of emergent literacy (Lanter et al., 2013).

Two of the 15 teachers who responded with strategies for developing print concepts indicated that the child they worked with had little or no interest in print concepts. One of these children was described as being 4 years 5 months and was not included in the transition to school class but did have “*a writing folder with pencil skills printouts and writing his name templates*”. The most commonly cited strategy was the use of fine motor activities such as access to painting, drawing and tracing over sand paper letters (*n* = 6). Two of these six teachers also mentioned letter-based play linked back to the child’s name. Exposure to print rich environments was the next most common strategy (*n* = 4) followed by the use of name tags and name labels on work to draw children’s attention to the function of print (*n* = 3) and pointing to print either during book reading or words that were found around the

centre (*n* = 3). One teacher described looking through magazines with the child who would point to words, the teacher would say the word and the child would repeat what had been said.

4.4.6 Oral Language

Oral language skills play a critical role in the development of children's reading abilities (Catts et al., 2002; Catts et al., 1999; Storch & Whitehurst, 2002) and there is evidence to suggest that failure to remediate oral language deficits in the preschool years leads to ongoing difficulties in language and literacy as children progress through school (Blachowicz & Fisher, 2008; Ministry of Education, 2009). All 16 teachers responded with a range of strategies that they employed to support oral language skills. The most commonly cited strategy was modelling language during everyday interactions and routines to talk about what was happening or what the child was doing (*n* = 10). Following the child's lead was the next most commonly cited strategy (*n* = 6). Five teachers cited repetition, either of their language models, for example, "*repeating ourselves over and over"* or the child's utterances, for example, "*repeating back slowly what he is saying"*. Less frequently cited strategies included labelling items (*n* = 3) and using singing (*n* = 2). Two teachers specifically mentioned the use of strategies that had been advised by a speech language therapist for the particular child.

4.4.7 Vocabulary Development

The literature points to the pivotal role of vocabulary knowledge in supporting the beginning stages of reading and later reading comprehension (Cunningham & Stanovich, 1997; Nagy, 2005). Fourteen teachers responded with strategies employed to support vocabulary development. Nine teachers described language stimulation strategies as the primary means through which they developed children's vocabulary knowledge. Examples of the strategies included "*talking about what we are currently doing", "I like to talk a lot using all sorts of vocabulary but simple"* and *"labelling items that he is playing with".* One teacher described

targeting specific vocabulary either identified by the child's parents or vocabulary that staff felt was relevant to the child's interests at the centre. Three teachers reported using books and stories to develop vocabulary knowledge. One linked this to themes reporting that they were "*focusing on language, literacy and storytelling that have encouraged vocabulary development".* Shared book reading is known to have a positive influence on children's vocabulary knowledge in the preschool years (Mol et al., 2008; Sénéchal & Cornell, 1993).

4.4.8 Emergent Writing

Reading and writing are reciprocally related skills and both components are fundamental to Sénéchal et al's. (2001) 'focused view of emergent literacy'. Children with ASD often experience difficulties with writing due to the presence of motor planning difficulties and sensory challenges and many children are reported to avoid writing altogether (Breit-Smith, Cabell, & Justice, 2012; Kluth & Chandler-Olcott, 2008). Fourteen teachers responded with strategies to support emergent writing. Three of these indicated that the child was either hard to engage in writing activities or had no interest. One of these teachers mentioned using computer software such as Microsoft Word to allow the child to type letters rather than hold a pen to write. The most commonly cited strategy was simply to provide opportunities and encouragement to engage in writing activities (n = 7). Another teacher described setting up an independent writing table where the child could explore writing tools. Two teachers reported using fine motor activities and sensory activities to encourage children's engagement in emergent writing. These included play dough, painting, threading, shaving foam and finger painting. One teacher reported using hand over hand for writing and drawing activities and one teacher described using a variety of structured writing activities related to the child's name (e.g. tracing over pin pricked name).

4.5 What are the Challenges Inherent in Supporting Literacy Learning for Preschool Children with ASD?

All 16 teachers gave responses to an open ended question probing the challenges they faced in supporting emergent literacy development for children with ASD. Ten teachers included challenges that were child related and nine teachers included external challenges in their response. These challenges are described in the following sections.

4.5.1 Internal challenges

The most commonly cited challenge was the child's interest and attention to emergent literacy (*n = 8*). Teachers reported that engagement in literacy activities and artefacts was difficult, for example, *"getting them interested and involved as I lack the tools",* similarly another teacher reported *"my student does not stay still for very long so getting him to stop long enough is a challenge at this stage".* Other within child challenges that teachers cited included lack of communication skills (*n* = 2), the individuality and uniqueness of each child (*n* = 1), developmental level (*n* = 1) and challenging behaviour (*n* = 1).

4.5.2 External challenges

Teachers cited a range of external factors that pose a challenge to supporting emergent literacy development for children with ASD. The most commonly cited external factor was time (*n* = 4). Examples of the challenge posed by time included both the impact on providing individual support to the child, for example, one teacher responded that there was a need to have "*a greater level of support on a daily basis so the teacher interaction time is higher*". Time for collaboration with the team around the child was also mentioned, for example, one teacher cited "*having the time to be guided by Special Education support staff"* as a challenge*.* The next most commonly reported challenges were having consistent communication within team members (*n* = 2) and lack of knowledge (*n* = 2), for example, *"lack of knowledge from teachers". A*nother teacher was more specific responding "l*ack of knowledge / skills in specific strategies that are relevant*". The remaining external challenges

(each *n* = 1) included staffing ratios, level of specialist support, literacy program at the centre not specifically designed for children with ASD and environmental factors that impact on the child's learning such as the noise level in the centre.

4.6 Professional Learning and Development Needs

The number of teachers who had had professional learning and development (PL&D) in areas of emergent literacy and ASD was the same, with 10 teachers reporting professional learning in each of these areas. Table 6 outlines the types of PL&D that teachers had completed. Teachers with the least years teaching experience were more likely to report not having had PL&D with 3 of the 4 teachers with 3 - 5 years experience reporting no PL&D in emergent literacy and two of the four reporting no PL&D in the area of ASD. Interestingly half of the teachers reporting no PL&D in each of these areas were among the most experienced reporting 10+ years teaching experience. Only 2 of the 16 survey respondents reported having had any PL&D in providing emergent literacy instruction to children with ASD. Both of these teachers checked each type of PL&D within this category, but did not identify as having any PL&D targeting emergent literacy or ASD in isolation. This seems an unlikely scenario. It is possible, therefore, that these teachers may have answered inaccurately and their results may not reflect their past PL&D.

In response to an open ended question asking what "support, information or training do you feel would assist you to teach literacy to children with ASD?", professional development was the most commonly cited response (*n* = 6). This was followed by a specific course on supporting emergent literacy development for children with ASD (*n* = 4). This aligns with the low levels of reported PL&D in this area. Two further types of support mentioned were support from specialists (*n* = 3), and strategies to support sustaining interest and engagement. These findings align with those reported earlier relating to the challenges teachers identified in relation to supporting emergent literacy for children with ASD. Although a lack of professional support did not feature highly in the challenges reported by survey

respondents, *'support from professionals'* was frequently cited as a form of PL&D in both emergent literacy and ASD. This suggests that professional supports are useful to and valued by teachers. Other individual examples of the types of supports that teachers felt would be beneficial included (each *n* = 1) in-centre support, course on ASD, support to develop communication skills and more resources. One teacher's response indicated that continued reading and reflecting was useful as *"any information gleaned that helps at that moment is worthwhile".*

Table 6

Types of Professional Learning and Development

	PL&D in Emergent Literacy	PL&D in ASD	PL&D in Teaching Emergent Literacy to children with ASD
	(*n = 10*)	(*n = 10*)	(*n* = 2)
Self directed learning (e.g. journal articles, reading books)	10	9	2
In-service programs	8	5	2
Assistance from other professionals	7	9	2
Professional materials	6	4	2
Conferences/seminars	5	5	2
Undergraduate course work	4	2	2
Assistance from other teachers	4	6	2
Online learning (e.g. reading blogs, participation in forums)	4	5	2
Graduate course work	2	4	2
Other	1		2

4.6.1 Teachers' Competencies in Supporting Emergent Literacy Components in Children with ASD

Table 6 outlines teachers reported competencies in supporting various components of emergent literacy for children with ASD. The frequency with which teachers engage children in learning opportunities has been linked to their knowledge and reported confidence in ability within a curriculum area (Green, Peterson, & Lewis, 2006). A limited number of teachers felt highly competent in their ability to support emergent literacy development for children with ASD. A comparison of the PL&D data indicated that the majority of teachers had no PL&D in this area. One teacher reported feeling highly competent in all five areas. Although this teacher was less qualified, she was highly experienced with 10+ years teaching experience and had extensive PL&D in both emergent literacy and ASD.

Table 7

Teachers' Competencies in Supporting Emergent Literacy Components in Children with ASD

	Alphabet knowledge	**Phonological Awareness**	**Oral Language**	**Print concepts**	**Emergent Writing**
No Experience	0	2	0	1	1
Novice	5	5	1	3	4
Competent	10	8	12	10	10
Highly Competent	1	1	1	2	2

The majority of teachers reported feeling competent in their ability to support the development of alphabet knowledge (*n* = 10), oral language skills (*n* = 12), print concepts (*n* = *10*) and emergent writing skills (*n* = *10*). Five teachers rated their competencies as either 'no experience' or 'novice' in three or more areas. A comparison with the PL&D data indicated that only one of these teachers, reported having had any PL&D in the area of emergent literacy. Teachers were more likely to report feeling novice in alphabet knowledge and phonological awareness (*n* = 5), followed by emergent writing (*n* = 4), print concepts (*n* = 3) and oral language (*n* = 1). Areas where teachers reported having no experience

included phonological awareness (*n* = 2) print concepts (*n* = 1) and emergent writing (*n* = 1). Level of teaching experience and teachers' competency ratings were not related, indeed two of the five teachers rating themselves as less competent in three or more areas each had 10+ years teaching experience.

4.7 Interview Results

Nine early childhood teachers participated in individual interviews. Three of these teachers also completed the online survey. All teachers were female and had between 3 and 40 years teaching experience in early childhood education. The majority of teachers (*n* = 6) were employed in a private daycare / preschool setting. The remaining teachers were employed in public kindergartens (*n* = 3). Table 8 outlines the background information about each of the teachers. The sections below describe the survey results as they relate to the research questions two through six.

4.8 How do Preschool Children with ASD Engage with Emergent Literacy Opportunities and Experiences within the Early Childhood Setting?

