

Intergenerational Literacy Engagement

Literacy Intervention for Teenage Mothers and their Children

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“Children are made readers on the laps of their parents.”

~ Emilie Buchwald

The material presented in this thesis is the original work of the candidate except as acknowledged in the text, and has not been previously submitted, either in part or in whole, for a degree at this or any other University.

The research reported in this thesis has been approved by the University of Canterbury Educational Research Human Ethics Committee.

Amy Frances Scott

Acknowledgements

“It always seems impossible until it’s done.”

~Nelson Mandela

A number of metaphors are frequently applied to the undertaking of a PhD. Not being a sportsperson myself, I’m hesitant to make any reference to mountain climbing, marathons, or other extreme events some people choose to participate in. The lack of appropriate metaphors, however, does not in any way minimise the extreme challenge of completion, and I can say without any hesitation, that the past 3½ years have tested me in every possible way. What is also clear to me is that succeeding at this monumental task would not have been possible without a number of important people.

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~ Amy Scott

Abstract

The language and literacy development of young children starts in the home, and is strongly influenced by the experiences and beliefs they are exposed to by their parents. Teenage mothers are reported to have an increased risk of low levels of educational attainment, with preliminary data suggesting literacy development is also impeded. Further, their potentially negative experiences with reading may influence their beliefs and perceptions of the activity. Children of teenage mothers are at greater risk of delayed language and literacy development, and their mothers may be less able to provide the enriched experiences required to facilitate optimal development. Therefore, interventions to support both the mother's own literacy beliefs and skills, and the literacy environment in which they raise their children are a potentially useful way of optimising the developmental opportunities available. Despite the identified intergenerational nature of literacy learning, interventions targeting the literacy skills of teenage mothers and their children, particularly in the New Zealand context, are sparse. The experiments in this thesis addressed the need to better understand the language and literacy development of New Zealand teenage mothers and their children, and determine the effectiveness of interventions to target these important areas.

The first study explored the home literacy environments provided by 41 New Zealand teenage mothers. This experiment utilised an online survey to gather qualitative and quantitative data on four key aspects of the home literacy environment. The findings suggest that teenage mothers recognise the importance of engaging children in shared reading interactions, but they lack knowledge on other aspects of children's early literacy experience. For example, the role their own reading behaviours may contribute, the importance of

providing a home environment enriched with literacy resources, and developmentally appropriate behaviours demonstrated by young children during shared reading.

The second study described the language and literacy skills of 41 teenage mothers ($M = 18;7$) enrolled in an educational facility. A range of standardised assessment measures examining language, literacy, and non-verbal reasoning were utilised to describe their development. Data from this assessment battery allowed the identification of a low-achievement subgroup of 25 mothers (61%), who scored below a standard score of 85 on the passage comprehension measure. Examination of the data suggests teenage mothers have a wide range of language and literacy skills, spanning from well below to above average on all measures. The exception to this was non-verbal reasoning, in which the majority of the cohort was performing within the expected range for their age. The low-achievement subgroup presented with a similar profile of variability on language and literacy measures, with lower overall means. The relative strength of non-verbal reasoning remained consistent. The results suggest language and literacy support is warranted within this population, and that a range of areas, including their previous disengagement with education and personal motivations, need to be addressed within an intervention approach.

The third study explored the effectiveness of a multi-component literacy intervention targeting the literacy skills of 10 mothers ($M = 18;10$) identified as low-achieving in reading comprehension. Using a pre-test/post-test research design with general comparison group ($M = 18;6$), the 26-session classroom-based intervention used same-language subtitled movies and a range of integrated literacy activities to target passage and word comprehension, oral reading fluency, vocabulary, morphology and spelling. Results showed no significant improvement in passage comprehension, oral reading fluency, spelling or vocabulary from pre- to post-intervention testing. Statistically significant improvement was noted for

morphological awareness. When comparing results to a general comparison group, no significant improvement was detected in any area.

The fourth study aimed to describe the language and development of 36 children of teenage mothers ($M = 17$ months). A range of standardised and parent-report assessment measures were used. Results varied considerably within the group on all measures. On clinician measures of language development, younger children performed more poorly than older children. Discrepancies were also observed between parent- and clinician-report measures. Parent measures primarily indicated children were performing within or at above average range in language and development. Conversely, clinician-report measures highlighted concerns with regards to children's language development. In consideration of the risk profiles associated with teenage motherhood, the results suggested that these children may benefit from enriched language and literacy opportunities through quality shared reading interactions with their mothers.

Given the home literacy environment was reported as lacking in enriched opportunities for literacy development, and children's language development was identified as at-risk, the fifth study implemented a parent-targeted intervention to enrich the shared reading interactions experienced by 27 children of teenage mothers ($M = 19;6$). Using a pre-test/post-test research design mothers completed a seven week intervention based in the classroom, targeting a range of emergent literacy skills that they could utilise when reading with their children. A comparison cohort ($n = 10$; $M = 18;3$) was utilised to establish if assessed behaviours were commensurate with a similar population of teenage mothers. Assessments tracked changes in the type and frequency of mothers' reading behaviours demonstrated during videoed shared reading interactions with their young children, as well as changes to aspects of the home literacy environment. A blinded, independent coder completed the data analysis. Results indicated significantly greater frequency of vocabulary,

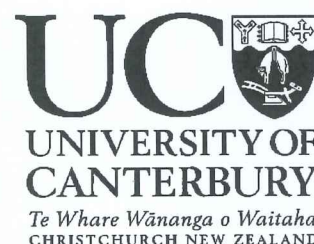
questioning and book/print features-focused reading behaviours from pre-test to post-test. No changes were observed in reading behaviours relating to letter/sound features.

The sixth study provided an in-depth analysis of the quality and quantity of language used by mothers and children during the shared reading interactions collected in study five. Using a pre-test/post-test research design, language quality and quantity was measured during the shared reading interactions of 14 mother/child dyads (M = 19;9). Analysis examined MLU-m and total number of words and utterances used by mother and child, mother's use of rare/sophisticated words, and children's use of word classes. Discourse-level analysis was also completed, which examined five different types of conversational acts. Results demonstrated significant and meaningful changes in both language quality and quantity following the emergent literacy intervention. Changes at the discourse level were also observed.

This thesis revealed that the language and literacy profiles of teenage mothers and their children are heterogeneous in nature, and may reflect a wide range of experiences and circumstances that existed before parenthood. This comprehensive collection of data is the first of its kind and provides detailed information on the language and literacy skills of this population. Despite the observed variability, it was determined that there is a need within this population for literacy support for both mothers and their children. This research also demonstrated differential changes in response to intervention when targeting the literacy skills of the mothers, and the way in which they share books with their children. The most positive changes were observed from the intervention that targeted shared book reading at both a behavioural and linguistic level. Analysis of the linguistic characteristics of shared reading interactions is a novel method of exploring response to intervention, and has not previously been examined in the literature.

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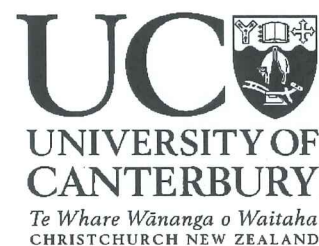
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Chapter 1

Introduction and Literature Review

1.1 Introduction

Literacy forms the foundation for an actively engaged life. Levels of literacy skill are related to increased participation in higher education, greater job opportunities and higher incomes (Ministry of Education, 2005). Literacy skills are also intergenerational, with maternal education and literacy levels known to be associated with children's literacy ability (Aram & Levin, 2001; Cabell, Justice, Konold, & McGinty, 2011). The development of sufficient literacy begins at a very early stage in a child's life, and more often than not, under the guidance of their parent or caregiver. These early skills, known as emergent literacy are the foundational skills acquired in the first six years of life, upon which reading and writing abilities are built (Justice, Chow, Capellini, Flanigan, & Colton, 2003; Whitehurst & Lonigan, 1998). This includes concepts such as alphabetic principles, print concepts, and phonological awareness, along with a solid foundation of vocabulary knowledge (Clay, 1991; Whitehurst & Lonigan, 1998, 2001). Predictive studies indicate early performance on a variety of emergent literacy tasks can predict literacy ability later in life (Scarborough, 1998). Children who have poor literacy skills are at higher risk of expressive and receptive language delay, lower vocabulary knowledge, poor phonological awareness skills and reduced success with reading later in life (Hesketh, 2004; Larney, 2002). Children who struggle with emergent literacy skills are at much greater risk of not achieving at reading when they reach school and therefore are more likely to experience the negative implications of poor literacy skills as they grow.

Some populations have been identified as being at greater risk of experiencing delays or difficulties in acquiring literacy skills, which in turn negatively impacts on their chance of being academically successful. Some risk factors associated with delayed literacy acquisition include the socioeconomic status of the child's family, parental education level and amount of early exposure to literacy activities (Cabell et al., 2011; Justice, 2006). One population frequently characterised by these and other risk factors is teenage mothers and their children (Burgess, 2005; Fergusson & Woodward, 2000; Woodward, Fergusson, & Horwood, 2001). Despite the known profile of risk factors, studies examining in detail the language and literacy skills of teenage mothers and their children and the potential efficacy of programmes to intervene with any experienced difficulties are rare.

This thesis reports on the language and literacy skills of a group of New Zealand teenage mothers, and the language development of their children. It also examines the home literacy environment provided by teenage mothers and, working on the principle of an intergenerational literacy model, their responses to two intervention programmes designed to enhance their own literacy skills and that of their children. Intergenerational/family literacy programmes provide the opportunity to combine adult skill improvement with children's literacy development. Nickse (1990) proposed typology to classify intergenerational or family literacy programmes based on the type of programme (direct or indirect), and the participation (adults or children alone, or together). The research presented in this thesis is based on an adult direct/child indirect model, which targets the literacy skills of teenage mothers, and then supports them to enrich the way they read with their young children. Under this model, parents may receive literacy instruction, in addition to coaching on reading with their children and other literacy-based activities (Nickse, 1990). In this manner, two generations of readers are being targeted: mother and child.

1.1.1 Theoretical Framework

In order to understand the context that this research occurred in, it is useful to consider the application of a theoretical framework. Bronfenbrenner (1992) proposed an ecological systems view of an individual and described how one is embedded within a series of complex and interrelating systems. This ecological framework provides an excellent means of describing the community in which teenage mothers and their children sit. At the centre of the model is the individual, in this case both the teenage mother and her young children. Surrounding the individual is the environment, divided into five components: the microsystem, the mesosystem, the exosystem, the macrosystem, and the chronosystem.

The microsystem is the objects and individuals that immediately surround a person. In the case of teenage mothers and their children, individuals may include family members (e.g. parents/grandparents and siblings), partners, and peers. In addition to this, the school and early childcare context are included. It is possible to have multiple microsystems influencing an individual. For example, teenage mothers and their children may have their family as one, and the teachers and peers they interact with at school and early childcare as another. The consistent presence of individuals and objects contained within the microsystem may have strong influences on development. The mesosystem represents the interaction between an individual's different microsystems, and how one may influence another. For example, a challenging or stressful home environment may lead to difficulty fully engaging in school. As discussed later, in Section 1.2, this is a particularly relevant consideration for teenage mothers, as their home lives are often disrupted by inconsistent partner presence, financial hardship and the challenges associated with solo parenting.