Teachers gave varying reports of the level of engagement of individual children with emergent literacy opportunities within the early childhood setting. Teachers' descriptions of children's interest and engagement spanned the full continuum from children who were *"not really interested"* or actively avoided specific literacy activities to children who were fully engaged in aspects of emergent literacy in the early childhood setting such as mat time, or independent book exploration. Two teachers indicated that the children with ASD currently in their centres were not included in the structured literacy program. In one case, this was because the child was younger and still had an afternoon sleep that coincided with the literacy program. In the other case, the teacher did not give a specific reason for the child not being included.

A number of teachers indicated that often literacy wasn't a priority. One initial response was

Table 8

Background Information of Interview Participants

	Qualifications and Experience			Centre Information				PL&D		
	Qualification(s)	Years Teaching Experience	Experience teaching children with ASD (no.)	Facility	Number of Children	Ratio of Teachers : Children	Age group	PL&D in Emergent Literacy	PL&D in ASD	PL&D in supporting Emergent Literacy for children with ASD
Teacher I1	Bachelor of ECE	19	5	Private Daycare	40	1:8	3½ - 5	Y	Y	N
Teacher I2	Diploma in ECE / Bachelor of ECE	23	7	Public Kindergarten	50	1:10	2 – 5	Y	Y	N
Teacher I3	Diploma in ECE	10	4	Private Daycare	15	1:8	4½ - 5	Y	Y	N
Teacher I4	Bachelor in ECE Post graduate Diploma in Special Needs	40	>2	Private Daycare	30	1:8	2 – 5	Y	Y	N
Teacher I5	In training (Bachelor ECE)	7	4	Private Daycare	40	1:8	2 – 5	Y	N	N
Teacher I6	Bachelor of Education	3	1	Private Daycare	24	1:8	3½ - 5	Y	Y	N
Teacher I7	Bachelor of Education Post graduate Diploma in Special Education	19	1-2 per year	Public Kindergarten	40	1:10	3 – 5	Y	Y	N
Teacher I8	BA (Pyschology) Post graduate Diploma in Primary Teaching Post graduate Diploma in ECE	8	>2	Public Kindergarten	40	1:10	3 – 5	Y	Y	N
Teacher I9	BA (Hons0 in Early Education	30	5	Private Daycare	40	1:8	3½ - 5	Y	Y	N

"*to be honest I don't always place that as a priority".* Another teacher gave a similar response but elaborated on what shaped this reporting "*When we think about a child with autism the IP goals, kind of what sets a lot of the scene for us and they're generally not about that (literacy)"* she went on to illustrate the differences in expectation for these children stating "*There isn't much of an expectation really that the children will write their name like the other children are, because we haven't actually seen any interest or evidence that they can".* Another similar comment in relation to the child a teacher had worked with was

> "*There was never really a big focus on having her be able to write her name or anything at school. It was more to be able to follow instructions and whether we had the instructions in word form or picture form".*

4.8.1 Engagement with books

Book exploration and shared storybook reading was an area that teachers frequently referred to when asked about children's engagement with emergent literacy. Shared storybook reading is known to have a positive effect on children's vocabulary, language (Mol et al., 2008; Sénéchal & Cornell, 1993) and print concepts (Stewart & Lovelace, 2006; Whitehurst & Lonigan, 1998). Children's engagement with books was the activity that gave rise to the widest variation in reports of engagement levels. This ranged from children who loved being read to, children who *"could read",* children who liked to mouth books and others who had no interest in books at all. Over half of the teachers (*n* = 6) described a child who either "*loved"* or *"liked"* books. Descriptions were also given of children who would seek out specific books, for example, one teacher talked about a little girl who

> "*would go and choose this book called The Little Blue Duck and she would just recite the whole thing without even turning the pages, you would go and choose a book and she will always give this one (The Little Blue Duck) to you" .*

Teachers also described children who did not engage with books or stories, for example, one teacher reported "*I have never seen N opt to take a book"* and went on to describe

another child who would engage with books with adult support *"I have seen M look at some books with his ESW"*. Another teacher gave a similar description of a child who "*likes storybooks one-to-one"* but was unable to engage in group storybook reading as he was too distracted by the other children around him.

Two teachers gave descriptions of children who engaged with books in non-conventional ways. This included mouthing the books. To enable the child to be able to explore books in this way, a special box was provided with books that were of interest that it was okay for him to explore freely. Another teacher described a child who would "*collect books but not actually read them, just grab them and collect them*".

4.8.2 Participation at Mat Time

The majority of teachers (*n* = 6) described children whose engagement at mat time was either limited or dependent on the content of mat time. The degree to which a child engaged may be dependent on *"their mood",* attention or interest, for example, *"if they enjoyed the story"*. None of the teachers reported having children that fully engaged with the mat time routines with most descriptions indicating a child's presence, for example, "*if he stayed for 2 or 3 minutes well then that was good"* rather than actual participation "*If we asked a question she would always put up her hand. She wouldn't know the answer but she knew she had to put up her hand because a question is being asked*".

4.8.3 Influence of Restricted Interests

Restricted interests are a common characteristic of ASD (American Psychiatric Association, 2013a) and are frequently perceived as a barrier to children's learning (Mirenda, 2003). Teachers frequently referred to a child's interest as being the determining factor in their engagement. Where activities were linked to the child's interests or a preferred book, they reported more likelihood that the child would engage in the activity, for example, *"if she enjoyed the story she would sit but if she didn't enjoy the story she wouldn't"* similarly

another teacher reported generally *"they might sit down and look at a book but yeah once again if it wasn't a high interest it wouldn't matter*". One teacher reported that a child was "*just into this catalogue"*. Although the child did not appear to engage with other print materials, he showed a "*huge interest in Warehouse Stationery catalogues and like ads. Things that we would see (as literacy), well they are literacy of course they're literacy".*

4.8.4 Technology

Children's interest and engagement in technology based literacy activities was cited by four of the teachers. This included general descriptions of a higher level of interest in iPad based literacy activities, for example, "*They're more likely to want to use an iPad for that. Both of those children love to be on the iPad*". More specific uses of technology include programs to facilitate engagement with non-preferred activities such as using KidPics to develop emergent writing. A description was given of a child who would readily engage with books that were interactive, for example, where there was a cause and effect element to the e-book "*he likes stories where you push something and they're saying something"* or "*when there is different things in the story and you push it and then things open".*

4.8.5 Engagement with Emergent Writing

Five teachers discussed children's engagement in emergent writing activities. All of the teachers indicated that writing was not an activity that the children would willingly engage in. One teacher reflected that in general the children with ASD that she'd taught *would not readily have gone to writing at all".* Two teachers were more specific with reports of children with *"no interest at all"* and another two children being "*not very keen on the pencil and the paper*". These findings mirror those of the survey with writing related activities cited as being more difficult to engage the children in. One teacher went on to describe the types of writing related activities that the children would engage in, for example, "*for my younger one in the afternoon he grips his pencil like this and he just scribbles*".

One teacher compared three children she had taught and reflected on different levels of engagement between the children and the different types of writing tools that they preferred, for example,

> "*the one who doesn't talk at all loves chalk"* and another who "*doesn't really go towards chalk, even so that's something we need to be aware of and encourage, but he loves water so we do magic water, so we have paint, brushes and a bucket of water and that's how we have established that (emergent writing)".*

Another teacher talked about a girl who "*wasn't very interested in writing*". This child "*would attempt to draw a picture but was not keen on copying words or doing her own letters. She just didn't have an interest in that".* However the she enjoyed watching other people write and would *"sit down beside you and watch you write words. She was able to recognise words when you wrote them. She loved lists of people in her family and the children in our class".*

Two teachers discussed children's interest in the centre's signing in routines and the children's name cards. One talked about a boy who would "*watch the other children signing in"* but found it difficult to engage with pencil and paper so teachers encouraged the use of other materials. In another centre, it was reported that children's name cards were used as part of the signing in routine. The children would find their name card and then write their name on the sign in sheet. She described a boy who "*would always go through, never speak, but would give me his (name card)*" when other children were trying to find their name " *he used to get so excited that he try and push the child away who was trying to spell their name and he would grab their finger*".

4.8.6 Alphabet Knowledge

Three teachers talked about children's interest and engagement with letters. One teacher was currently teaching a child who "*knows all his letters"* and could name or find specific letters. A teacher talked about a child who knew the letter sounds and was able to make the

sound when a teacher pointed to the letter. A further teacher discussed a little girl who liked to collect letters, particularly the first letter of people's names. "*She liked her blocks of letters so she would collect letters, she would collect an 'A' for A and a letter 'D' for her brother D*".

4.9 What are the Practices Employed to Support Emergent Literacy Learning for Preschool Children with ASD?

There were many recurring themes in the practices and strategies that teachers described using to support emergent literacy development for children with ASD. In contrast to the responses from the survey, teachers revealed more descriptive information about the children they worked with which indicated that strategies employed were highly personal to the individual child's needs and interests.

4.9.1 Special Interests

The most commonly cited strategy was utilising a child's special interests or fascinations as a vehicle for promoting engagement (*n* = 6). In some cases this involved adding literacy to a non-literacy related activity that a child had a preference for. One teacher described a child who enjoyed swinging and explained how she was able to introduce shared storybook reading in this context by sitting alongside and reading while he swung in the hammock. Another teacher described teaching a child who didn't show any interest in writing materials but loved water, *"we do magic water, so we have paint brushes and a bucket of water and that's how we have established that (writing)"*.

Three teachers described using materials based around a child's special interest character as the foundation for literacy activities. One of these, described using a child's interest in Thomas to encourage his engagement with books. She described identifying activities or skills that she wanted to target and then linking these back to the child's special interest stating *"if I want him actually to colour because he's not doing that, I'll print off a Thomas picture".* Similarly another teacher talked about using a child's interest in Superman and

other superheroes to encourage a child's print awareness and emergent writing by having pictures of Superheroes alongside the words.

The use of special interests also featured in the survey results, though less frequently and comparison reveals that survey respondents' use of special interests was restricted to encouraging engagement with books and shared book reading activities. These differences in reported use of this strategy may be attributable to the interview format which allowed teachers to describe the child or specific situations in more depth.

4.9.2 Sensory Play

The next most commonly cited strategy was the use of the use of tactile play and multisensory methods (*n* = 5). This was usually described as a strategy for developing alphabet knowledge and name recognition. Examples included using play dough to spell out the letters in a child's name, using hand over hand to finger trace the letter of the week on a child's knee or on each other's backs, writing letters in the sandpit or with chalk on the pavement.

4.9.3 Technology

The use of technology also featured in the supports described by a number of teachers (*n* = 4). Teachers described children who were motivated by the computer or tablet. In contrast to the survey results where technology was only mentioned in relation to emergent writing, teachers described using technology to target a range of skills. These included emergent writing, letter recognition, book knowledge, oral language and print awareness. One reported using a voice recognition program so that the child could talk and see the words in print on the iPad. Another teacher described using the iPad to develop writing for a child who could *"spell out his name but can't write it*". Similarly another described allowing a child with ASD to use the interactive whiteboard to practise writing, explaining that the child had difficulty

with writing on a small scale so the larger area of the whiteboard enabled them to participate more readily.