Next is the exosystem, which refers to social settings that influence development. This may include environments such as extended family, community and social services,

neighbours, and mass media. The impact of the exosystem may be felt especially strongly by the children of teenage mothers. For example, if their mother is having difficulty completing the appropriate paperwork to gain financial support from a social service, this is likely to cause stress. Although second-hand in its effect, the stress placed on the mother by the social service may lead to less than optimal parenting, in turn impacting on a child's development. Teenage mothers have high rates of social service engagement and the challenges associated with interacting with these services may be limiting factor on their ability to parent to the best of their ability.

The widest environmental context is the macrosystem, which encompasses the attitudes and beliefs which encircle the micro-, meso- and exosystem. This may work in two ways within the ecological system of teenage mothers. Firstly, the culture of teenage mothers they are integrated in within the school context, and secondly the attitudes and values of the broader society. Teenage mothers who have chosen to return to education may find a subculture of other teenage mothers who face similar challenges and experiences to them. These shared experiences and values would act as a supporting system. Conversely, the attitudes and values of the wider cultural context towards teenage mothers may act as a limiting factor, impacting on confidence and ability to access necessary support services.

Interlacing all these systems is the dimension of time as it changes, referred to by Bronfenbrenner (1992) as the chronosystem. This system exists to demonstrate that the micro-, meso-, exo- and macrosystem are fluid and changeable, and therefore so is their influence on the individual. This is particularly pertinent when considering teenage mothers and their children, as it suggests that influences such as education, a stable home environment, and supportive family and friends may potentially shift the trajectory of both mother and child's development and life course. In addition, it suggests that these supportive

factors can enter life at a time point beyond birth (e.g. a teenage mother’s return to education), and exert its positive influences from then on.

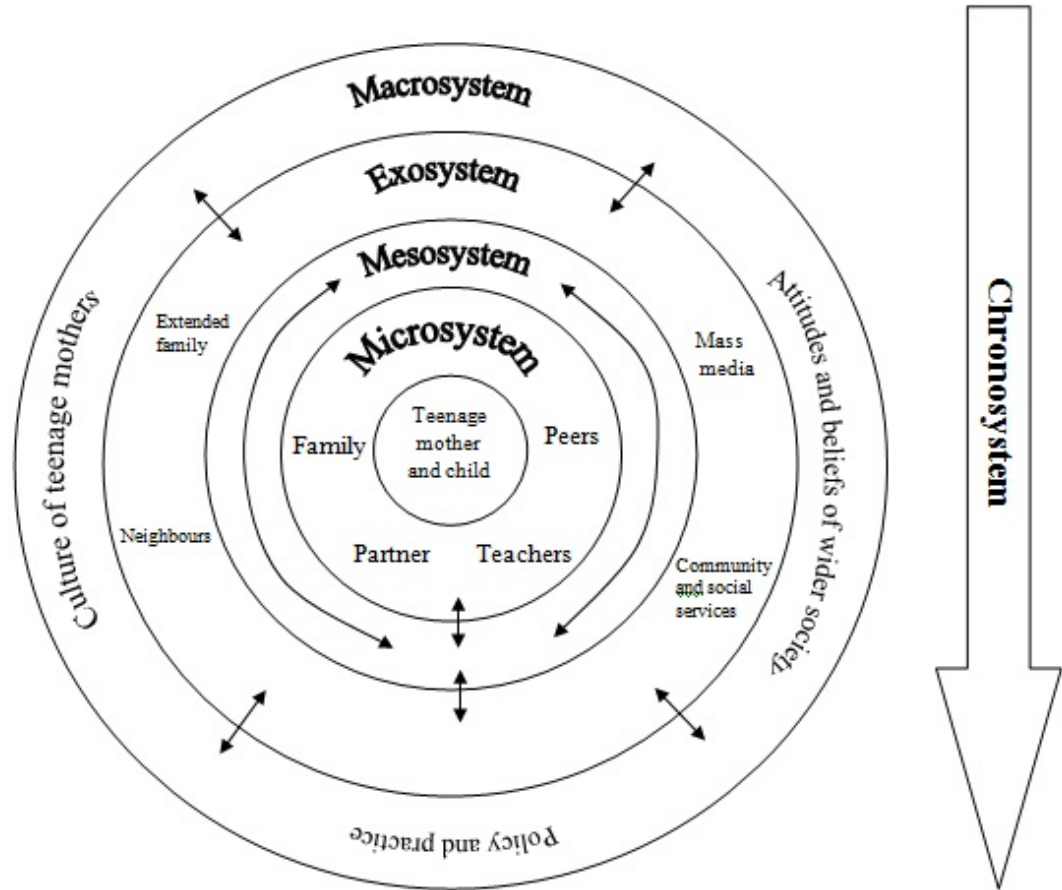


Figure 1.1: Bronfenbrenner’s Ecological System Applied to Teenage Mothers and Their Children

The research presented within this thesis aims to act across all levels of the ecological system, by targeting the literacy skills of the mothers and, indirectly, their children. Figure 1.1 represents the ecological systems model, as applied to teenage mothers and their children. It includes the influence of family, partners and peers; the potential stressors experienced by a teenage mother; the social influences; and the attitudes and beliefs of themselves and others. Encompassing all of these is the dimension of time, to represent the fluid and changeable nature of all aspects of the model. Approaching intervention of this population from an

ecological systems model allows for consideration of all systems and how they interact to hinder or support literacy development. The following review of the literature will be presented in two parts. The first will address literature relevant to teenage mothers and their literacy development. The second part will address the children of teenage mothers and their language and literacy development.

Part One

1.2 Research Involving Teenage Parents

Rates of teenage pregnancy in New Zealand are still among the highest in the world, despite a number of public health campaigns and policy discussion focused on the reduction in rates of teenage pregnancy through means such as free access to contraception and improved sex education. With 23.4 births per 1,000 women aged 15-19, New Zealand falls in the top five OECD countries in the world for teenage birth rates, and well above the OECD average (of 15.5 births per 1000) (Chapple & Richardson, 2009). In New Zealand, approximately 51 in 1000 girls aged 15-19 years become pregnant each year (Ministry of Youth Development, 2008). Young women of Maori and Pacific Island descent are much more likely to become pregnant than other ethnic groups, with the birth rate for young Maori women almost three times higher than the overall teenage birth rate (Dickson, Sporle, Rimene, & Paul, 2000).

There is plentiful evidence to highlight the negative implications of becoming a teenage mother for both the parent and child. Current literature is largely health-based and quantitative in nature, expressing the ‘big picture’ of teenager parenthood with regards to risk factors, characteristics, outcomes, and the association between teenage pregnancy and under-achievement in education. Under Bronfenbrenner’s (1992) ecological systems model, this focuses primarily on the individual and their microsystem. This data’s role is pragmatic and provides information for social policy and international comparisons.

A Christchurch birth cohort study beginning in 1977 provides a significant body of literature on the characteristics of teenage mothers in New Zealand. This study tracked 1265 young people from birth to 21 years. Analysis indicated that of 533 young women (85% of

the original cohort) 26% became pregnant and 14% became mothers. The majority of these pregnancies occurred between the ages of 17 and 21 years. Several studies from this data have been published that report the social and familial characteristics and subsequent outcomes of teenage parenthood from this cohort (for example Fergusson & Woodward, 1999, 2000; Woodward, Fergusson, Chesney, & Horwood, 2007; Woodward, Fergusson, et al., 2001; Woodward, Horwood, & Fergusson, 2001). Woodward, Fergusson, et al. (2001) reported that young women who became pregnant tended to come from families with a young, single mother, socioeconomic disadvantage, maternal educational under-achievement and higher levels of parental change (i.e. separation/divorce, death, remarriage, reconciliation). Compared to their non-pregnant peers, teenage mothers left school earlier and were statistically less likely to complete School Certificate and 6th Form Certificate (New Zealand's formal secondary school qualification prior to NCEA; see Section 1.3.1), or enter tertiary education or training (Fergusson & Woodward, 2000). A full discussion of the educational performance of teenage mothers will be included later in this section.

Teenage mothers from this research cohort also had a higher chance of presenting with a conduct disorder based on parent and teacher rating scales (i.e. disobedience and defiance of authority, aggression, cruelty, lying and stealing) and became sexually active at a younger age. Young women identifying as Maori were also overrepresented in the sample. Teenage mothers also reported greater incidences of sexual abuse and were more likely to have drunk alcohol before the age of 14 (Gibb, Fergusson, Horwood, & Boden, 2014). Furthermore, young women who continued with their pregnancy usually became a solo parent. For those in a relationship, nearly 25% had a partner with a history of problems with the use of illicit drugs, alcohol, or the law. A significant majority of teenage mothers (68%) were welfare dependent, with only 12% involved in education or training (Woodward, Horwood, et al., 2001). International findings regarding the experiences of teenage mothers

mirror those reported in the New Zealand literature (e.g., Berrington et al., 2005; Chen et al., 2007; Klepinger, Lundberg, & Plotnick, 1995).

Research that tracks the economic outcomes of teenage parents for at least a decade after the birth of their first child show that these adverse outcomes persist. Longitudinal data of 509 women (12.2% teenage mothers) from the Christchurch longitudinal study showed that motherhood before the age of 20 was associated with poorer economic circumstances (Gibb et al., 2014). For example, teenage mothers worked less hours, were more likely to be welfare dependent and had lower personal income which meant difficulty providing everyday needs and saving money. Certainly, a range of factors are prevalent in teenage parent populations such as family background and early life circumstances that may explain the associations between age and economic outcomes, and when comparing the two groups (early and later age mothers), differences do exist. However, when adjusting for a number of covariate factors (including but not limited to maternal age, ethnicity, abuse, exposure and conduct problems), there are still significant differences between the two groups in economic outcomes. Gibb et al. (2014) provided evidence for two key findings. Firstly, there is the notion that the economic disadvantages of young parenthood, compared with older parenthood persist at least a decade beyond the birth of their first child. And secondly, the disadvantages are more likely to be associated with becoming a parent and the impact this may have on a young woman's trajectory, than with economic disadvantages in place before parenthood occurred.

It is also important to consider the academic achievement of teenage mothers given its importance to social and vocational outcomes. Children who achieve academically well in their early school years are more likely to continue on that positive trajectory (Duncan et al., 2007), leading to greater educational and economic opportunities once leaving school. Teenage mothers are more likely to have had their education interrupted by the birth of a

child during their formative secondary school years, therefore placing them at risk of underachieving academically. This interruption to their education increases their children's risk of challenges with educational achievement, as a mother's education level and her children's academic success have been shown to be closely linked (Magnuson, 2007).

Existing literature on the academic achievement of teenage mothers generally reports it as a fixed characteristic, that is measured once, and used as a variable when exploring a range of outcomes. This approach fails to consider the impact of the chronosystem, or time, on teenage mothers and their children. For example Gibb et al. (2014) reported the percentage of teenage mothers in their study who had no formal educational qualifications (48%) and Fergusson and Woodward (2000) described educational achievement of teenage mothers at 21 years of age based on attainment and/or completion of different levels of educational qualification. These studies explored the associations between the measured factors and other variables, such as chance of becoming a teenage mother, welfare dependency, and income level. However, they did not provide any specific details on the academic skills of the population, beyond their ability to achieve or complete a formal qualification. Given that teenage mothers are highly likely to have interrupted educational experiences due to the birth of a child during their secondary school years, it is unsurprising that their ability to complete a formal qualification is impeded. Much less is known about the specific skills characteristic of this population, such as language and literacy.

One recent study went beyond general academic achievement and explored the association between secondary school literacy performance and risk of teenage parenthood. Bennett, Frasso, Bellamy, Wortham and Gross (2013) investigated the relationship between performance in 'composite reading' on the SAT-9 (a standardised achievement test used in the US) and teenage childbearing in 12,339 seventh-grade girls from Philadelphia. A sample was established from all girls who completed the SAT-9 between 1996 and 1998.

Participants' results were divided into above-average, average, and below-average categories of reading skills. From this sample, participants were linked to incidences of live births occurring between 1996 and 2002 (before the mother was older than 20 years) to determine the prevalence of teenage pregnancy within the sample. SAT-9 results were analysed, along with race/ethnicity, school neighbourhood characteristics and poverty concentration to determine associations between literacy ability and risk of teenage pregnancy. Below-average reading skills were associated with an increased risk of having a child before the age of 20 (HR 2.51, 95% CI: 1.67-3.77). Participants with above-average reading skills were less likely to have a child in their teenage years (HR 0.27, 95% CI: 0.17-0.44). This suggests that reading ability and risk of teenage childbearing were associated. Further, it suggests that teenage mothers are more likely to have lower levels of literacy than their non-parenting peers. However, similar to other studies on general academic achievement, this prospective cohort study utilises a general national measure of reading aptitude. It also does not provide information on the literacy skills of teenage girls once they became parents. In addition, while some demographic characteristics were described and included in the analyses, they were not used as a control measure, despite the knowledge that socioeconomic status (SES) and teenage pregnancy are linked. Thus it is not clear from the data whether reading ability was the predominant predictor of teenage pregnancy. Further research is warranted to explore in more depth the language and literacy skills of teenagers once they become parents.

The existing data suggests many teenage mothers leave school before obtaining formal qualifications. For those who choose to stay in school or return once their baby is born, being a parent provides many barriers to educational achievement and creates challenges in accessing tertiary education. The increased risk of dropping out of school following a teenage pregnancy could be considered the most likely reason for poor education achievement, with pregnancy acting as a key risk factor for young mothers' challenges with

engaging with education. The association between teenage motherhood and general educational achievement is well documented in the literature (Amato & Maynard, 2007; Hofferth, Reid, & Mott, 2001). Teenage mothers are 10-12% less likely to complete high school following pregnancy and have a 14-29% less chance of attending University (Basch, 2011; Burgess, 2005). Although, as previously discussed, other risk factors exist within this population even before they give birth, such as socio-economic disadvantage and maternal underachievement in education. It is clear the trajectory some teenage mothers follow does not begin with the birth of their baby. These factors are also likely to have ongoing implications for their outcomes once becoming a parent.

Magnuson (2007) demonstrated the powerful impact that returning to education following the birth of a child can have, particularly for children of teenage mothers. Her research compared the impact of older (n=1,323) versus teenage mothers (n=425) returning to education on their children's reading skills. When compared to children of older mothers, children of teenage mothers demonstrated larger positive associations between increases in maternal educational and children's reading skills, for children between the ages of 6 and 12 years. This indicates the reading skills of children of teenage mothers benefited from their mothers return to education, above and beyond the benefits observed in children of older mothers. It also indicates that it is more useful for teenage mothers to return to school when their children are young, in order to have the greatest impact on children's educational outcomes. Positive changes to the home environment have also been observed in teenage mothers who return to school. For every additional year of schooling completed by a teenage mother, an increase in effect size of .31 in the quality of the home environment was observed by Magnuson (2007). This included multiple dimensions of caregiving such as cognitive stimulation and number of books in the home. In contrast, these results were not observed in the comparison group of older mothers returning to education. Magnuson's (2007) research

operates at the level of the mesosystem, where interactions between the mother and her microsystem (i.e. the school environment) can influence the development of her child (Bronfenbrenner, 1992). These findings indicate teenage mothers are a particularly promising group of at-risk parents with which to intervene, as demonstrated by the positive associations between mothers returning to education and the impact this has on their children's reading skills. There is less known about the impact teenage mothers who return to education have on their preschool-age children. Section 1.6 describes in more detail the language and developmental outcomes of children of teenage mothers.

The literature is predominantly in agreement around the risk factors, characteristics and outcomes associated with teenage motherhood. However, little delineation appears to exist between teenage mothers in general, and those who have returned to education of some description once becoming a parent. That is, teenage mothers who continue their education are not addressed separately to those who do not. Some of the qualitative research from New Zealand examined parents attending Teen Parent Units (an alternative education option for pregnant and parenting teenagers), but this is largely descriptive in nature and pays more attention to personal outcomes and life processes experienced by individual parents, as opposed to outcomes for students returning to education as a sample of the larger teenage mother cohort (for example Hindin Miller, 2012). This has resulted in a lack of research on the potential positive effects of returning to education once becoming a parent, and whether teenage mothers and their children are benefitting from the provision of services such as Teen Parent Units (TPUs). This grouping of all teenage mothers together has the potential to conceal differences between these two groups as perhaps those who have returned to school are travelling along a more positive trajectory than the existing literature suggests.

The majority of research with teenage mothers has focused on examining methods to prevent teenage pregnancy and sexual risk taking, with relatively little attention given to

evaluating the effectiveness of attempts to reduce the adverse outcomes frequently experienced once teenagers become parents. Trivedi, Bunn, Graham, and Wentz (2007) reviewed literature from 2001 to 2005 that examined effective interventions for teenage pregnancy and parenthood in two key areas: reducing the rate of teenage pregnancy; and improving educational, social, health and employment outcomes during teenage parenthood. They identified seven systematic and literature reviews that investigated teenage pregnancy and six that investigated teenage parenthood. These reviews covered a variety of intervention approaches (e.g. educational interventions, abstinence programmes, multi-agency supports), contexts (e.g. school based, clinic based, home based) and populations (e.g. mixed ethnic and demographic groups). Their findings indicated that there was positive evidence for school-based education and contraception services reducing the rates of unintended pregnancy, and that limited evidence exists for the effectiveness of abstinence-based programmes.

Trivedi et al. (2007) considered outcomes of teenage parenthood from a broad range of perspectives. Within the six reviews, outcomes ranged from improving social disadvantage and exclusion, improving psychosocial and developmental outcomes, reducing the rates of sexually transmitted diseases (STDs) and repeat pregnancies, reducing rates of school drop-outs, improving health outcomes for parents and children, and employability. Only one review (Letourneau, Stewart, & Barnfather, 2004) included an investigation of educational interventions. A closer examination of studies included in the Letourneau et al. (2004) review indicated education programmes primarily target child development, parenting skills, parent-child interactions, stress management and self-sufficiency. None of the 19 studies (total n=9422) reviewed by Letourneau et al. (2004) targeted or measured the parents' own literacy or language skills, or considered how this might impact on their ability to fully engage with the intervention programmes. The lack of focus on parents' language or literacy skills is clearly an area requiring more attention.

The focus of intervention programmes for teenage mothers considered under an ‘educational’ framework favour increasing mothers’ knowledge and skills around child development (Flynn, 1999; Fulton, Murphy, & Anderson, 1991; Quint, 1991; Weinman, Schreiber, & Robinson, 1992). These interventions and their limitations will be discussed in more detail in Section 1.6.1, which addresses parent interventions. There is a paucity of work focusing on educational interventions that target an area identified as important for this population – literacy (Bennett et al., 2013). With the increased chance of teenage mothers having less than adequate levels of literacy, and the negative impact this might have on their future education and employment opportunities, as well as the potential to influence their children’s literacy development, further investigation into the effectiveness of interventions to directly target this area is warranted.

1.2.1 Section Summary

This section addressed the risk factors and adverse outcomes associated with teenage parenthood. Evidence suggests girls who become mothers in their teenage years are exposed to social, economic and educational disadvantage and that these disadvantages may exist before they even become parents.

1.3 The New Zealand Context

In order to understand how to intervene with this vulnerable population, it is important to have an understanding of the curriculum and context in which these girls would be gaining further qualifications. The following section describes the current New Zealand Curriculum, the guiding document for all schools in New Zealand and the main schooling option available for New Zealand teenage mothers. It also discusses the literacy expectations

for New Zealand secondary school students, and how New Zealand students are performing in reading compared to international peers.

1.3.1 The New Zealand Curriculum

Most recently revised in 2007, the New Zealand Curriculum is the overarching document providing direction for all of New Zealand's schools (Ministry of Education, 2015b). Focused on providing a framework, schools develop their own curriculum and teaching programmes based on its principles. Education in New Zealand can be split into four main areas: early childhood education (from birth to five years); years 0/1-8, referred to as primary school (ages 5-13 years); years 9-13, referred to as secondary school; and tertiary education. Compulsory education exists for children aged 6 to 16 years, although most children start school at five years of age.

Primary education (years 0/1 to 8) aims to provide a foundation of learning across a range of subject areas, with a special focus on literacy and numeracy. The curriculum broadens in secondary school, offering a range of academic and vocational subjects. The national senior secondary qualification in New Zealand is referred to as the National Certificate of Educational Achievement (NCEA) (New Zealand Qualifications Authority (NZQA), 2015). This qualification comprises three certificates (Level 1, 2 and 3), which students typically study towards in their final three years of secondary education (usually from ages 15 to 18). Certificates are awarded by gaining a certain number of 'credits', which can come from a range of subjects. Within the Level 1 certificate are compulsory literacy and numeracy standards, and a certain number of credits across the levels must be gained in order to qualify for entrance to university.

The majority of schools in New Zealand are state-owned and government funded. Funding is allocated through a school decile system, which indicates the extent to which

schools draw students from low socioeconomic families (Ministry of Education, 2011). Schools are ranked from decile 1 to 10, with approximately 10% of schools in each decile band. Decile 1 schools are those with the highest proportion of students from low socio-economic communities. Decile 10 schools have the lowest proportion of these students. The lower a school's decile rating, the more government funding it receives.

1.3.2 Teen Parent Units

Also falling under the guidance of the New Zealand curriculum, alternative educational options are available in New Zealand for teenagers who are pregnant or parenting while studying (Ministry of Education, 2015c). These schools are referred to as Teen Parent Units (TPUs). TPUs are government-funded satellite schools attached to mainstream secondary schools. The schools are funded to support pregnant and parenting teenagers, who can enrol up to the day of their 19th birthday. TPUs attract funding beyond that of a typical secondary school, which takes into account the complex education needs of teenage parents. Operational funding is based on a Decile 1A ranking and the staff to pupil ratio is 1:10 (Ministry of Education, 2015c). Teenage mothers returning to school in New Zealand aim to gain qualifications from NCEA Level 1-3 of the New Zealand Curriculum. Schools vary in their management philosophies, but all provide on-site childcare facilities, pastoral care, links to social services such as housing and financial supports, and classroom teaching with the aim of achieving at minimum NCEA Level 2, in alignment with the Government's achievement goal for all young people in New Zealand. There are currently 21 TPUs in operation across New Zealand. From an ecological systems perspective (Bronfenbrenner, 1992), TPUs influence the individual through multiple levels. Firstly, at the microsystem level, where peers and teachers provide influence to support the development of the child through the education of the mother. Secondly, it may also interact at the macrosystem level,

providing a supportive culture and environment for a teenage mother to position herself within. Finally, policy and practice at the macrosystem level inform the funding of such units.

1.3.3 Literacy Skills of New Zealand Adolescents

1.3.3.1 New Zealand Expectations

Within the New Zealand Curriculum, specific guidelines are given for literacy achievement expectations for secondary school students, referred to as Literacy Progressions. The curriculum assumes that adolescent learners at the end of Year 10 (the year preceding the initiation of formal national assessment via NCEA Level 1) and aged approximately 14 years old possess a range of cognitively complex reading skills. This includes skills such as finding, selecting and using a range of texts; reading to find and/or understand information using a repertoire of comprehension strategies; monitoring their own understanding of the text they are reading; and using a variety of strategies to analyse and reflect critically on the texts they are consuming (Ministry of Education, 2015a).