4.9.4 Taking it Slow

Slowing down the pace and providing individual attention was mentioned by three teachers. Another teacher explained that they kept the literacy programme essentially the same but *"took time out to do one-on-one stuff"*, similarly two teachers talked about having *"a lot more time and practice"* and breaking literacy activities into smaller more manageable steps.

4.9.5 Collaboration

Collaboration with the team around the child, including professionals and parents was cited by two teachers as a strategy to support emergent literacy. One teacher indicated that it wasn't just about working with the individual child but also "*just talking to parents and really working together with the parents"* as well as the team *"It's not just the child it's the team of eight or nine or however many people. So working alongside them and just listening to sort of where they're at and what they think, I mean they know because they're the experts".* One teacher conveyed a comparable strategy and talked about communicating between the teaching team to ensure consistency as well as discussing with parents what advice they had been given and trying to *"follow it through in our programme"*. Inter-professional collaboration was not mentioned as a strategy in the survey results, however having the time for inter-professional collaboration and the level of professional support were identified as challenges by survey respondents.

4.9.6 Child Specific Strategies

The teachers described a number of strategies that were specific to the child that they worked with, many of these related to having personalised materials available such as their own book box, or a box of old books that it was okay for the child to explore by mouthing. Adapting mat times either was also common. This was either by the use of props or having

individual literacy related activities that child would withdraw and do with an Education Support Worker (ESW) at mat times when necessary. One teacher described using a high level of positive reinforcement as the child was motivated by this and another teacher described a child who liked things to be complete. By writing the first letter of the child's name they were motivated to finish it because they didn't like to leave something unfinished.

4.10 What are the Challenges Inherent in Supporting Emergent Literacy Learning for Preschool Children with ASD?

Challenges in supporting literacy development for children with ASD were frequently raised. This was both in response to direct questions about challenges as well as in response to other questions such as those relating to children's engagement. There are striking similarities in the themes identified in the survey results. As with the survey results, the most frequently cited challenge was children's engagement.

4.10.1 Engagement

Limited engagement and the support needed to engage these children were mentioned by all interview teachers. Teachers reported children's interest and concentration were barriers to engaging the children with emergent literacy, for example, "*He is interested but he doesn't hold attention or extend on it like other children do"* and "*Kindergarten is set up in such a free play areas that sometimes ESWs can't always get them to concentrate and focus*". One teacher talked about the infrequency of "*teachable moments"* and the challenge of engaging a child who isn't interested "*If they are not attentive there is nothing you can really do and when they go into their own little world or they're off over there it is really hard because it (literacy) is not necessarily something they're interested in".*

4.10.2 Challenging Behaviour

Teachers also reported challenging behaviour as a result of children not wanting to engage. For example, "*It's the focus. I think the big challenge is the focus and their behaviour that*

they have any way. I find if they really don't like what you're trying to do you'll either end up getting bitten or hit or chairs thrown". Similarly another teacher reported "*if they're not in the mood to do it and particularly if they're not verbal they'll just scream and it will be very ear-piercing".* Sometimes challenging behaviour was related to other things that were happening in the centre such as changes to the routine or new children starting at the centre. Another teacher referred to external factors influencing children's engagement, she reflected that

> "*if I've got something planned for a Monday and that child's having none of it because they've not slept the night before and they've had a bad weekend or even on the Tuesday and their Monday here was not great and they're coming down with the flu, you know that's not going to work*".

4.10.3 Competing Demands and Needs

Balancing the needs of the individual child against the needs of the rest of the children in the centre was also cited by five teachers. Teachers often referred to the child with ASD as needing 1:1 support from a teacher and having to decide between giving 1:1 support or meeting the needs of the other children in the room, for example, "*sometimes you had to let them go, in order for the other children to learn*" and another talked about the difficulties setting up activities "*sometimes you were setting up activities and going I can't leave that on the table because A is going to go over and trash it. It's having that extra person that can look after the other 23 children in the class*". Two teachers talked about feeling that the other children in the class were missing out because of the amount of individual support required. Although this dilemma did not feature in the survey results, it is perhaps a more clearly articulated challenge that encompasses the issues of time and teacher : child ratios that were identified in the survey results.

4.10.4 External supports

Access to paraprofessional support and professionals was the next most commonly cited challenge. One teacher described the process of obtaining paraprofessional support as

being a challenge, others referred to the level of support being a constraint, for example, "*all the children would do very much better if they could have a support person for longer, an hour a day is not enough to make a difference"* and a similar comment was made by another teacher "*They only get a teacher aide 2 hours a day and some of these kids were there from 7:30 to 5, it's really hard*". Other challenges that teachers described included the level of professional support and frequency of contact with professionals. Varying skill levels and knowledge amongst professionals and paraprofessionals was also identified as a challenge. Similarly lack of teacher knowledge about ASD and appropriate strategies for supporting learning were cited as being areas that teachers found challenging. One teacher, who was one of the most experienced in the group, indicated that greater access to professionals and more timely support was a priority. She explained that

> "*there's nothing worse than having a child on the list and you really, really want to help, because actually what's been working for other children is not working and I need help and they're like he's about four down. Well that's no good to me. I need help and I need it now".*

4.10.5 Time

Linked to individual support were time constraints. Four teachers referred to time constraints when discussing the challenges they faced. This included the greater amount of time required to get a child with ASD to engage in an activity or learn new skills. One teacher reported one of the biggest challenges as just "*having time with that child*" for teaching staff to spend 1:1 with the child with ASD and focus exclusively on the child's learning. Another teacher talked about the pressure of time limitations saying "*half the time you feel like you're not giving them quality time and the other half you're busy worrying about everything else that's going on*" and having enough time to get to know the child and "*understand what they're giving back to you and the bigger picture around it*" so that you can extend their learning.

4.10.6 Communication Skills

Two teachers talked about the challenge that the children's communication skills posed to evaluating the child's abilities. One stated

> "*you as a teacher don't actually know whether what you're doing is working or whether it is something they're interested in which makes it really hard. So of course you get no response you're thinking do I have to adapt it to an interest and sometimes when you do get that interest you're thinking oh are they upset? You don't always know what they are communicating back*".

4.11 What are the Professional Learning and Development Needs of Early Childhood Teachers?

All nine teachers reported having some form of PL&D in emergent literacy. The two most common types were inclusion in an undergraduate degree (*n* = 4), or attending courses on specific literacy programmes such as Jolly Phonics (Mival, 1997) or Casey the Caterpillar (Brann, 2000) (*n* = 4). Other types of PL&D included in-house training (*n* = 2) and self directed learning through professional readings (*n* = 1).

None of the teachers had had any PL&D in providing emergent literacy instruction to children with ASD. Eight teachers reported having had some form of PL&D in ASD, one of these did not specifically identify the type of PL&D in this area. The types of PL&D reported were attending a course on ASD (*n* = 4), self directed reading (*n* = 4), and on the job experience in an ASD specific educational environment (*n* = 2).

Towards the end of the interview, teachers were asked: "What support, information or training would help you to develop emergent literacy skills for these children"? One teacher responded to this question by indicating that more paraprofessional support was required stating "*I think all the children would do very much better if they could have a support person for longer hours like 2 hours per day. A hour a day is not enough to make enough*

difference".

Four teachers were more specific in their need for greater professional support. Two teachers wanted more contact with professionals in the centre, for example,

> "*somebody coming out and showing us how to do it with a child. You've got all the theory in the world and you can sit there on a Friday night and tell us all about it but actually come out and show us. Actually even with an IP there is a lot of that but then when you're trying to put it into practice it's kind of different. So a really highly skilled professional".*

Similarly another teacher indicated that having a speech language therapist spend time in the centre observing, modelling and collaborating with the teachers to help identify other strategies that might support the child would be beneficial.

Professional support also took the form of greater access to networks where teachers could problem solve and share ideas with other teachers and professionals working with children with ASD having access to a forum where the teacher can say "*I have these issues can anyone tell me how I can I help this child with this. If anyone had a similar situation what resolutions did you try and whether it worked".* Access to courses with specific information about ASD and strategies to support children with ASD were also cited by two teachers.

CHAPTER FIVE

Discussion

5.0 Introduction

Despite a growing focus on literacy in the New Zealand education system (Ministry of Education, 2010a) and an increased focus on the achievement of at-risk populations (Ministry of Education, 2010b, 2012a, 2013; Te Tāhuhu o te Mātauranga Ministry of Education, 2013), there appears to be limited research in New Zealand exploring the literacy learning environments or achievements of children with ASD at any educational level. The current study therefore set out to gain some insights into the emergent literacy learning of preschool children with ASD in New Zealand. An online survey of 16 early childhood teachers, and semi structured interviews with 9 teachers were conducted to explore the following research questions:

- What are early childhood teachers' beliefs about emergent literacy?
- How do preschool children with ASD engage with emergent literacy opportunities and experiences within the early childhood setting?
- What strategies and supports do early childhood teachers employ to facilitate emergent literacy development for preschool children with ASD?
- What are the challenges inherent in supporting literacy learning for preschool children with ASD?
- What are the professional learning and development needs of early childhood teachers of children with ASD?

Five primary findings were identified from analysis of the survey responses and interview transcripts. These findings were: (1) variability in teachers' understanding of emergent literacy with embedded literacy learning opportunities being more prevalent than explicit instruction; (2) wide variability in levels of student engagement with emergent literacy opportunities and activities; (3) wide range of strategies employed by teachers to support

children's emergent literacy learning with high levels of personalisation to children's individual strengths and interests; (4) children's interest level and attention were perceived as the biggest challenge to their literacy development and (5) low levels of PL&D in emergent literacy and ASD despite high levels of interest in PL&D in these areas. This section explores these key findings alongside the additional findings as they relate to each of the six research questions.

5.1 What are Early Childhood Teachers' Beliefs about Emergent Literacy?

There were strong levels of agreement for belief statements supporting the notion that all children can engage with emergent literacy and conversely high levels of disagreement with the statement that 'children with ASD are not ready for emergent literacy instruction in preschool'. This reflects similar teacher attitudes in Rohde's (2011) study towards children with speech and language disabilities. Teachers' responses to other questions in the survey and interviews revealed further information about their emergent literacy beliefs including their understanding of emergent literacy, embedded versus explicit teaching and teacher expectations. These are discussed in more detail in the following sections.