In addition to this, they should have acquired skills allowing them to decode familiar and unfamiliar words in a timely manner; recognise different grammatical constructions (e.g. constructions that express cause and effect) and using this knowledge to understand dense and complex texts; have a large vocabulary that includes academic, subject-specific and technical terms, and is linked to their own knowledge of the world; and possess a range of skills that enable them to evaluate, analyse, and summarise information and ideas both within and across a range of texts (Ministry of Education, 2015a).

Students entering Year 11 or beyond who have gaps in these skills are likely to struggle with the content and work expectations within the classroom environment. As remediation of these skills is unlikely to be the focus of classrooms beyond Year 10, students

of more advanced years with differences in their knowledge may never catch up to their peers.

1.3.3.2 International Comparisons

Data from the 2012 Programme for International Student Assessment (PISA) (OECD, 2012) allows international comparison of the reading abilities of New Zealand 15 year-olds with 65 other countries. The comparisons indicate that while still better than the OECD average, New Zealand students showed a trend for performing less well in measures of reading competency compared to the previous PISA assessment in 2009. Additionally, the proportion of students at the lowest levels of achievement has increased. The results gathered from the PISA are important as they are not restricted to whether students have mastered the specific content of the school curriculum, but rather, examine the capacity of the students to “apply knowledge and skills in key subject areas and to analyse, reason and communicate effectively as they pose, solve and interpret problems in a variety of situations” (May, Cowles, & Larney, 2012, p. 5).

Students from low socio-economic backgrounds are considered by the Ministry of Education to be priority learners (New Zealand Government, 2013). PISA results indicate that achievement in New Zealand is more closely linked to socio-economic status than other countries. The average reading scores of students from low socio-economic backgrounds decreased between 2009 and 2012, more than in other SES groups. These findings indicate low SES students from New Zealand are at particular risk of underachievement in reading and warrant further attention. As discussed in Section 1.2, teenage mothers are more likely to come from low SES groups, therefore providing further evidence for their increased risk of underachievement in reading.

The literacy skills of the subgroup of adolescents who are also parents have been largely ignored in the literature, particularly within the New Zealand context. Little is known about their skills beyond their increased tendency for underachievement on general education measures (such as school completion) as outlined in Section 1.2. Understanding the literacy skills of teenage mothers is important to determine any need for interventions to support their and their children's development. If a need is identified, detailed information is required to enable the development of appropriate interventions.

1.3.4 Section Summary

The preceding section has presented information on the educational context within which teenage mothers in New Zealand can further their education. It also included a discussion of the expectations of the New Zealand secondary school curriculum and how New Zealand students are performing compared to international peers.

The New Zealand Curriculum is the key guiding document for all schools in New Zealand. Schools such as TPUs are one option within the New Zealand Curriculum for teenage mothers who wish to return to school while pregnant or parenting.

The New Zealand Curriculum guidelines outline a range of complex language and literacy tasks all secondary school students older than 14 years of age should possess. International comparisons of 15-year-old readers suggest New Zealand is showing a trend for performing less well in reading. At particular risk for underachievement are students from low-SES groups, which are likely to include teenage mothers.

1.4 Improving Adolescent Literacy

1.4.1 Literacy Interventions for Adolescents

While historically the focus of research in the primary school population, literacy interventions for adolescents are gaining attention in the literature and several recent meta-analyses have addressed their efficacy (Edmonds et al., 2009; Griffith, Trout, Hagaman, & Harper, 2008; Scammacca et al., 2007). In one exploration, Edmonds et al. (2009) synthesised results of 29 studies targeting reading comprehension in adolescents (aged 11-21 years). In the studies utilising a treatment-control design (n=13), the overall effect on comprehension was large (effect size=0.89), indicating students participating in the intervention improved by two thirds of a standard deviation on measures of comprehension. Of the four different classifications of study foci (comprehension, fluency, word study, and multi-component), those that targeted purely comprehension were most effective (1.23), followed by multi-component models (0.72). Interventions focusing on word study and fluency in isolation were the least effective. The greatest effects were seen on researcher-designed measures of comprehension, as opposed to standardised measures. The average length of time for interventions was 26 hours. The results of Edmonds et al.'s (2009) synthesis suggests an effective intervention for teenage mothers who struggle with reading may include a multi-component or comprehension focus.

While the overall findings indicate a variety of interventions can be successful in boosting adolescents' reading comprehension, only six of the studies reviewed included secondary school students. Of this six, four studies used samples of students with identified reading or learning disabilities. Only two studies within Edmonds et al.'s (2009) review were conducted with older adolescent readers (US Grade 9/NZ Year 10 and above) who did not present with an identified disability. This leads to difficulties in determining the effectiveness

of reading interventions with older adolescents who are struggling with reading but not considered learning disabled. Scammacca et al. (2007) highlighted similar limitations in their meta-analysis. They determined that interventions targeting the groups without identified learning disabilities were the least effective, with a small-medium effect size of 0.40 (for standardised outcome measures). Further research is warranted in this area to identify the characteristics of reading interventions that would be effective in older adolescent readers with more general reading difficulties. Two such studies identified within Edmonds et al.'s (2009) review that are most closely aligned with the current thesis' research population were Alfassi (1998) and Penney (2002). Both studies targeted older adolescents identified as struggling readers, but provided contrasting findings.

Alfassi (1998) implemented a reciprocal teaching intervention to target the comprehension skills of 53 ninth graders. Referring to this intervention model as strategy instruction, the results of standardised and researcher-designed tests were compared to a control group of 22 students, who received typical in-class instruction. Results demonstrated significant improvement between groups on the researcher-designed measure of taught passage comprehension; however, this significant improvement was not demonstrated on the two standardised measures of vocabulary and comprehension. This may be due to the greater ability of the researcher-designed measure to identify change in a discrete set of skills and suggests the importance of carefully constructed assessment measures to best capture response to intervention.

Penney (2002) implemented a decoding-focused intervention with 21 struggling readers and compared outcomes on four standardised measures to a control group of 12 students. Several considerable challenges with attracting and maintaining these students were noted by the author including attrition, absenteeism, student withdrawal, and restrictions placed on intervention length by the schools involved. This highlights some of the barriers of

working with struggling older readers within the school context. Despite the challenges, significant positive change was observed in the experimental group on measures of decoding and passage comprehension. As this was a decoding intervention, it was expected that some shift would be observed in students' word reading skills. The improvement in passage comprehension was less expected although hypothesised to be attributable to the role decoding may play in students' abilities to effectively comprehend passages of text (Gough & Tunmer, 1986). These findings suggest that effective interventions with older readers may need to consider a variety of skills that contribute to successful reading. This is in line with Edmonds et al.'s (2009) finding that the most successful interventions with older readers include a multi-component approach.

Edmonds et al. (2009) highlight the importance of interventions that specifically target older adolescents, due to their likely different learning needs. This difference in learning needs was further discussed by Alexander (2005) who proposed a lifespan developmental perspective on reading. She suggests that reading is a complex process in which individuals increase their competence over their lifespan, and that younger and older readers, even in the adolescent years, are characteristically different with regards to their reading development. This further supports the assertion that reading interventions shown to be effective with younger secondary school readers may not translate in their effectiveness with older adolescents. As the above reviews have shown, limited information is available on effective interventions for older adolescents without identified disabilities, therefore further examination is warranted.

Cantrell, Almasi, Carter, Rintamaa and Madden (2010) investigated the potential for differential intervention effects between adolescent readers of different ages in a large randomised treatment-controlled trial. Their study consisted of groups of students from two different year levels: grade 6 (n=171 intervention, n=131 control) and grade 9 (n=194

intervention, n=159 control). All research students participated in an intervention supplementary to the school curriculum. The intervention was multi-component in nature, lasting 50-60 minutes per day, and was conducted over the course of the school year. Students were taught strategies on word identification, visual imagery, self questioning, paraphrasing, sentence writing and a mnemonic-based vocabulary technique from trained classroom teachers. Two performance-based outcome measures were used to measure change in students' reading achievement and strategy use: one norm-referenced standardised test of reading achievement that examined vocabulary, sentence comprehension, passage comprehension and listening comprehension; and a self-report measure of student's perceived use of reading strategies. Results indicated different effects on reading comprehension outcomes depending on the age group. Sixth grade students performed significantly better than their control group counterparts ($p=0.037$). Conversely, no significant differences were observed between research and control groups from the ninth grade ($p=.44$). Further, students in the ninth grade from lower SES schools scored lower than students from higher SES schools, suggesting the intervention was less effective in lower SES schools. The results of this study further support the differential intervention needs of older versus younger adolescent readers.

Some limitations of this study warrant attention. Firstly, the study used one standardised outcome measure to examine improvement in reading skills in response to intervention. A more comprehensive assessment battery that more closely examined the application of the specific strategies taught may have yielded different results. As highlighted by Edmonds et al. (2009), the greatest effect sizes are observed from researcher-designed assessment measures, which may be more sensitive at identifying change in specifically targeted skills. Further, while comprehensive in nature, the intervention did not consider the role motivation might play in the effectiveness of an intervention. A What Works

Clearinghouse report into effective interventions for improving adolescent literacy outlined five key recommendations for improving practice, one of which was increasing student motivation and engagement in literacy learning (Kamil et al., 2008). The need for motivating and engaging interventions within the population of older, struggling readers is worthy of consideration during the design of effective interventions for this population.

1.4.2 The Role of Motivation and Engagement

As identified by Kamil et al. (2008), increasing student motivation and engagement in literacy learning is an important consideration for improving adolescent literacy. Engagement and motivation towards reading has also been shown to predict reading achievement in early adolescent readers (Froiland & Oros, 2014; McGeown, Duncan, Griffiths, & Stothard, 2015; Retelsdorf, Köller, & Möller, 2011). The role of motivation may be even more relevant for students who have a history of underachieving or disengagement with education. High rates of attrition reported in other interventions targetting teenage parents indicate engagement is a challenge that needs to be addressed (Letourneau et al., 2004).

Guthrie and Wigfield (2000) discussed nine key instructional practices that influence reading motivation. These include connecting academic curriculum with the real world experiences and interests of the learner; choosing interesting texts that are personally significant and easy to comprehend; and ensuring coherence of the instructional practices. Effective interventions for adolescents need to consider how to integrate these instruction practices in order to increase reading motivation and there potentially the effectiveness of intervention approaches.

Johannessen and McCann (2009) describe literacy as a lifelong acquisition of skills and knowledge, and a critical influence to social and economic mobility. Their chapter discusses the critical role that teaching practices play in creating engaged and motivated

students, so that learning can continue well beyond the context of the school classroom. Motivation and engagement are terms often used reciprocally, but are not always alike. According to Kamil et al. (2008), motivation is “the desire, reason or predisposition to become involved in a task or activity” (p. 26). Engagement refers to a student’s desire to “process text deeply through the use of active strategies and thought processes, and prior knowledge” (p. 26). Creating highly motivated readers is important as it encourages students to generate their own opportunities for literacy learning and therefore determine their own path as literacy learners (Guthrie, 1996). This is perhaps even more significant when considering the intergenerational nature of literacy transmission and the important role teenage mothers play in facilitating their own children’s reading development.