5.1.1 *Teachers' Understanding of Emergent Literacy*

Teachers in this study demonstrated wide variability in their understanding of the construct of emergent literacy. Teachers' responses ranged from descriptions that indicated an understanding of emergent literacy as a discrete and narrowly defined skill, to descriptions that indicated a more comprehensive understanding of emergent literacy including both reading and writing. The Education Review Office has documented similar variability in early childhood teachers' understanding of emergent literacy (Education Review Office, 2011a). The variability in the present study is perhaps best understood when considered in the context of teachers' PL&D. Although teachers widely reported having had PL&D in emergent literacy, limited numbers reported this being included in their formal training at either undergraduate or postgraduate level. This finding is somewhat concerning, given that

university courses seek to provide the foundational theory and pedagogy that underpins teaching practice.

5.1.1 Embedded Versus Explicit Emergent Literacy Teaching

Teachers' descriptions of the emergent literacy activities, resources and experiences available in their centres point to extensive embedded opportunities for emergent literacy learning and development. Understanding the purpose and function of literacy is particularly important for children with ASD. Individuals with ASD commonly show superior skills in systemising (Baron-Cohen, 2008b) and strengths in attending to specific details rather than assimilating meaning from the whole (Frith, 2003; O'Connor & Klein, 2004). This commonly translates into a profile of strength in procedural knowledge alongside weakness in conceptual related knowledge and skills (Lanter et al., 2013; Rosenberg, 2008). Therefore, exposure to literacy learning opportunities in authentic contexts, where children experience teaching and modelling within meaningful activities is critical. What is still under debate is the extent to which children with ASD may need more explicit teaching to support their development of key emergent literacy skills.

Alongside variability in teachers' understanding of emergent literacy, there was also variable agreement with the belief of a need for explicit targeted skills instruction. Three teachers indicated disagreement, five were neutral and eight agreed with the notion that children learn best through explicit teaching. These results are consistent with Rohde (2011) who also identified variable levels of agreement among teachers in relation to targeted skills instruction. There is strong support in the literature that targeted explicit emergent literacy instruction can lead to significant gains in literacy knowledge and skills for children with identified risk factors of later literacy difficulties (Diamond, Justice, Siegler, & Snyder, 2013). It is possible that the variable responses in the present study may reflect differences in centre and/or individual teaching philosophies. It is also possible that the high number of

neutral responses may reflect a belief that explicit instruction may be necessary for some children and not others.

Although half of teachers indicated agreement with the notion of explicit instruction, there is limited evidence in this study of explicit teaching or interventions being used to support emergent literacy development. While there is strong support for embedding emergent literacy learning in print rich environments (Education Review Office, 2011a; Justice & Kaderavek, 2004; National Early Literacy Panel, 2010), we also know that for children at risk for literacy learning difficulties, such as children with ASD, embedded learning opportunities may not be sufficient for success (Justice & Kaderavek, 2004). These children often require explicit targeted interventions to develop specific emergent literacy skills that underpin later literacy development. Kaderavek and Justice (2004) identify phonological awareness, alphabet knowledge and writing, concepts about print, and narrative and literate language as key domains for explicit instruction due to their links with later literacy achievements. The limited evidence in this study of explicit interventions or support for this type of targeted instruction suggests that there is a need for greater speech language therapist involvement to work alongside teachers to identify children at risk and support teachers to integrate explicit teaching to facilitate emergent literacy development for these children. It also suggests there is a need for PL&D in this area.

5.1.3 Teacher Expectations

Overall early childhood teachers in this study recognised the importance of literacy development prior to school and the ability of children with ASD to engage with emergent literacy. These underlying beliefs point to a positive outlook for children with ASD. In practice, however, they are tempered by the presence of contradictory expectations about these children's literacy development also revealed in this study. This included a lack of expectation that children with ASD would achieve the same skills as their non-ASD peers prior to school entry, or that emergent literacy was a priority. Research involving other

populations of children with disabilities suggests that parents and teachers tend to place highest priority on communication skills. As children get older, the priority placed on literacy development increases (Light & Kelford Smith, 1993; Light & McNaughton, 1993; Trenholm & Mirenda, 2006). These patterns are reflected in the goals identified on children's IPs, with communication and social interaction skills being the most common and literacy related goals appearing infrequently. A lack of literacy goals in children's IPs may mean that this area is not the focus of teachers' support for these children.

Teacher's beliefs have been shown to influence their classroom practices (Fang, 1996; Sandvik, van Daal, & Adèr, 2014) so it is possible that if teachers have not observed evidence of emergent literacy interest or ability, they are focusing in the first instance, on speaking and listening skills. For many children with ASD, their written language skills will drive their face to face communication skills (Colasent & Griffith, 1998; Craig & Telfer, 2005; Koppenhaver & Erickson, 2003). It is possible that children's written language abilities will be evident before they are able to use spoken language to communicate. This mismatch is a potential barrier to both their literacy and communication development. It makes sense that we strive to develop oral and written language skills in ways that are meaningful to the child and build on their current interests and abilities. The Education Review Office (2011b) suggests that there is a greater need for centres to differentiate their programme to ensure they are meeting the needs of all learners. This suggests that teachers may need additional support to differentiate literacy learning and oral language learning opportunities for children with ASD. This may be particularly relevant where children are not displaying interest or abilities in these areas.

Early childhood teachers use assessment information to plan the ways in which they will support children's learning and development (Education Review Office, 2007). Te Whāriki fosters a strengths based approach (Education Review Office, 2013; Ministry of Education, 1996) which means that teachers' assessments of children's knowledge, skills, learning

dispositions and interests informs their curriculum planning. Research points to the positive impact of targeted PL&D on teachers' emergent literacy beliefs and teaching practices (Sandvik et al., 2014). A review by the Education Review Office (2011b) found that participation in emergent literacy PL&D led to increased awareness of literacy opportunities in teachers' planning and integration of literacy across different strands of Te Whāriki. The combination of a strengths based approach to teaching and learning, alongside the low levels of PL&D reported in this study may lead to teachers placing less priority on literacy when they have not observed evidence of children's strengths or abilities in this area. While there are clearly benefits of a strengths based approach, teachers may need support to identify particular risk factors that indicate children require extra support to develop emergent literacy knowledge and skills. Indeed, the Education Review Office (2011b) report recognised the need for greater clarity for the sector on what constitutes high quality emergent literacy teaching as well as targeted PL&D to improve emergent literacy teaching and learning.

5.2 How do Children with ASD Engage with Emergent Literacy Opportunities and Experiences within the Early Childhood Setting?

Teachers in this study reported wide variation in children's interest in emergent literacy generally and their engagement with different emergent literacy activities and opportunities in the early childhood setting. This variability was present both between children and within children across different emergent literacy activities. This finding seems consistent with previous research which found that children with ASD have wide variations in knowledge and skills in this domain (Rosenberg, 2008). Despite this variability, there appears to be some commonalities in terms of the types of activities that children are more or less likely to engage in.

5.2.1 Preference for Book Based Activities

Teachers in this study reported shared storybook reading and independent book exploration as being the most common activities that children with ASD would engage in on a daily basis. It is possible that the reason that these two activities feature more frequently is related to opportunity and availability. The primary strategy identified by survey participants for supporting independent book exploration was "*availability and access*". Teachers talked about books being "*always available*", at a height and location that was child-friendly or having an area where children could *"chill out"* in with close proximity to books. Indeed a book corner, or library area would typically be found in most if not all early childhood centres. It is unclear whether high levels of independent book exploration are a result of environmental design or child preference.

Along with a library corner, the routine of reading a story to groups of children is typically an ingrained part of daily routines in early childhood centres in New Zealand. Mat times, where small groups of children or the entire group are expected to come to the mat, frequently involve shared storybook reading. In centres where children attend for a full day, mat times may occur multiple times each day. Often, for older children, mat time is seen as an important activity to prepare children for school where they may be expected to sit and attend in large groups more frequently throughout the day. As well as their regular occurrence as part of the daily routine, there is often a perception that all children should be present and participate at mat time. Indeed most teachers in this study paid credence to the importance placed on mat time participation by commenting on how children's engagement in this activity had increased over time.

If children are engaging in mat time and book exploration more frequently because they are more available or occur as part of the daily routine, there is scope for focusing on other literacy skills in similar ways. The Education Review Office found that concepts about print are most likely to be incorporated during shared reading times in New Zealand early

childhood centres (Education Review Office, 2011b). Recent research suggests that integrating explicit teaching of novel vocabulary or embedding conversations about print concepts during shared storybook reading leads to significant gains in these areas (Diamond et al., 2013). Where teachers have been successful in supporting children with ASD to engage in shared storybook reading, the next step may be to explore how this engagement can be used as a vehicle for developing other literacy related knowledge and skills such as phonological awareness.

There was a marked difference between the reported levels of engagement in whole class storybook reading and small group book reading. A likely explanation for this is that whole class storybook reading is likely to be a feature of the daily routine of mat time, where perhaps there is the expectation that all children participate. Small group storybook reading is possibly more likely to be child lead or initiated, given that children with ASD experience differences in social communication and interaction (American Psychiatric Association, 2013a), they are likely to find participation in small group activities challenging (Kluth & Chandler-Olcott, 2008).

5.2.2 Least Preferred Activities

The two areas that teachers in this study reported as being the least likely for children to participate in, as well as the most difficult activities to engage the children in, were oral language and writing activities. Children with ASD experience disordered patterns of social communication and interaction (American Psychiatric Association, 2013a; Wing, 1996). Alongside these pragmatic difficulties, high levels of communication impairment are common. Lack of speech, atypical speech and expressive language disorders are all frequently reported in the literature (Noens & Van Berckelaer-Onnes, 2005; Wilkinson, 1998). The presence of these difficulties is likely to explain the low levels of participation and challenges teachers described in engaging children in oral language activities. Developing communication and oral language skills was frequently cited in this study as a high priority

for teachers and parents. The low levels of engagement in these activities suggests that there may be a greater role for speech language therapists to support teachers to develop children's oral language skills. There is the potential for greater collaboration between early childhood teachers and speech language therapists to enhance children's skills in this area.

Limited interest and low levels of engagement in writing activities may also reflect some of the challenges that children with ASD frequently experience. Alongside sensory challenges, it is not uncommon for children with ASD to experience movement differences including motor planning difficulties, repetitive movements and difficulties with motor imitation (National Institute of Mental Health, 2004; Wing, 1996). The presence of such difficulties may be the underlying reason that children with ASD are reluctant to engage with writing opportunities in an early childhood setting. Where children were reported to participate in writing activities, teachers often described differences in their abilities compared to their non-ASD peers. Teachers' reports of children's writing behaviours being immature in comparison to peers suggests that this may be indicative of delayed motor skills, which are often associated with ASD in the literature (Landa & Garrett-Mayer, 2006; MacDonald, Lord, & Ulrich, 2014).