In an historical essay on reading motivation Arnold (1899, cited in Conradi, Jang, & McKenna, 2014) stated that “to arouse desire and awaken conscious motive is the teacher’s most important work, and in teaching reading it should receive first consideration”. Effective interventions with adolescents need to consider not only the teaching approach and style of instruction, but how to encourage students to be self-motivated learners, with a purposeful view of reading in a context beyond that of the classroom. Encouraging the development of an intrinsic drive to improve literacy may be even more relevant when working with populations of adolescents who have been disengaged with education and have less perspective on literacy’s role beyond that of academic achievement. Teenage mothers are unique in the adolescent reader population as they have a very tangible motivator for reading beyond the classroom – their children. Teenage mothers’ children may act as a powerful motivator for mothers to engage with reading, both to improve their own chances of success at school, but also to support their children’s development. Effective interventions with teenage mothers may benefit from including a specific focus on the benefits of improved literacy for their own and their children’s development.

One theoretical approach to motivation is the expectancy-value theory (Wigfield & Eccles, 2000). When applied to reading, Conradi et al. (2014) discuss how specific task beliefs (including memories of the task, perceived difficulty and importance of the task) will influence a student's expectancies and values. Expectancy towards a task, with regards to reading, refers to the student's perception of current competence and future success. Values, on the other hand, refer to how much students perceive reading as an important, enjoyable or useful activity. The evidence presented in Section 1.2 suggests that teenage mothers may have had previously negative experiences with education, evidenced by early school leaving or underachievement. They therefore may have negative expectancies towards a task, encompassed with less value being placed on the task of reading. Increasing the perceived value of reading through a motivational and engaging intervention is potentially the first step towards implementing a successful intervention with difficult to engage adolescents.

1.4.3 Considering Digital Literacies for Learning

One way to improve motivation and engagement with literacy instruction is to consider the instructional medium that is being used. Some literature suggests today's adolescents are digital natives and technology is a part of their everyday lives (Oblinger, 2003; Prensky, 2001a, 2001b). With adolescents as some of the most eager adopters of screen-centric activities and some literature even suggesting they think differently as a consequence (Prensky, 2001a, 2001b), considering the integration of screen-based technology into literacy interventions is an appropriate approach. Educational researchers have recognised the powerful role screens play in adolescents' lives. Consequently, investigations into the impact of digital literacies for learning are becoming more frequent in the literature. This is of interest when considering ways of providing an engaging and motivating context under which to target literacy skills of adolescents who have been previously disengaged with education.

Screens are a popular form of interaction and relaxation for many adolescents and their use as an intervention medium may be viewed as less threatening by those who have had previously negative experiences with instruction centred around traditional books.

The opportunity to interact in a meaningful way with socially and culturally appropriate texts is one way of providing an engaging and motivating context for literacy learning (Johannessen & McCann, 2009). This is an opportunity underachieving students are often deprived of, with more focus placed on the mechanics of literacy learning and less on meaningful interactions with texts that simultaneously provide instruction on foundational literacy skills. Effective literacy instruction may need to look beyond the pages of the traditional book and consider the use of multiple mediums.

Digital literacies such as e-books, computer software, films, and other forms of digitalised media are gaining increasing popularity in the literature as a socially and culturally relevant way to effectively target adolescents' literacy skills. Moran, Ferdig, Pearson, Wardrop, and Blomeyer (2008) completed one of the few meta-analyses available on this topic, investigating the effectiveness of digital literacies (such as tools and learning environments) in enhancing literacy learning in older students. Their review analysed 20 studies published between 1988 and 2005 that used some form of digital technology to target the reading performance of middle school students (grades 6-8). Their results demonstrated that the use of technology (e.g. commercial computer-based software or use of an electronic text such as an online dictionary) can have a positive effect on reading comprehension. Their analysis also identified that studies targeting general populations (rather than students who are struggling readers, for example), conducted in smaller sample sizes, and created by research teams (compared to commercially available programmes) had the greatest effects. The scope of their analysis did not determine the characteristics of interventions and the

specific application of technology that might be most effective, or interventions targeting older readers (aged above grade 8).

In another meta-analysis of the effect of technology on student outcomes, Waxman, Lin, and Michko (2003) analysed the results of 42 studies across a broad age range of students (primary to high school). Their results indicated a small but significant positive effect on student outcomes compared to traditional methods of instruction. Much like Moran et al. (2008) the majority of studies included in this review used computers or the Internet as the intervention strategy (for example examining access to or the effectiveness of a particular software or webpage). In regards to integrating the use of technology as an intervention medium, using computers or the Internet continues to provide a heavy text focus. For struggling readers, such as those who have difficulty with decoding or comprehension, this heavy text focus may still act as a barrier to fully engaging with the medium and gaining the most from interventions.

The National Reading Panel (NRP) (2000), in their report on evidence-based literature for effective literacy instruction, discussed the impact of interventions using computer technology on reading achievement. While it was determined that there was an insufficient number of studies of a high quality to conduct a meta-analysis, their synthesis of the literature suggested merit to interventions that utilised technology when targeting reading. The NRP acknowledged a gap in the literature in technology-based studies that targeted older learners, with the majority of studies focusing on children in the primary and intermediate years of education.

While limitations within the current literature have been identified, such as a lack of information on effective interventions for older readers and those that utilise mediums beyond a computer or the Internet, the research demonstrates a consistent positive

relationship between the use of technology as an intervention strategy and student outcomes, greater than those seen in traditional instruction models. There is a clearly identified need for further research on learners with diverse needs (e.g. struggling readers or those with identified learning disabilities), studies using high-quality experimental designs, and studies targeting older readers. Further, more information is required on what specific characteristics of technology-based interventions are most effective in supporting literacy learning.

One under-investigated method of engaging students with literacy tasks through digital media is through the use of captioned television and movies. This medium is worthy of consideration as it utilises digital technology without the heavy text focus of a computer-centred intervention. Starting in the early to mid-1980s, the effectiveness of using captioned television has been explored with a range of populations. Koskinen, Wilson, and Jensema (1985) described the use of close-captioned television in two projects totalling 35 remedial readers from grades 2-6. These exploratory studies examined teachers' development and application of lesson plans utilising close-captioned television, as well as students' and teachers' reactions to this teaching medium. Their findings indicated positive support by both teachers and students and recommended the pursuit of experimental research into the impact of close-captioned television on reading achievement. What followed was research focused on the use of close-captioned television with primarily hearing-impaired, learning disabled and second-language learning populations (Koskinen, Wilson, Gambrell, & Jensema, 1987; Koskinen, Wilson, & Jensema, 1986; Neuman & Koskinen, 1992). Findings from these predominantly small and descriptive studies indicated close-captioned television was a potential positive medium for targeting vocabulary in a motivating context across a diverse range of populations.

One research group has more recently taken an experimental approach examining the use of visual media to enhance students' reading skills and motivation to engage with books

(Davey & Parkhill, 2012; Parkhill & Davey, 2012; Parkhill & Johnson, 2009; Parkhill, Johnson, & Bates, 2011). AVAILLL (Audio Visual Achievement in Literacy Language and Learning) integrates literacy activities with technology, through watching subtitled movies and reading excerpts from the associated book (Parkhill et al., 2011). The AVAILLL programme consists of focused reading and literacy activities for one hour per school day for six weeks. It includes a variety of tasks wrapped around the use of same-language subtitled films, and includes individual, pair and group activities. AVAILLL activities are designed to target a number of different areas relating to essential literacy skills such as reading comprehension, reading fluency, and vocabulary extension and exploration.

AVAILLL's intervention method and learning environment suggests that it may be effective with older struggling readers. It is aligned with the findings of Slavin and colleagues' systematic review of secondary reading programmes (Slavin, Cheung, Groff, & Lake, 2008) in that it provides small and large group instruction, mixed-method programmes through the use of text and visual media, and skills acquisition that can be transferred across curriculum areas. It also includes components of Kamil et al.'s (2008) suggestions for improving adolescent literacy achievement in that it includes direct instruction on vocabulary and utilises an engaging and motivational medium. Further, it is also well-aligned with Guthrie and Wigfield's (2000) key instructional practices that influence reading motivation in that it connects academic work with the interests of the learner, and chooses texts that are personally significant and easy to comprehend.

Findings from a study that included 125 year 4-8 students from 12 lower decile classrooms using AVAILLL (six experimental and six control) showed promising findings (Parkhill & Johnson, 2009). Following a six-week programme of AVAILLL, the average increase in reading age was 0.52 years for the experimental group, in contrast to 0.36 years for the control group. The group defined as 'below-average' readers in the experimental

group showed the most progress, with an increase of 0.77 years following the intervention programme, compared to 0.22 years in the control group. One bilingual English/Te Reo Maori class participated in this study (n=19), and this group showed the most dramatic change of all. All but one student increased their reading age by an average of 1.5 years following only six weeks of intervention. The teacher also noted changes in attitudes towards reading.

A more recent study investigated the efficacy of this programme with adolescent readers from five secondary schools across New Zealand (Davey & Parkhill, 2012). The cohort of 189 students from year 9 and 10 classrooms were assessed on their vocabulary and reading comprehension skills via two standardised assessments (NZCER, 2008) before and after participating in the six-week programme. The results indicated improvement in the students' scores at post-intervention testing, and students reported positive experiences and high levels of enjoyment through participating in the programme. Methodological limitations of this study include the research design excluding a control group, the schools self-selecting to participate in the project, and the use of only standardised assessment measures to track changes in response to the intervention. It was also not clear whether alternate test forms were utilised at pre- to post-test, creating a potential for a test/retest effect. Further research is required to investigate the efficacy of this programme with older readers using more rigorous research design.

Research has also been conducted on the efficacy of AVAILLL with a group of adolescents disengaged from education due to incarceration. This study examined the impact of the AVAILLL programme on overall reading comprehension skills on a group of juvenile offenders (Parkhill & Davey, 2012). Twenty-two male juvenile offenders participated in a six-week programme, which integrated same-language subtitled movies with literacy-based activities. Pre/post testing was conducted using a standardised New Zealand secondary school

assessment of reading comprehension (Progressive Achievement Test, PAT, NZCER, 2008) and post-intervention interviews. Methodological limitations restrict the generalisation of findings. For example, the study only reported the mean increase in scaled scores on one standardised assessment, which may have masked other positive impacts that were not captured by the assessment. As discussed by Edmonds et al. (2009), researcher-designed assessment measures may be more sensitive to measuring change in response to an intervention. Qualitative analysis showed that difficult-to-engage adolescents were enthusiastic about participation in the intervention.

There are some acknowledged gaps in the literature surrounding use of subtitled films and television as a potential intervention medium. What can be concluded from the existing literature is that there is some promise to the use of this medium for literacy interventions. Current literature persistently highlights the motivating and engaging nature of using films, and existing data indicates some positive changes can be seen in the participants' vocabulary and reading comprehension abilities. These considerations may be particularly pertinent when considering interventions that target populations of adolescent students previously disengaged with education such as teenage mothers. Further research is clearly required to determine the effectiveness of subtitled films as an intervention medium for struggling older readers with a known history of disengagement with education.

1.4.4 Section Summary

Section 1.4 has explored the potential options for literacy interventions for struggling adolescent readers. A review of the literature revealed limited evidence for effective literacy interventions for older adolescent readers; however, research with younger adolescent readers provides some points for consideration. It also addressed the important roles motivation and

engagement may play when developing interventions for teenage mothers and the potential effectiveness of including digital literacies as an intervention medium.