These reported delays with the progression of emergent writing represent a challenge for children and teachers, particularly as children progress into more formal writing instruction. Once children enter school, initial writing instruction is focused more on form and there are less opportunities to engage in activities where they are developing their knowledge of the function and meaning of writing. Preliminary research suggests that introducing writing into functional routines can lead to gains in emergent writing for children with ASD (Koppenhaver & Erickson, 2003). Access to writing implements and tools where children can freely explore are common in New Zealand early childhood settings (Education Review Office, 2011a, 2011b). In addition to this, children with ASD need exposure to functional writing activities such as sign in routines and using written language in everyday activities.

Exposure to functional writing activities creates opportunities for children with ASD to develop their emergent writing skills. It also provides natural opportunities for teachers to model the correct form.

5.3 What Strategies and Supports do Early Childhood Teachers Employ to Facilitate Emergent Literacy Development?

A number of teachers in this study who had experience of teaching more than one child with ASD commented on the uniqueness of each child in terms of their interests, skills and abilities. This is a pertinent point, as while the diagnosis of ASD can be helpful in identifying strategies or supports that may be useful to a child, ultimately each child is an individual and will have different interests, strengths and abilities. This diversity necessitates the wide range of strategies that teachers described using to support emergent literacy development for these children. A breadth of strategies is also essential when working with children who may demonstrate variability in their performance as many teachers described. The teachers in this study recognised the importance of "*knowing the child*" as well as the need to be flexible with the strategies and supports employed.

5.3.1 Individualised Strategies

Individualised strategies that utilised children's special interests were the most commonly described strategies identified by teachers in this study. This suggests that these teachers are embracing the holistic philosophy promoted by Te Whāriki (Ministry of Education, 1996) and taking a strengths based approach to children's special interests. Unusually restricted or repetitive interests are a diagnostic hallmark of ASD (American Psychiatric Association, 2013a) and intense fascinations with specific items or topics are commonly described in the literature (e.g. Wing, 1996). Historically there has been a tendency to frame restricted or specialised interests negatively and view them as a barrier to learning (Mirenda, 2003) rather than a vehicle through which learning can be enhanced. Kluth & Schwarz (2008) argue that children with ASD benefit when teachers view “obsessions” as positive teaching tools that

can serve as motivators to improve learning. The teachers in this study demonstrated a positive view towards maximising the benefits of children's special interests. Special interests were being used across a range of different emergent literacy activities both to engage children and as a vehicle for developing specific literacy related knowledge and skills.

5.3.2 General Teaching Strategies

Teachers in this study identified a range of strategies across different activities that teachers commonly use to support children's learning such as “*a print rich environment*” "*modelling language*", "*having materials freely available*", "*drawing attention to print in naturally occurring situations*" and the use of "*technology*". This suggests that teachers recognise that children with ASD benefit from many of the same opportunities and supports as their peers. This view is supported by a previous study that demonstrated that preschool children with ASD can and do acquire literacy related knowledge and skills when they are emerged in a print rich environment where emergent literacy is embedded in daily routines, play and interactions (Koppenhaver & Erickson, 2003).

5.3.3. Strategies Based on Challenges

Alongside these more general strategies, teachers in this study also reported using strategies that reflected the specific challenges faced by children with ASD. These included the use of visuals to support children's understanding, having sensory ‘chill-out’ areas where children could engage with literacy artefacts, and providing literacy materials that could withstand sensory exploration. These strategies reflect an appreciation of the nuanced ways in which children with ASD perceive, experience, and interact with their environment and learn.

While it is positive that teachers are reporting the use of such strategies, there appears to be potential to extend their use. There are opportunities to support teachers to use visual

supports more extensively throughout the daily routines to facilitate children's emergent literacy knowledge. The inclusion of text alongside pictures on visual materials creates an opportunity to target concepts about print. As well as using visuals to support children's understanding of instructional language, teachers could be supported to incorporate visuals into other parts of their emergent literacy curriculum. Koppenhaver and Erickson (2003) used visuals to create personalised books, added pictures to children's name cards and used them interactively during mat times. Visuals were also used in this intervention to facilitate communication opportunities, for example, adding visuals to low-tech communication devices with recordable messages that could be incorporated into routines and shared storybook reading.

5.3.4 Communication

Teachers' responses in this study indicated that communication and oral language skills were perceived as being a high priority in terms of children's emergent literacy development. These comments were supported by survey data which indicated that communication skills were frequently a focus of children's current IP goals. Children with ASD experience high levels of communication difficulties. A number of teachers indicated that this was often an area of high priority for the parents as well as themselves. Similar findings are reported in other populations of children with disabilities (Light & Kelford Smith, 1993; Light & McNaughton, 1993; Trenholm & Mirenda, 2006). Previously it was thought that children with ASD who did not develop speech prior to starting school were unlikely to do so, however recent research suggests that this is not the case (Pickett, Pullara, O'Grady, & Gordon, 2009). Typically we expect children's oral language skills to precede written language skills, however for some children with ASD, written language may support the development of oral language and spoken communication (Mirenda, 2008). It is therefore important that children are given opportunities to develop both oral and written language skills irrespective of their perceived abilities.

Given that large numbers of teachers in the current study reported that oral language and communication skills were a primary area of focus, there was very little reporting of the use of augmentative and alternative communication (AAC) strategies being utilised to support children's receptive or expressive communication. Research suggests that for children with ASD, AAC can increase functional communication skills and can also have a positive impact on children's language skills, social interaction, behaviour and participation (Ganz et al., 2012; Ganz et al., 2011). Previous research in New Zealand suggests that children with ASD have limited access to AAC beyond low tech systems (Sutherland et al., 2005). Mirenda (2008) posits that we need to assume that a child with ASD has the capacity to learn to communicate and that AAC offers us a means of supporting this to happen.

5.3.5 Technology

Technology was cited as an area of interest or specific motivator for children by a number of the teachers. The study's findings suggest that teachers are introducing technology to children with ASD to support their emergent writing knowledge and skills, for example, through the use of softwared such as KidPix or by allowing children to draw on the iPad. Breit-Smith and Justice (2012) suggest that there are a wealth of opportunities for technology and adaptive equipment to be used to facilitate and encourage emergent writing skills. Given that difficulties in fine motor skills are common (Kluth & Chandler-Olcott, 2008; Landa & Garrett-Mayer, 2006), it seems pertinent that as well as providing access to traditional writing materials, children with ASD are given early access to technologies that will support, and ameliorate their writing development.

Other technologies that were mentioned in this study included the use of interactive e-books with a cause-and-effect element. These were reported as being particularly engaging for one child. Although technology is often highly motivating for children, it needs to be managed carefully in terms of its usefulness in developing emergent literacy skills. While there is evidence to suggest that for older children, e-books can offer the same learning benefits as

traditional books, there is emerging evidence that the effectiveness of e-books decreases when interactive features are included. Interactive features may take children's focus away from the literacy aspects such as print and story comprehension (Ree, Takeuchi, & Erickson, 2012). Emergent literacy knowledge and skills primarily develop through incidental learning, however this learning is mediated through interactions with adults in their environment (Teale & Sulzby, 1986). Where technology is used as part of a broad range of literacy opportunities and adults engage with children and facilitate their literacy learning through technology, there is the potential for emergent literacy learning to be enhanced.

5.5 What are the Challenges Inherent in Supporting Literacy Learning for Children with ASD?

The ability of children with ASD to attend to and engage in literacy activities was perceived by teachers in this study to be the biggest barrier to children's literacy learning. Teachers spoke of having limited teachable moments and the challenge of supporting literacy learning when children were only able to engage for very brief periods of time. Studies show that children with ASD process information differently (Baron-Cohen, 2008b; Baron-Cohen, Leslie, & Frith, 1985) and descriptions of ASD frequently refer to difficulties interpreting and processing sensory information (Frith, 2003; Gillberg, 2002; Wing, 1996). It is unsurprising that in a busy early childhood environment, these children find it difficult to attend and why teachers report extensive use of children's special interests to facilitate engagement. The difficulties balancing the needs of children within the time and resources available can be challenging for teachers.

5.5.1 The Paraprofessional Conundrum

Teachers reported having too little time to spend with the child with ASD and that there was a mismatch between the level of support needed and the amount provided. The belief that more support from teacher aides or support workers was desirable was evident in a number of teachers' responses and comments. One teacher explicitly stated that "*all the children*

would do very much better if they could have a support person for longer hours like 2 hours per day. An hour a day is not enough to make enough difference". This comment which was in response to a question about what would help them to support the emergent literacy development of children with ASD is worrying. There is very little evidence to support the use of untrained teaching support staff with children with special educational needs. The research that has been conducted, primarily with school age children suggests that teacher aides have no impact on children's learning (Blatchford, Russell, Bassett, Brown, & Martin, 2007; Blatchford, Russell, & Webster, 2012; Muijs & Reynolds, 2003) and indeed their use with children with special needs may lead to unintended negative effects (Giangreco, 2010).

Although teachers in this study often talked about the need for greater paraprofessional support for children, many of the teachers identified that they needed more time as teachers to work with the child with ASD or identified the need to be able to work more closely with the speech language therapist. This is a positive finding as it suggests that these teachers recognise that children with the highest level of need are those who are most in need of support from the highest trained professionals. There is a growing awareness of the inequity in schools of having children with the highest levels of learning needs supported by the least qualified adults (Blatchford et al., 2012; Giangreco & Broer, 2005). Redressing this inequity is equally important for preschool children with ASD. We need to shift the dialogue to enhancing inter-professional collaboration and enhanced teacher quality as a more effective means of supporting these children.

5.6 What are the Professional Learning and Development Needs of Early Childhood Teachers of Children with ASD?

The limited amount of PL&D in emergent literacy and in ASD reported by the participants in their university programs is alarming. It is particularly concerning given that emergent literacy forms a key part of the communication strand in Te Whāriki (Ministry of Education, 1996). There is a strong body of evidence that points to the importance of children's emergent

literacy development for their later academic success (National Early Literacy Panel, 2010; National Reading Panel, 2000; Storch & Whitehurst, 2002). It is possible that the inclusion of this area is underreported in the current study, alternatively the teachers who participated may not be a representative sample, therefore these results must be treated with some caution.

In light of the low levels of emergent literacy content in the university degree programs, it is positive that as a group the teachers reported high levels of self directed learning and interest in pursuing PL&D opportunities as these were available. Informal types of PL&D, such as self directed reading and informal online learning were more frequently cited than formal PL&D such as courses and conferences. This may be due to a number of factors such as frequency, availability and access to formal types of PL&D. Perhaps teachers participating in the present study were particularly motivated to pursue PL&D in this area and the types of PL&D reflects a preference for self directed learning. However the need for high quality PL&D in this area has been identified by the Education Review Office (2011b). Research suggests that teachers participating in emergent literacy PL&D leads to improved quality of emergent literacy practices and instruction (Sandvik et al., 2014).

5.6.1 Professional Support and Collaboration

The need for greater professional support and collaboration is evident from some of the responses obtained during interviews. One teacher's suggestion that having a speech language therapist visit to observe, model and problem solve practical strategies to support children's emergent literacy development mirrors the current trend in the Ministry of Education for specialist staff to "enable" those people working with children (Ministry of Education, 2012b). Timperley (2008) suggests that engaging external specialists can have a positive impact when this is focused on supporting teachers to develop theoretical understandings and tools that they can apply to their own teaching context.

A model based on these theories and the work of Timperley et al. (2007), the Language and Learning Intervention (LLI) (Ministry of Education, 2012b) has been introduced for school age children with significant communication difficulties. The explicit aim of the initiative is to provide PL&D to teachers that will enable them to make changes to their own communication and teaching behaviours in the classroom. The role of the speech language therapist is to engage teachers in reflection of their teaching and learning practice and share knowledge that supports positive changes in teacher-student interactions. LLI is strongly based on the work of the Hanen Institute (Pepper & Weitzman, 2004). It is primarily focused on oral language skills and includes a module on emergent literacy (Ministry of Education, 2012b). The need for greater collaboration identified by the teachers in this study suggests that there may be a need for a similar model to support preschool teachers working with children with ASD.

Although the reported prevalence of ASD has increased globally in recent times (Baron-Cohen, 2008; National Autistic Society, 2007), most teachers surveyed in this study had limited experiences teaching a child with ASD. As a group they were eager for PL&D opportunities and in an increasingly connected world there are greater opportunities for the establishment of online professional learning networks where teachers can access the knowledge of other professionals. Communities of Practice and online forums are increasingly common in the education community. When such forums are focused on improving outcomes for students through changes to teaching practice, research suggests that Communities of Practice form an integral part of teacher PL&D (Timperley, 2008).

CHAPTER SIX

Conclusion

6. 1 Introduction

This chapter summarises the purpose, design, and findings of the study. It also describes some of the limitations. This study has implications for the work that teachers and speech language therapists do to support emergent literacy development for children with ASD. These implications are outlined and discussed. Possibilities for future research are also provided along with concluding comments summarising the key contributions of this research.

6.2 Purpose and Design

There is little to guide early childhood teachers as they strive to support the emergent literacy development of children with ASD. Although the research suggests that these children can and do become literate in the same ways as their non ASD peers (Calhoon, 2001; Koppenhaver & Erickson, 2003), as a group these children are at high risk of literacy failure (Nation et al., 2006). This makes it all the more critical that we begin to focus our research on the significant emergent literacy period.

The objective of this research was to contribute some insights from early childhood teachers into the ways in which preschool children with ASD engage with emergent literacy, as well as to explore the strategies and supports that teachers employ to facilitate development in this domain. The intention was twofold, firstly to add to the limited body of previous research that has been conducted in the field of emergent literacy and ASD, and secondly to initiate New Zealand based research that is relevant to the local context and curriculum. This study contributes to the body of knowledge of emergent literacy and ASD as well as much needed local research in this field. It is hoped that this will facilitate a growing interest in emergent

literacy and ASD among early childhood teachers and speech language therapists in New Zealand which will ultimately lead to better outcomes for young children with ASD.

6.3 Limitations

The findings of the study must be considered in the context of a number of limitations. Although steps were taken to recruit participants from a range of early childhood settings, the relatively small sample size may not truly reflect the broader population of early childhood teachers in New Zealand nor represent the diversity of their experiences and beliefs. Data cross tabs were analysed to check for patterns in the data according to participants' qualifications, length of experience and type of early childhood facility. This analysis did not reveal any significant patterns in the data. It is likely that this is due to the small sample size. Therefore the findings of this study, while promising, must be interpreted with caution.

The mixed research methodology which included both survey and in-depth interviews somewhat compensates for the small number of participants. The majority of participants were currently teaching a child with ASD, possibly influencing their decision to participate in the study. Due to the small sample size, it was not possible to randomly select participants. It is likely that teachers who are willing to participate in this type of research are internally motivated to do so, either through personal experience, interest or connection to individuals with ASD. It is therefore plausible that by sampling a group of self-selected teachers, these findings may not be applicable to a broader cross-section of early childhood teachers.

It was the intention of the researcher for the children discussed in this study to remain anonymous and therefore it was not possible to have verification of their diagnosis of an ASD. While there is the possibility that teachers may have been referring to children who do not meet the diagnostic criteria of ASD, all 16 survey participants identified a diagnosis for the child they worked with. Both interview and survey participants' descriptions of children's

behaviours, interests and communication skills were consistent with a diagnosis of ASD. The majority indicated that the children they worked with had significant communication challenges. It is possible therefore that these findings do not fully reflect the full diversity of the population of children with ASD and are perhaps more representative of children whose communication skills are more limited. Potentially this could indicate that children with more advanced language and communication skills are not being identified at this age.

The lengthy nature of the online survey, which contained 38 questions may have influenced completion rates. Feedback from the pretesting indicated that it was possible that teachers may find the survey too long. Information sent to prospective participants indicated that it would take 30 minutes to complete the online survey, and in retrospect this was a weakness of both survey design and the information provided to potential participants. The actual time taken to complete the survey ranged from 14 minutes to 68 minutes with 34 minutes being the average. Five participants accessed the survey but did not complete it, possibly due to the amount of time involved.

6.4 Implications for Practice

All children described by the participants in the current study were demonstrating some level of emergent literacy skill and knowledge, irrespective of age or communication ability. Thus the findings from this study have a number of potential clinical implications for professionals working with preschool children with ASD and their teachers in the early childhood setting. These children are at risk of poor literacy outcomes and therefore it is imperative that their early literacy achievements are recognised and supports are available to maximise their emergent literacy learning. Speech language therapists have a role in supporting teachers to identify children who are at risk of literacy difficulties and support the use of evidence based practices to maximise literacy learning for these children.

Early childhood teachers in this study demonstrated strong understanding and use of embedded teaching practices, however there was a notable absence of more explicit teaching for children with ASD. Speech language therapists can play an important role in supporting teachers to integrate explicit teaching of literacy knowledge and skills into existing routines and activities to maximise literacy learning. Participants identified a number of challenges that they face in their role of facilitating emergent literacy development for children with ASD. It is therefore imperative that speech language therapists work alongside teachers to identify the barriers and how the child's current interests and skills can be maximised through authentic literacy experiences and opportunities.

The teachers in this study demonstrated that they were eager to learn more about ASD and how to support emergent literacy development for these children. Teachers also reported high levels of interest in greater support working alongside speech language therapists in the early childhood centre. Generally teachers indicated that they appreciated the support and professional knowledge of speech language therapists, however frequently teachers indicated that they felt they needed a greater level of support, collaboration or more timely support. The high proportion of children described in this study as having communication and oral language difficulties offers an important opportunity to build collaborative practice between teachers and speech language therapists. The focus of this collaborative relationship should be enhancing teaching practice in order to support better outcomes for children with ASD.

Typically early childhood teachers will have intimate knowledge of the child as well as the literacy curriculum and activities available in the centre. Speech language therapists may not know the child as well, but they will have knowledge of ASD and the strategies that can support the development of communication and emergent literacy. The Education Review Office (2011b) identified the need for targeted PL&D to improve emergent literacy teaching and learning in early childhood settings. This along with the findings of the present study

suggest that there is role for speech language therapists to be involved in the design and delivery of PL&D to ensure that teachers have the knowledge to identify children at risk and the skills to support their emergent literacy development.

Children with ASD experience high levels of communication difficulties (Noens & Van Berckelaer-Onnes, 2005; Wilkinson, 1998) and this is represented in the description of children's communication abilities in the present study. In spite of this, there is very limited evidence of the use of AAC strategies being used. AAC has the potential to provide children with ASD with a means of functional communication and can lead to greater participation and social engagement (Ganz et al., 2012; Mirenda, 2008). There is a clear need for speech language therapists to take a more active role in providing AAC services to these children.

6.5 Implications for Future Research

This research provides initial insights into children's engagement with emergent literacy in New Zealand preschool settings. It highlights the strategies that teachers working in these settings utilise to support this development, including embedding literacy opportunities, individualising learning through children's special interests, and incorporating technology. There is scope for a more extensive study of early childhood teachers in New Zealand to explore whether the findings of the present study are representative of the broader teaching population. This could also include other data collection methods such as observations to gain greater insights into children's engagement and the ways in which teachers support and develop emergent literacy for children with ASD.

As mentioned earlier, the Education Review Office (2011b) recommended that there is a need for targeted PL&D in emergent literacy. This along with the variability of teachers' understanding of emergent literacy demonstrated in the present study suggests there is a need for further local research into the impact of PL&D on teachers' beliefs and teaching

practices. Research exploring the impact of PL&D on teachers' interactions and teaching strategies would help to support the efficacy or otherwise of PL&D programs.

There is a need for further research both in New Zealand and abroad to explore how children with ASD participate and are included in the emergent literacy activities and opportunities in the early childhood setting. Whalon, Al Otaiba and Delano et al. (2009) argue that in the absence of a strong research base specific to ASD, teachers should deliver balanced literacy instruction grounded in current evidence based practice. Ideally future studies will begin to explore the efficacy of current best practices in emergent literacy instruction for children with ASD, with a particular focus on the explicit interventions that are known to benefit at risk populations.

The use of technology in early childhood centres is a feature of the modern world. Although the present study suggests that the use of technology is only emerging, it was often cited as a motivator for children with ASD. This suggests that there is a need to explore how technology can be used effectively within early childhood centres to promote emergent literacy knowledge and skills. An area of particular focus is the ways in which technology can support the development of children's emergent writing skills as in the present study many teachers identified this as a particularly difficult area to engage children in.

6.6 Final Thoughts

This study has demonstrated that preschool children with ASD can and do engage with emergent literacy in the early childhood setting. Although teachers in this study frequently identified children's oral language skills as being a higher priority, all of the children were able to exhibit emergent literacy knowledge and skills in the early childhood context to varying degrees. In spite of evidence of interest and engagement in emergent literacy, teachers reported that sustaining this engagement presented a significant challenge in busy preschool classrooms.

The teachers in this study demonstrated the underlying strengths based principles of Te Whāriki through their use of children's interests to engage and extend children's learning. This study highlights the opportunities and needs for speech language therapists and teachers to work together more collaboratively. Teachers clearly articulated a desire for a greater degree of inter-professional collaboration to support their teaching practices for children with ASD. The teachers in this study demonstrated strong embedded literacy practices. However, the limited evidence of explicit teaching strategies, suggests there is a role for speech language therapists to work alongside teachers to enhance emergent literacy instruction for children with ASD.