1.5 Part One Summary

Part one of this chapter presented literature on one of the two groups this thesis addresses – teenage mothers. Section 1.2 addressed the range of risk factors and adverse outcomes teenage mothers are exposed to, one of which being literacy difficulties. Section 1.3 explored the educational context that teenage mothers might engage with to further their education, as well as the expectations for literacy achievement in New Zealand. Taken together these sections suggest that intervention may be warranted for teenage mothers based on their profile of risk factors and the suggestion that New Zealand adolescents in general are falling in their reading performance.

Following on from this, Section 1.4 addressed the existing literature on effective interventions for adolescent readers. Given that there are no known literacy-focused interventions published targeting teenage mothers, a broader view of the literature for struggling adolescent readers was undertaken. The role of motivation and engagement was addressed and the potential for utilising digital literacies as a medium was discussed. Figure 1.2 presents an evidence-based summary of what characteristics an effective intervention with teenage mothers might include.

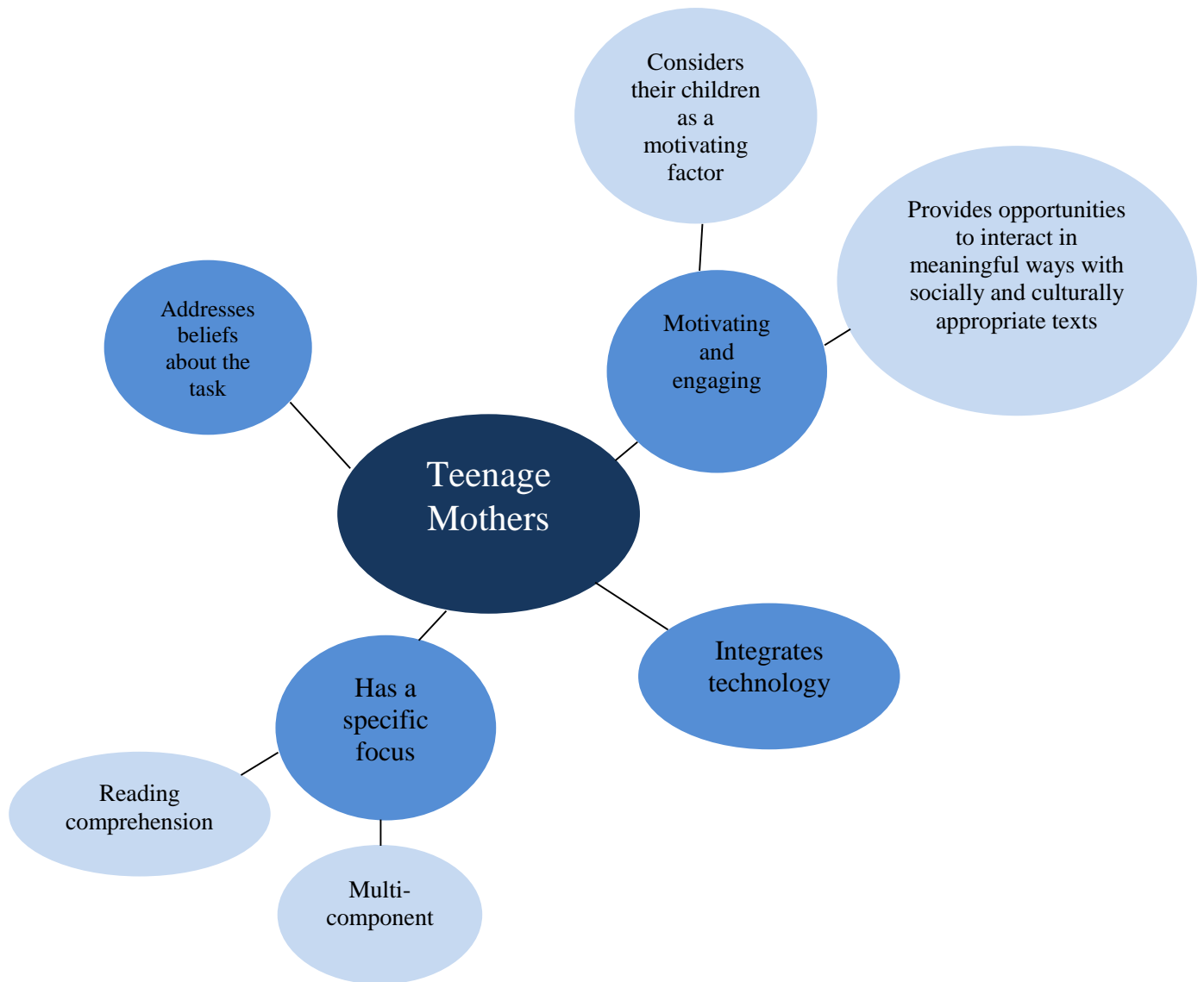


Figure 1.2: Potential Characteristics of an Effective Literacy Intervention for Teenage Mothers

Part Two

1.6 Research Involving the Children of Teenage Parents

Unsurprisingly, given the challenging life course often experienced by their parents, children of teenage mothers also experience increased risk of a number of adverse outcomes. Children of teenage mothers have been shown to be at greater risk of language and cognitive delays and adverse behavioural outcomes than children from older mothers (Brooks-Gunn & Furstenberg Jr, 1986; Fergusson & Woodward, 1999; Keown, Woodward, & Field, 2001), and these delays at an early developmental stage may increase the risk of children experiencing learning problems and educational underachievement as they progress through school. Daughters of teenage parents are also significantly more likely to be young parents themselves, thus creating a perpetuating cycle of generational disadvantage (Francesconi, 2007).

Several longitudinal studies, both nationally and internationally, have explored the development of children of teenage parents. In one national study, the children of the first 22 teenage mothers (M=18 years) enrolled in a Dunedin longitudinal study beginning in 1972, were compared to a comparison group of 20 mothers (M=31 years) (Keown et al., 2001). Demographic characteristics of mother-child dyads were assessed via a 90-minute battery along with parental responsiveness and involvement within the home environment, parent-child interaction, child language development and temperament. Results indicated that by the age of three years, children of teenage mothers had significantly lower expressive and receptive language comprehension. In addition, teenage mothers were significantly less sensitive, warm and verbally stimulating, and were more intrusive when interacting with their children during free and structured play. Other studies indicate a large proportion of teenage parents (<25

years old) use punitive punishment measures (Woodward et al., 2007). An exploration of the correlations between child language scores and parenting variables showed children with higher language scores had mothers who were more responsive (emotionally and verbally) and more involved with their children, supporting the existing body of literature that links parent verbal interactions to language development (Hart & Risley, 1995; Huttenlocher, Waterfall, Vasilyeva, Vevea & Hedges, 2010). When controlling for between-group differences in social background, differences persisted in language outcomes of children born to teenage versus older parents (Keown et al., 2001). Further analysis of factors indicated that the differences in language development between children of young versus older parents are attributable to parent-child interactions. Teenage mothers within Keown et al.'s (2001) study tended to interact with their children in a manner considered as more intrusive but less verbally stimulating, and spent less time encouraging and being actively involved in their child's learning. An interaction style defined by restrictive and directive behaviours, low in warmth and affection, as well as less variety and complexity of language used is less likely to benefit and stimulate children's language development. With the knowledge that a primary factor differentiating language development in children and teenage versus older parents is an interactive parenting style, and that non-changeable factors such as social background are less important, this is a population that would likely benefit from interventions designed to mediate these differences. Section 1.7.1 and 1.9 will describe the language and literacy development of children of teenage mothers in more detail

Others report different findings on the impact of social background on children or teenage mothers' language development. For example, Levine, Pollack and Comfort (2000) examined data from the National Longitudinal Survey of Youth to explore the effects of teenage motherhood on academic and behavioural outcomes for children. Their findings demonstrated that when examined in isolation, children presented with adverse outcomes for

all academic and behavioural variables measured. However, when controlling for the mother's background and demographics, the impact of teenage childbearing on all academic measures became non-significant. Shaw, Lawlor and Najman (2006) found similar results from their Australian-based longitudinal study.

While there is evidence to support children of teenage parents are more likely to experience a range of adverse outcomes, less is known as to whether these adversities persist into older childhood and teenage years. Adopting a view of the chronosystem (Bronfenbrenner, 1992), findings from a prospective longitudinal study in Australia suggested that children of teenage parents experience psychological and cognitive difficulties until at least 14 years of age (Shaw et al., 2006). Interviews were conducted with 5260 mothers who gave birth to a single child between 1981 and 1984 in Brisbane. Of that cohort, 460 women gave birth before the age of 18, classifying them as young parents for the purposes of this study. Interviews with mothers were conducted at five time points (at their first antenatal appointment, 3-5 days, 6 months, 5 years and 14 years post birth). At the 14-year mark, the child was also interviewed and assessed on a range of psychological and cognitive behaviours. Results indicated children of teenage mothers when compared to older mothers, experienced greater psychological distress and were more likely to have repeated a year at school, been suspended from school, and exhibited poorer reading ability. When controlling for socioeconomic circumstance, almost all of these outcomes were attenuated. The pervasive factor was low reading scores which appears were most attributable to maternal age. Findings such as Shaw et al. (2006) and Levine et al. (2000) suggest that considerable heterogeneity exists within the teenage mother population, particularly when examining child outcomes.

The development and outcomes of children of teenage mothers have been more widely studied than that of their parents. The existing body of literature, however, does

present with some limitations. Firstly, studies have primarily focused on children aged three years and above (Keown et al., 2001; Luster & Vandenbelt, 1999; Moore & Snyder, 1991; Shaw et al., 2006), which limits our understanding of early language development. A significant amount of language development occurs in the first three years of life (Kaderavek, 2015; Paul, 2007). Early identification of a delay or difference allows for early intervention to not only increase the chance of a positive outcome for the child, but also to decrease the chance of problems with behaviour, social and emotional wellbeing (Bruce & Hansson, 2008). Secondly, the data has tended to be drawn from solely parent-report and observational measures, or only standardised measures, which may not capture the full picture of a child's language development (Luster & Vandenbelt, 1999; Oxford & Spieker, 2006). Thirdly, information regarding language development has primarily been gathered from longitudinal studies. This may lead to a reduced ability to examine language development in a detailed manner, due to the large sample sizes and the broadly focused nature of these studies. Further, many of these longitudinal studies utilised data gathered at least 10-15 years ago, resulting in a lack of current data (Baldwin & Cain, 1980; Keown et al., 2001; Pogarsky, Thornberry, & Lizotte, 2006). Finally, the extant literature does not describe the current educational status of the mothers (whether in school or not at the time of data collection), and tends to instead focus on their school attendance and achievement prior to becoming a parent. The one exception to this is a longitudinal study by Mollborn and Dennis (2012a), which reported on the current student status of their cohort as not in school, in school part time, or in school full time. The literature would benefit from up-to-date data, gathered from a range of parent- and clinician-report measures or children from a range of ages, and including information on the parent's educational status.

1.6.1 Interventions to Improve Outcomes for Children of Teenage Mothers

Many existing interventions targeting teenage mothers are interested in improving outcomes for children. Parenting skills are a common focus of these intervention programmes and are targeted through a range of different service delivery modes (e.g. group, one-to-one, in clinic and at home) and by various different people (e.g. nurses, social workers, community volunteers, peers and mentors). For example, Quint (1991) conducted a large, controlled, longitudinal study with 805 teenage mothers targeting parenting skills and employability of participants. The programme used multiple agents (social workers and community mentors), a mixture of group and one-to-one mode of delivery, and was 2.5 years in duration. Mothers in the intervention group increased their parenting skills and employment compared to control group. Their children also showed cognitive gains in response to the intervention. However, after five years fewer than half of the research cohort had gained their high school diploma, and the majority were living in poverty.