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APPENDICES

Appendix A: Information Sheet

Emergent Literacy Practices for Preschool Children with Autism Spectrum Disorders

INFORMATION SHEET – INVITATION TO PARTICIPATE IN

A SURVEY AND / OR INTERVIEW

Researcher(s) Introduction

This project is being carried out by Julia Wright, a masters student in the Speech-Language Therapy program at Massey University, Auckland, under the supervision of Dr Sally Clendon and Dr Mandia Mentis. Julia is currently employed part-time as a speech language therapist by the Ministry of Education in West Auckland.

Project Description and Invitation

The aim of this project is to explore the literacy teaching practices employed with preschool children with Autism Spectrum Disorders (ASD). We know that literacy development begins in the earliest stages of a child's life and that the knowledge and skills that children acquire in the preschool years provide the foundations for later development of formal literacy skills. Many children with ASD face literacy learning challenges, however, there is very little understanding of the early literacy experiences of these children.

*This is a two-part project. The first part involves a **survey** of preschool teachers with experience teaching children with ASD to identify the teaching practices, literacy experiences, and challenges they face in developing the early literacy skills of children with ASD. The second part involves an **interview** to obtain more detailed information on the topics outlined above.*

I would be very grateful if you would consider participating in one or both parts of the project.

Participant Identification and Recruitment

I have been in contact with the manager / head teacher of your early childhood centre to discuss this project and they suggested that you meet the recruitment criteria for the project.

I am recruiting early childhood teachers who:

a) are currently teaching in a licensed early childhood centre
b) have taught a child who has an Autism Spectrum Disorder (e.g. Autism, Aspergers, Pervasive Developmental Disorder) within the last 3 years

Project Procedures

The **survey** component of the project involves completing an online survey. The survey can be completed at a time that is convenient to you and will take approximately 30 minutes to complete.

The **interview** component involves an individual interview that will last a maximum of 60 minutes. Participants will be given a choice of the time and location for the interviews. Interviews will be digitally recorded for later transcription. Interview participants will have an opportunity to read and approve the transcripts.
All of the information that you provide to the researchers will be kept strictly confidential and will be stored in a locked office at Massey University. Only the researchers will have access to the information.

When the project is finished, the results of the study may be published in journals or presented at conferences; however the information will not include the names of any of the participants. A summary of the research findings will be sent to your early childhood centre.

The information will be kept for 7 years following the completion of the final publication. When disposed of, the University confidential waste service will be used for printed materials, and videotapes will be wiped.

Interview participants will be compensated for their time with a $25 Westfield voucher.

Participant's Rights
You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- Decline to answer any particular question;
- Withdraw from the study at any time prior to the commencement of data analysis in January 2014 and have any data pertaining to you destroyed;
- Ask any questions about the study at any time during participation;
- Provide information on the understanding that your name will not be used unless you give permission to the researcher;
- Ask for the voice recorder to be turned off at any time;
- Be given access to a summary of the project findings when it is concluded.

Project Contacts
If you think you might be interested in being part of this project, you can complete the survey online by following the link. The survey is anonymous. By choosing to complete the survey, it is assumed that you consent to your responses being used in this research project

https://www.surveymonkey.com/s/EmergentLiteracyASD

If you are willing to participate in the interview component of the study, then please e-mail Julia Wright.

julia.wright.2@uni.massey.ac.nz

If you have any questions relating to the project, please call Julia Wright on **021199258** or Dr. Sally Clendon on **414 0800 Ext. 41647**

Committee Approval Statement

This project has been reviewed and approved by the Massey University Human Ethics Committee: Northern, Application MUHECN 13/013 (insert application number). If you have any concerns about the conduct of this research, please contact Dr Ralph Bathurst, Chair, Massey University Human Ethics Committee: Northern, telephone 09 414 0800 x 43404, email humanethicsnorth@massey.ac.nz

Thank you for considering this project.

This information sheet is for you to keep

Julia Wright
Masters Student
Speech-Language Therapy Program
Institute of Education

Appendix B: Informed Consent Document

MASSEY UNIVERSITY
INSTITUTE OF EDUCATION
TE KURA O TE MATĀURANGA

Emergent Literacy Practices for Preschool Children with Autism Spectrum Disorders

INTERVIEW CONSENT FORM

This consent form will be held for a period of seven (7) years from the date of the last publication

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I agree/do not agree to digital recording during an interview

I agree to participate in this study under the conditions set out in the Information Sheet.

Signature: ..... **Date:** .....

Full Name - printed .....

Early Childhood Centre: .....

Appendix C: Transcript Release Authority Form

Emergent Literacy Practices for Preschool Children with Autism Spectrum Disorders

AUTHORITY FOR THE RELEASE OF TRANSCRIPTS

I confirm that I have had the opportunity to read and amend the transcript of the interview(s) conducted with me.

I agree that the edited transcript and extracts from this may be used in reports and publications arising from the research.

Signature: _____ **Date:** _____

Full Name - printed: _____

Appendix D: **Recruitment E-mail**

MASSEY UNIVERSITY
INSTITUTE OF EDUCATION
TE KURA O TE MATĀURANGA

Emergent Literacy Practices for Preschool Children with Autism Spectrum Disorders

Dear ,

Thank you for taking the time to talk to me today about the research I am carrying out as part of my Masters of Speech Language Therapy in the Institute of Education at Massey University.

You will recall that I am examining the emergent literacy teaching practices used with children with Autism Spectrum Disorders (ASD) and the challenges inherent in supporting their emergent literacy development in the preschool environment.

I would appreciate your assistance in recruiting teachers for this research project. Could you please distribute the enclosed participant information sheets to teachers in your centre who are currently:

a. teaching children 3 years and above
b. have taught at least one child with an ASD

The study involves two parts: (a) an anonymous online survey and (b) interviews with teachers. Participants can choose to participate in one or both parts of the study.

Thank you for considering this request for assistance. I would be happy to meet with you to provide further information and explanation about the project should this be required.

Committee Approval Statement
This project has been reviewed and approved by the Massey University Human Ethics Committee: Northern, Application MUHECN 13/013. If you have any concerns about the conduct of this research, please contact Dr Ralph Bathurst, Chair, Massey University Human Ethics Committee: Northern, telephone 09 414 0800 x 43404, email humanethicsnorth@massey.ac.nz

Yours sincerely

Julia Wright

Appendix E: **Follow Up Letter**

MASSEY UNIVERSITY
INSTITUTE OF EDUCATION
TE KURA O TE MATĀURANGA

Emergent Literacy Practices for Preschool Children with Autism Spectrum Disorders

Have you had experience teaching a child with an Autism Spectrum Disorder within the last three years?

I need your help for my masters research project investigating how preschool teachers support literacy development and literacy experiences for children with ASD, as well as the challenges teachers face in supporting literacy development for these children.

The study involves either

a) an anonymous online survey

The survey takes around 20-25 minutes and can be completed using this link
https://www.surveymonkey.com/s/EmergentLiteracyASD

b) interview

The interview will take a maximum of 1 hour and can be arranged at a time and place that is convenient to you. A $25 Westfield voucher will be given as compensation for your time

Please contact me julia.wright.2@uni.massey.ac.nz or 0211199258 if you are interested in taking part in an interview

Participants can choose to participate in one or both parts of the study.

Please read the 'Participant Information Sheet' for full details of the study. I am happy to answer any questions you may have about the study. Please feel free to contact me
julia.wright.2@uni.massey.ac.nz
0211199258

Julia Wright
Masters Student
Speech-Language Therapy Program
Institute of Education

Appendix F: **Online Survey**

MASSEY UNIVERSITY
INSTITUTE OF EDUCATION
TE KURA O TE MATĀURANGA

This project is being carried out by Julia Wright, a masters student in the Speech-Language Therapy program at Massey University, Auckland, under the supervision of Dr Sally Clendon and Dr Mandia Mentis.

The aim of this project is to explore the literacy teaching practices used with preschool children with Autism Spectrum Disorders (ASD). By completing this survey you it is assumed that consent is given to include your responses in this research project.

If you have any questions relating to the project, please contact Julia Wright on 0211199258 or julia.wright.2@uni.massey.ac.nz. Alternatively you can contact Dr. Sally Clendon on 414 0800 Ext. 41647

Committee Approval Statement
This project has been reviewed and approved by the Massey University Human Ethics Committee: Northern, Application MUHECN 13/013. If you have any concerns about the conduct of this research, please contact Dr Ralph Bathurst, Chair, Massey University Human Ethics Committee: Northern, telephone 09 414 0800 x 43404, email humanethicsnorth@massey.ac.nz

Section 1: Centre Information

Which best describes the centre you work in

- ❑ Public kindergarten
- ❑ Daycare / preschool
- ❑ Private (sessional) kindergarten or preschool
- ❑ Community preschool
- ❑ Kohanga Reo
- ❑ Pacific Island Language Nest

On average how many children are enrolled in the class / room / session that you teach

- ❑ 1-10
- ❑ 11-20
- ❑ 21 - 30
- ❑ 31- 40
- ❑ 41-50

What is the age range of the children you teach?

When did you last teach a child with Autism Spectrum Disorder (ASD).

- ❑ Currently teaching a child with Autism Spectrum Disorder (ASD)
- ❑ Within the last 8 months
- ❑ 2012
- ❑ 2011
- ❑ Prior to 2011
- ❑ I have never taught a child with Autism Spectrum Disorder

Does the child have a current Individual Plan (IP) in place?

- ❑ no
- ❑ yes

Which of the following areas are being targeted in the child's current (IP)?
please check all that apply

- ❑ communication
- ❑ understanding language
- ❑ physical skills
- ❑ behaviour
- ❑ social interaction
- ❑ play skills
- ❑ toileting
- ❑ fine motor skills
- ❑ drawing or writing skills
- ❑ emergent reading skills (e.g. listening to stories, engaging with books)
- ❑ name recognition

Section 2: Professional Learning and Development

What teaching qualifications do you hold? (check all that apply)

- ❑ Bachelor of Teaching (Early Childhood Education)
- ❑ Graduate Diploma of Teaching (Early Childhood Education)
- ❑ Diploma of Teaching (Early Childhood Education)
- ❑ No teaching qualification
- ❑ Other - Please specify

How many years of teaching experience do you have?

- ❑ first year

- ❑ 1-2
- ❑ 3-5
- ❑ 5-10
- ❑ 10+

How many children have you taught that have had a diagnosis of ASD?

- ❑ first experience
- ❑ 2
- ❑ 3-5
- ❑ 5-10
- ❑ 10+

Have you had any kind of professional development in providing emergent literacy instruction to preschool age children?