Fulton et al. (1991) implemented an intervention programme with 76 expectant teenage mothers to increase their knowledge of child development and decrease their tendencies towards inappropriate interactions with children. Mothers completed the two measures at pre- and post-intervention. Significant differences were reported in mothers' knowledge of child development from pre to post, in particular for the infancy and toddler subscale. No significant difference was found with regards to mothers' knowledge on preschool or school development. Mothers also scored lower on the Child Abuse Potential Inventory at post-test. Reporting and methodological issues suggest these results must be addressed with caution. For example, the intervention programme was not described in detail, stating only that resources were made available and a professional was present to provide information and recommend additional resources on child development and other pregnancy-

related issues. The frequency and length of intervention sessions over the 4-6 month period was also not detailed. The results may also be attributable to other factors not captured by the study. For example, the mothers were pregnant at time of the intervention and most likely had little previous exposure to children (although this was not reported). Therefore, it is unsurprising that they also had little knowledge of child development. Given the majority of participants were in their second or third trimester of pregnancy at initiation and the programme lasted 4-6 months, most would have had at least some first-hand experience with their own child at post-test. This first-hand experience may have contributed to their increased knowledge of child development at post-test, beyond what occurred in the intervention programme. This is also supported by the results demonstrating the change in knowledge was isolated to infants and toddlers, but not demonstrated in knowledge of older children. While this might have reflected the mothers' interests and focus at the time (due to the age of their baby), it is a factor worth considering. Similar caution should be taken when interpreting the change in inappropriate interactions due the factors outlined above.

The delivery model of many of the parent interventions described in the literature present challenges in establishing intervention fidelity and isolating the impact of the intervention. For example, a number of studies have used volunteers/mentors in the programme implementation and/or have included home visits as a mode of delivery (Fulton et al., 1991; Flynn, 1999; Quint, 1991; Weinman et al., 1992). Home visits offer benefits to teenage mothers who have difficulty travelling to more centralised activities, but they can lead to differences in intervention implementation across participants. The content of the focus on parenting skills and knowledge of child development has thus not been well described across studies. This leads to difficulties in replication and determining what exact elements of the intervention are effective. To facilitate this, greater fidelity and more robust methodology must be employed by intervention studies. A stronger methodological design

may include clinic or classroom-based interventions, conducted in a group setting that are well-documented and described in publications.

Other interventions have targeted literacy-based behaviours displayed by teenage mothers (e.g. Neuman, 1997; Neuman & Gallagher, 1994). Neuman and Gallagher (1994) conducted a small intervention programme with six mothers, who had their first child when they were teenagers. The six mothers were from diverse social and educational backgrounds and ranged in age from 19-22 years at the time of intervention. The intervention employed a coaching model, which focused on supporting mothers to increase their use of labelling, scaffolding and contingent responsiveness during literacy-based play interactions with their children. Sessions were conducted one-on-one in the participant's home over six weeks whereby each strategy was targeted for three sessions (the coaching phase), before moving on to the next strategy. Repeated measures were taken at baseline; during each coaching phase; at transfer phases, in which new materials were introduced; and at maintenance phases. Results were promising during the coaching phase, with mothers producing distinct increases in their use of the strategies. Scores declined during transfer and maintenance periods, although, almost all scores maintained an increase compared to the baseline.

This small study demonstrates teenage parents can be coached to increase their use of certain interactive techniques during literacy-based activities. However, some important aspects were not included in this study that could have further enhanced the outcomes. For example, the lack of books and toys described in the home were not addressed in the intervention. Including an educational component to help the mothers understand the importance of providing appropriate resources to support their child's learning would have enhanced the home literacy environment provided to these children. In addition, as all materials were provided by the researcher, the use of these strategies may not translate to the child's day-to-day interactions once the materials are no longer available.

Neuman (1997) expanded her intervention focus to three different contexts: book reading, instruction, and play in a small intervention study with six mother-child dyads. This intervention focused on the use of a ‘guided participation’ model, where mothers were encouraged to use four steps to increase the quality of their interaction with their child: ‘get set’, ‘give meaning’, ‘build bridges’, and ‘step back’. Results indicated mothers increased their participation and verbal interactions with their children, and that context-dependent preferences were observed for the four steps. Book reading interactions provided the greatest use of ‘giving meaning’, which included behaviours such as labelling, describing, modelling behaviours, and helping a child to understand what is important and the values associated with it.

Neuman’s interventions were notable for providing evidence that teenage mothers can be supported to change the way they interact with their children in ways that will support language and literacy development. Future interventions may build on this work by increasing the sample size, and considering the impact of more efficient service delivery models such as group sessions. It is also important to examine other ways to enhance young children’s early literacy development, such as through the inclusion of a focus on the home literacy environment, and the importance of early literacy experiences. Generalisation of the intervention’s impact may also be improved by the use of resources that are readily available to teenage mothers. The efficacy of early literacy interventions targeting a broader population of parents will be addressed in Section 1.8.

1.6.2 Section Summary

This section has reviewed the literature describing the development of children of teenage mothers. Research suggests that, like their mothers, children of teenage mothers are at risk of a range of adverse outcomes. Existing interventions targeting the children of

teenage mothers were then discussed, some of which were shown to be effective at improving parent knowledge and children's outcomes.

1.7 Emergent Literacy

Evidence from the preceding section has demonstrated that children of teenage mothers are at risk for language and literacy delays. Language and emergent literacy skills are simultaneously acquired in a child's first five years of life and consequently interact and influence each other. The following section describes the early literacy development of children and the impact of the home environment on these skills. Finally, it examines how maternal reading beliefs impact on shared reading interactions and the home literacy environment provided.

1.7.1 Emergent Literacy Development

Emergent literacy is the concept that reading development begins at an early age as a result of multiple and varied exposures to a range of literacy-based activities and resources (Whitehurst & Lonigan, 1998, 2001). It reflects young children's understanding of reading and writing, prior to the development of these skills in a conventional sense (Teale & Sulzby, 1986). Emergent literacy is also based on the understanding that development occurs along a continuum, rather than beginning with reading instruction at the initiation of formal schooling. Emergent literacy skills are generally agreed to include alphabet knowledge, phonological awareness, vocabulary, and print concepts (Snow, 2006), and can be divided into code-based and meaning-focused skills (Whitehurst & Lonigan, 2001). Viewed from the perspective of Gough and Tunmer's (1986) Simple View of Reading, both decoding and language skills are essential to the development of reading ability. Represented as Decoding (D) x Language Comprehension (LC) = Reading Comprehension (RC), this model asserts

that without a strong foundation of both decoding and language skills, reading comprehension cannot occur. Therefore, emergent literacy interventions would be prudent to include a focus on both components, for optimal early literacy development/.

Code-based skills, falling under the decoding component of Gough and Tunmer's (1986) model, include alphabet knowledge and phonological awareness skills. Alphabet knowledge comprises knowing about the principles of letter forms, names and the sounds they make by themselves, and later on in literacy development, when paired with another letter (e.g. /ch/). A child's knowledge of letter sounds is known to be a strong predictor of their later achievement in reading and writing (Piasta & Wagner, 2010; Scarborough, 1998). Phonological awareness is understanding that words are made up of sound units and is specifically the ability to detect and manipulate sounds in spoken words (Gillon, 2004, 2005). This includes skills such as word and phoneme segmentation, blending, manipulation and deletion, as well as knowledge of rhyme. The links between phonological awareness and early reading and spelling development are well documented in the literature (e.g. Gillon, 2004).

Meaning-focused skills, falling under the language comprehension component of Gough and Tunmer's (1986) model, embody language capability (i.e. vocabulary, grammar) and general world knowledge. These skills enable children to make sense of spoken and written words, and help them draw parallels with their own life experiences. The combination of code-based and meaning-focused skills is essential for children becoming competent and fluent readers and a lack of knowledge in one area can hinder the ability to decode, read fluently and comprehend (Goldstein, 2011).

Print concepts are an additional important area of emergent literacy and include skills such as understanding directionality (left-to-right and front-to-back), as well as awareness of

title, author, text and picture (NELP, 2008). As emergent literacy skills develop rapidly within the preschool period, a child who has insufficient exposure to literacy experiences and thus reduced opportunity to develop code-based and meaning-based skills, and print concept knowledge, may enter school lacking key foundational skills for early reading and spelling success.

Formulating a picture of a ‘typically-developing’ child’s literacy development can be problematic given the range of developmental differences seen in children. Language learning starts from birth, and as children grow, their speech and language comprehension and production becomes increasingly complex (Kail, 2010; Paul, 2007). During this period of considerable development, children also learn a range of skills important to the acquisition of literacy. Between birth and three years of age, children may begin to recognise favourite books by their covers, enjoy rhyme and nonsense words, label objects in books, may name a few letters and numbers, and begin to produce letter-like forms and scribbles (Snow, 2006). Between three and four years of age, children are anticipated to begin distinguishing print from pictures in books; attend to beginning sounds in words; show an interest in rhyme; recognise around 10 letters, including those in their name, as well as some high-frequency environmental words such as ‘stop’; and start to use writing as a functional component to their play such as list and note writing. By the time children reach five years old, they may know parts of books and their functions, identify and produce initial sounds in words and rhymes, recognise all upper and lower case letters, recognise and read some familiar sight words, and attempt invented and conventional spellings. As evidenced by the range of knowledge young children are anticipated to acquire in the early years, they have a lot of learning to undertake that supports their transition to learning to read. The home literacy environment is vital to providing young children with the best possible opportunities to acquire this range of skills (Weigel, Martin, & Bennett, 2006; Whitehurst & Lonigan, 1998,

2001). The importance of the home literacy environment for children's literacy development is discussed in more detail in Section 1.7.2.

1.7.1.1 Emergent Literacy Development of At-Risk Children

Emergent literacy development has been described for those children considered to be at risk, due to low SES status, lower maternal education or language difficulty (Justice, 2006). Given children of teenage parents are more likely to come from low-SES homes and have mothers with lower education levels, it is important to explore this literature to understand some of the barriers to emergent literacy development for this group.

Cabell et al. (2011) examined the within-group variability of emergent literacy development in 492 low-SES pre-schoolers aged 42-60 months. Children were examined on eight measures of emergent literacy: four of oral language (expressive and receptive vocabulary and grammar) and four of code-related skills (print concepts, alphabet knowledge, name writing and rhyme). Children were then clustered into five profiles that accounted for their combined oral language and code-related skills performance. The profiles and prevalence within the group were: (1) Highest Emergent Literacy (prevalence = 14%), (2) Average Oral Language, Strength in Alphabet Knowledge (prevalence = 16.3%), (3) High Average Oral Language, Weakness in Alphabet Knowledge (prevalence = 24.2%); (4) Low Average Oral Language, Broad Code-Related Weaknesses (prevalence = 22.5%), and (5) Lowest Oral Language, Broad Code-Related Weaknesses (prevalence = 22.9%). Results indicated distribution among profiles was relatively even, although the greatest proportion of children presented with the lowest overall skills (Profile 5). These children also had mothers with the lowest level of education. When followed up in kindergarten, low to moderate correlations ($r=.16$ -.38) were observed between the eight emergent literacy measures and three measures of older literacy knowledge (letter/word identification, passage

comprehension and spelling). These findings indicate the importance of oral language and code-related skills to emergent literacy development and the potential impact the mother's own education levels may have on her children's development. Interventions with at-risk children may need to consider both of these aspects in order to best address children's broad emergent literacy development.