- ❑ yes
- ❑ no

What kind of professional and learning and development have you had in providing emergent literacy instruction to preschool aged children? (check all that apply)

- ❑ Undergraduate coursework
- ❑ Graduate coursework
- ❑ In-service programs
- ❑ Conferences/seminars
- ❑ Professional materials
- ❑ Assistance from other teachers
- ❑ Assistance from other professionals
- ❑ Self directed learning (e.g. reading books, journal articles)
- ❑ Online learning (e.g. blogs, participation in forums, websites)
- ❑ Other – Please specify:

Have you had any kind of professional learning and development in Autism Spectrum Disorders?

- ❑ yes
- ❑ no

What kind of professional learning and development have you had in ASD? (check all that apply)

- ❑ Undergraduate coursework

- ❑ Graduate coursework
- ❑ In-service programs
- ❑ Conferences/seminars
- ❑ Professional materials
- ❑ Assistance from other teachers
- ❑ Assistance from other professionals
- ❑ Self directed learning (e.g. reading books, journal articles)
- ❑ Online learning (e.g. blogs, participation in forums, websites)
- ❑ Other – Please specify:

Have you had any kind of professional learning and development in providing emergent literacy instruction to children with Autism Spectrum Disorders?

- ❑ yes
- ❑ no

What kind of preparation have you had in providing emergent literacy instruction to children with ASD? (check all that apply)

- ❑ Undergraduate coursework
- ❑ Graduate coursework
- ❑ In-service programs
- ❑ Conferences/seminars
- ❑ Professional materials
- ❑ Assistance from other teachers
- ❑ Assistance from other professionals
- ❑ Self directed learning (e.g. reading books, journal articles)
- ❑ Online learning (e.g. blogs, participation in forums, websites)
- ❑ Other – Please specify:

Section 3: Beliefs About Emergent Literacy

What is your understanding of what emergent literacy is?

What is your beliefs about how emergent literacy skills should be taught or developed in young children?

Please rate each of the following statements in terms of how strongly to you agree or disagree with them

Significant classroom time should be devoted to emergent literacy instruction every day

- ❑ strongly agree
- ❑ agree
- ❑ neutral

- ❑ disagree
- ❑ strongly disagree

Children will best learn emergent literacy skills when specific skills (e.g. alphabet letter or rhyming are targeted for instruction)

- ❑ strongly agree
- ❑ agree
- ❑ neutral
- ❑ disagree
- ❑ strongly disagree

Children should have strong speech and language skills in place before they are introduced to emergent literacy learning

- ❑ strongly agree
- ❑ agree
- ❑ neutral
- ❑ disagree
- ❑ strongly disagree

Children with ASD are not ready for emergent literacy instruction in preschool

- ❑ strongly agree
- ❑ agree
- ❑ neutral
- ❑ disagree
- ❑ strongly disagree

Direct instruction in emergent literacy should not begin until children start school

- ❑ strongly agree
- ❑ agree
- ❑ neutral
- ❑ disagree
- ❑ strongly disagree

Please rate each component of emergent literacy from most to least important for later literacy success in school on a scale of 1 - 5 (where 1 = most important, 5 = least important)

A large vocabulary

Strong phonological awareness skills

Ability to name letters of the alphabet

Strong concept of print knowledge

Ability to write letters

Section 4: The Approach to Literacy Instruction in Your Centre

Which printed materials are available in your the class / room / session that you teach

(check all that apply)

- ❑ Magazines
- ❑ Junk mail / flyers
- ❑ Posters
- ❑ Catalogues
- ❑ Newspapers
- ❑ Letters / postcards
- ❑ Children's magazines
- ❑ Children's picture books
- ❑ Children's encyclopaedias
- ❑ TV guides
- ❑ E-books
- ❑ Printed signs (e.g. labelling areas of the centre)
- ❑ Other

Which of the following writing and drawing materials / activities are available in your centre?

- ❑ Magnetic letters
- ❑ Chalk boards / whiteboards
- ❑ pencil and paper
- ❑ crayons / felt pens
- ❑ painting
- ❑ keyboard / typing
- ❑ computer software or apps for drawing or writing

Section 5: Child with ASD - Background Information

Please think about the child in your class who has ASD, please answer these questions with reference to this child. If you are currently teaching more than one child with ASD please choose one child and answer the following questions with this child in mind.

What is the child's diagnosis?

- ❑ Autism

- ❑ Aspergers
- ❑ ASD
- ❑ Pervasive Developmental Disorder
- ❑ Other - Please specify:
- ❑ Not sure

Are you aware of the child receiving any of the following supports (check all that apply)

- ❑ early intervention teacher from the Ministry of Education
- ❑ speech language therapy from the Ministry of Education
- ❑ private speech language therapy input
- ❑ occupational therapist
- ❑ education support worker
- ❑ Other, please specify

What modes of communication does the child with ASD currently use?

Please tick all that apply below

- ❑ Speech
- ❑ Gestures (e.g., pointing)
- ❑ Sign language (eg. Makaton or New Zealand Sign)
- ❑ Choice boards with removable symbols
- ❑ Picture Exchange Communication System (PECS)
- ❑ Communication board or book with communication symbols
- ❑ AAC device – Please specify
- ❑ Other – Please specify

Section 6: Child's Engagement in Literacy Activities

Continue to think about the child in your class who has ASD, please answer these questions with reference to this child.

How frequently does the child with ASD participate in **small group storybook reading**?

- ❑ Hardly ever
- ❑ Occasionally (not on a regular basis)
- ❑ At least once a week
- ❑ About 3 times per week
- ❑ At least once a day

How frequently does the child with ASD participate in **whole class storybook reading**?

- ❑ Hardly ever
- ❑ Occasionally (not on a regular basis)

- ❑ At least once a week
- ❑ About 3 times per week
- ❑ At least once a day

How frequently does the child with ASD participate in **mat time**?

- ❑ Hardly ever
- ❑ Occasionally (not on a regular basis)
- ❑ At least once a week
- ❑ About 3 times per week
- ❑ At least once a day

How frequently does the child with ASD participate in **small group oral language** activities?

- ❑ Hardly ever
- ❑ Occasionally (not on a regular basis)
- ❑ At least once a week
- ❑ About 3 times per week
- ❑ At least once a day

How frequently does the child with ASD participate in **whole class oral language** activities?

- ❑ Hardly ever
- ❑ Occasionally (not on a regular basis)
- ❑ At least once a week
- ❑ About 3 times per week
- ❑ At least once a day

How frequently does the child with ASD engage with a **book of their own choice**?

- ❑ Hardly ever
- ❑ Occasionally (not on a regular basis)
- ❑ At least once a week
- ❑ About 3 times per week
- ❑ At least once a day

How frequently does the child with ASD engage with **letter based or alphabet activities**?

- ❑ Hardly ever
- ❑ Occasionally (not on a regular basis)
- ❑ At least once a week
- ❑ About 3 times per week
- ❑ At least once a day

How frequently does the child with ASD engage in **drawing or writing activities**?

- ❑ Hardly ever
- ❑ Occasionally (not on a regular basis)
- ❑ At least once a week

- ❑ About 3 times per week
- ❑ At least once a day

How do you include the child with ASD in storybook reading?

How have you encouraged the development of alphabet knowledge in the child with ASD?

How have you encouraged the development of phonological awareness skills in the child with ASD?

How have you encouraged the development of oral language skills in the child with ASD?

How have you encouraged the development of print concepts with the child with ASD?

How have you encouraged vocabulary development in the child with ASD?

How have you encouraged the student with ASD to engage in independent book reading / exploration?

How have you encouraged the development of emergent writing skills in the child with ASD?

Section 7: Competency

How competent do you feel in developing the **alphabet knowledge / letter knowledge** of children with ASD?

- ❑ 1 -no experience
- ❑ 2 - novice
- ❑ 3 - competent
- ❑ 4 - highly competent

How competent do you feel developing the **phonological awareness** skills of children with ASD?

- ❑ 1 -no experience
- ❑ 2 - novice
- ❑ 3 - competent
- ❑ 4 - highly competent

How competent do you feel developing the **oral language** skills of children with ASD?

- ❑ 1 -no experience
- ❑ 2 - novice
- ❑ 3 - competent
- ❑ 4 - highly competent

How competent do you feel developing the **print concepts** of children with ASD?

- ❑ 1 -no experience
- ❑ 2 - novice
- ❑ 3 - competent
- ❑ 4 - highly competent

How competent do you feel developing the **emergent writing** skills of children with ASD?

- ❑ 1 -no experience
- ❑ 2 - novice
- ❑ 3 - competent
- ❑ 4 - highly competent

Section 8: Challenges

What are the challenges in supporting the literacy development of young children with ASD?

What emergent literacy practices do you believe are most effective for supporting emergent literacy learners with ASD?

What support, information or training do you feel would assist you to teach literacy to children with ASD?

Appendix G: Interview Guide

Background

1. Can you tell me a little bit about your professional background

- *Training*
- *Types of centres worked in*
- *Length of career*

2. Can you tell me about the centre / current room that you teach in?

- *Ages of children*
- *Staff ratios*
- *philosophy*

3. Tell me a little bit about your teaching philosophy

4. What do feel your role is in developing the emergent literacy skills of children in your centre?

5. Can you tell me about what training or professional development you have had in this area?

Probe – what about ASD?

6. What experience have you had teaching children with ASD?

Thinking about the children in you class / room who have had ASD

7. Can you give me an idea of the communication abilities of the children that you have taught?

8. What sorts of literacy activities / experiences did they engage in?

9. How would you describe their interest in reading activities or resources?

10. How would you describe their interest in writing activities or resources?

11. When you have had children with ASD what has been your priority for their literacy development ? / What skills do you hope to teach them before they go to school?

12. What are the things you find most challenging about supporting emergent literacy skills of children with ASD

Probe - Do you see any differences in how you would support emergent literacy for a child with ASD compared with a child who doesn't have ASD

13. What external organisations or agencies have been involved in supporting the students with ASD in your classroom?
Probe - How have they supported the children's literacy learning?

14. Have literacy goals been a focus in their IDPs?

15. What support, information or training would help you to develop emergent literacy skills for this population?
Probe – if you had no constraints what do you think would make the biggest difference

Appendix H: Ethics Approval Letter

MASSEY UNIVERSITY
ALBANY

Julia Wright
Institute of Education
Massey University
Albany

11 June 2013

Dear Julia Wright

HUMAN ETHICS APPROVAL APPLICATION – MUHECN 13/013
Emergent literacy practices for Preschool Children with Autism Spectrum Disorders

Thank you for your application. It has been fully considered, and approved by the Massey University Human Ethics Committee: Northern.

Approval is for three years. If this project has not been completed within three years from the date of this letter, a re-approval must be requested.

If the nature, content, location, procedures or personnel of your approved application change, please advise the Secretary of the Committee.

Yours sincerely

Dr Ralph Bathurst
Chair
Human Ethics Committee: Northern

Te Kunenga ki Pūrehuroa
Research Ethics Office
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