Aram and Levin (2001) explored the impact of five sociocultural factors on 41 low-SES children's (aged 5;5–6;0) emergent literacy skills. Significant correlations were found between both SES and maternal literacy and children's measures of word writing and recognition ($r=.46$ and $.42$) and orthographic awareness ($r=.44$ and $.38$). Phonological awareness was not correlated with either SES or maternal literacy, but was related to the provision of literacy tools/activities within the home ($r=.41$). These results demonstrate the significant role maternal literacy skills and the quality of the home literacy environment have on children's emergent literacy development. They suggest that improving the emergent literacy outcomes of children of teenage mothers may necessitate attention to the HLE as well as the mothers' own levels of literacy.

Research has given considerable attention to one specific element of emergent literacy development in at-risk populations – oral language, which falls under the umbrella of meaning-focused skills (e.g. Arriaga, Fenson, Cronan & Pethick, 1998; Dollaghan et al., 1999; Hoff, 2003, 2006a; Huttenlocher et al., 2010; Weizman & Snow, 2001). Findings from these and other studies provide evidence that SES and/or the mother's education are strongly related to children's early language development. Language development and its links to literacy will be discussed in more detail in Section 1.9.

1.7.2 The Home Literacy Environment

One aspect known to impact on children's emergent literacy and language development is the quality of the home literacy environment (HLE) (Burgess, Hecht & Lonigan, 2002; van Steensel, 2006). The HLE can be described as the experiences, attitudes and resources a child is exposed to in the home that contribute to their early literacy development. The HLE has received much attention in the literature and its conceptualisation can be complex and multifaceted. Burgess et al. (2002) attempted to address the complex nature of this environment under five key characteristics: the limiting environment (parents' ability and disposition to provide literacy opportunities); the literacy interface (direct or indirect exposure to literacy activities); passive HLE (parental activities that expose children to literacy use); active HLE (parents' efforts at engaging children in activities to foster language or literacy development); and shared reading. When examining the interaction between these factors and outcome measures (oral language, phonological sensitivity, letter/sound knowledge, and word decoding), the HLE was significantly related to children's performance on oral language, phonological sensitivity, and word decoding measures. Socioeconomic status was not related to outcome measures, indicating the quality of the HLE was more important to children's language and literacy outcomes than their socioeconomic background. This suggests that despite the low-SES demographic of many teenage mothers, this is not necessarily a limiting factor for intervention effectiveness. The impact SES can have on parental language input is discussed further in Section 1.9.1.

There is consensus in the literature that early literacy experiences are vital to later success at reading. During the years preceding school, children develop a foundation of literacy skills typically through the interactions and experiences they have in their home context. Early literacy experiences not only influence reading acquisition, but language and

speech development, and later academic success (Bus, van Ijzendoorn, & Pellegrini, 1995; Raitano, Pennington, Tunick, Boada, & Shriberg, 2004; Roberts, Jurgens, & Burchinal, 2005).

Joint book reading is one aspect of the HLE environment identified as important for the development of emergent literacy skills. Studies have demonstrated shared reading can account for around 10% of the unique variance in children's vocabulary development (Bus, van Ijzendoorn, & Pellegrini, 1995; Sénéchal & LeFevre, 2002; Sénéchal, Pagan, Lever & Ouellette, 2008). Bus et al. (1995) explored the impact of frequency of joint book reading with pre-schoolers and how this affected language and reading development. Their meta-analysis of 29 studies determined a strong positive relationship between frequency of book reading with pre-schoolers' language, emergent literacy and reading achievement. One limitation of this study was it chose to cover the effects of book reading on the early development of language and literacy, but did not examine whether these early positive effects continued in later years. Further, its use of parent report as the sole measure of reading frequency, may have affected the accuracy of data. Only using parent report may lead to an under or overestimation, or varying interpretation of the questions. For example, when asked to report on the frequency of book reading, one respondent may interpret this to mean the reading of an entire book, whereas another may count any interaction with a book, no matter how fleeting.

Mol and Bus (2011) sought to mitigate some of these limitations by reviewing the association between print exposure in the home and reading development across a broader age range (from infancy to early adulthood). They also used two measures of print exposure: reports of reading frequency and author/book recognition. This article analysed 99 studies across three separate age groups (pre-schoolers and kindergartners, children in grades 1-12, and undergraduate and graduate students attending tertiary education facilities). They

examined the relationship between print exposure and two different domains of reading: comprehension (consisting of oral language, reading comprehension, intelligence and academic achievement) and technical reading and spelling (consisting of alphabet knowledge, phonologic and orthographic processing, word recognition, and spelling). Their results determined that reading exposure was an important correlate for reading comprehension and technical reading and spelling skills for all three age groups, with those studies reporting higher levels of print exposure also reporting stronger reading skills. The authors discussed how early literacy exposure can act as a driving force for literacy development, where early print exposure stimulates language and reading development, which in turn increases the frequency of print exposure as children age. Consequently, more frequent readers continue to develop comprehension and technical skills above and beyond those of their peers who read less frequently.

The home literacy environment can also play a role beyond the frequency of print exposure in predicting the language and reading outcomes of children from low-SES backgrounds. Bracken and Fischel (2008) investigated the impact of three variables of the home literacy environment for low-SES children (N=233) and compared them to four measures of early literacy skills including readiness to learn to read, vocabulary, letter knowledge, and print and story concepts. Variables included Parent Reading Interest (measured as daily duration of parent reading for pleasure and the parents own rating of pleasure derived from reading); Child Reading Interest (measured by how often the child asks to be read to, how often the child reads independently, and the child's enjoyment of being read to); and Parent-Child Interaction (measured by the age the child was first read to, frequency and duration of shared reading, frequency of library visits, and number of children's books in the home). Their results revealed considerable variability in the home literacy environments reported in low-SES homes, and in particular on measures examining

duration of shared reading, duration of the parent's own reading and book ownership. In addition, the literacy measures indicated that literacy skills of the sample of children were consistently below average on all measures. An exploration of the relationship between family reading behaviour and child literacy found a significant relationship between Child Reading Interest and Parent-Child Interaction on all measures of literacy skills. They also determined parent education played an important role, with parents from higher education backgrounds showing the strongest relationship with the three family reading variables. This provides important information on the home literacy environments of low-SES families and how the quality of these environments impact on children's literacy skills. Therefore, the quality of the HLE of low-SES families may not be as rich as higher SES families, impacting on children's literacy development. Further, maternal education levels are related to children's interest in reading and measures of parent-child interaction, such as frequency and duration of shared reading.

In another investigation of the role of the home literacy environment via parental involvement Sénéchal and LeFevre (2002) compared book exposure (measured via a book title and author recognition task) with reports of parental teaching (with regards to reading and printing words) and how this impacted on several measures of children's literacy development. Their results demonstrated exposure to books accounted for children's language skills (vocabulary and listening comprehension), reading levels in grade 3, and two emergent literacy measures (spelling and decoding); but, that parent-reported teaching accounted for phonological awareness and three emergent literacy measures (alphabet knowledge, spelling, and decoding). Neither book exposure nor teaching was correlated with children's knowledge of print concepts. This study also relied on parent report when describing the early literacy skills of children, which as discussed previously, has some potential limitations with regards to the accuracy of information. Of interest in these findings

is the lack of relationship between book exposure or parental teaching with children's print concept development. Due to the design of the study it was not clear whether parents targeted print concepts during shared reading. Including an observation of shared reading would help to alleviate this lack of information. Understanding more about the types of emergent literacy concepts parents focus on during shared reading is important for intervention development as these results suggest print concepts may need to be included as a specific target.

Based on Sénéchal and LeFevre's (2002) model, Hood, Conlon, and Andrews (2009) found similar results in their 3-year longitudinal study of 143 Australian preschoolers. Parent-child shared reading was independently related to Grade 1 vocabulary development, whereas parental literacy teaching was related to children's score on a word/letter identification task. Both these results provide guidance for the development of emergent literacy interventions, suggesting the need for increasing book exposure through shared reading to support vocabulary development, and coaching and encouraging parents to focus on print to support emergent literacy skills development.

The findings of both Bracken and Fischel (2008) and Sénéchal and LeFevre (2002) are limited by their exclusive use of parent report when determining characteristics of the home literacy environment. This method relies heavily on the parent's ability to recall behaviours and consistently interpret questions within the surveys. Another way to determine the quality of children's home literacy experiences is to combine parent report with observations of shared reading interactions. This allows for a more in-depth and accurate examination of the type of reading experience the child is being exposed to in the home. Roberts, Jurgens and Burchinal (2005) included an observation of shared book reading in their study of the home literacy practices of 72 African American families from primarily low-income backgrounds over two and a half years. The main predictors examined were: frequency of book reading and child's interest during book reading measured via parent

report; maternal book reading strategies (the type of information the mother relayed to the child while reading); and maternal sensitivity and responsiveness measured via observation and coding. The overall responsiveness of the home environment was also measured through a semi-structured observation/interview. Child language and literacy outcomes were measured from three standardised assessments of vocabulary, language, and reading ability. The results were mixed, demonstrating a small number of modest associations between family literacy practices and children's language and literacy development. The most consistent of these associations was the overall responsiveness of the home environment. In addition, maternal sensitivity and maternal book reading strategies had significant associations with children's receptive vocabulary. These results conflict with findings from other studies that suggest a strong positive relationship between specific home literacy practices and children literacy and language development (Burgess et al., 2002; Haden, Reese, & Fivush, 1996; Payne, Whitehurst, & Angell, 1994; Sénéchal, LeFevre, Thomas, & Daley, 1998). These differences in findings may be due to the home literacy and broader environment provided by low-SES families not being captured by the survey. Further, consideration must be given to the cultural differences present between African American and European families and how these might influence the home literacy environment.

Purcell-Gates (1996) included in-home observations when exploring the home literacy practices of 20 low-income families with preschoolers. These observations were focused on the type and frequency of literacy practices (functional use of literacy, uses of print, materials, and participant structure) as part of daily life. Also included in this descriptive study was an investigation of the children's written language abilities across five domains (intentionality, written register knowledge, alphabetic principle, concepts of writing and concepts about print). Similar to findings by Teale and Sulzby (1986), the domains encompassing Entertainment (such as reading for pleasure, playing games that required

reading and using the TV guide) and Daily Living Routines (such as shopping and cooking) were the activities most frequently mediated by print. Shared storybook reading did feature in the observation findings, although it was 5th out of nine domains for frequency, occurring on average .086 per hour of observation. When comparing the home literacy environment with children's emergent literacy knowledge, some relationships were evident. Firstly, children's score in the Intentionality domain was related to the frequency of literary events in the home, and how involved they are with them. Secondly, children's knowledge of the alphabetic principle and written language was greater in homes where reading for pleasure occurred at a higher level of complexity. Finally, parents' involvement with their child's literacy learning occurred at a higher level when formal schooling began. Using a comprehensive observation approach, these results provide information on the varied literacy practices of low-income families, and how these practices may influence the development of children's emergent literacy skills. In this study, observation was able to provide extensive detail on a variety of home literacy practices. While this does not nullify the use of survey data, it enables an exploration of family literacy practices well beyond what could be captured by survey data alone.

1.7.2.1 Home Literacy Environments Provided by Teenage Mothers

Limited information has been published on the home literacy environments provided by teenage mothers. As previously discussed, teenage mothers and their children are at risk of literacy difficulties. It is therefore important to develop an understanding of the home literacy environments provided by teenage parents, to determine how teenage mothers could be supported to provide the richest possible early literacy experience for their children and help mitigate this increased risk. Burgess (2005) reported one of the few insights into the HLE of teenage mothers. Data was collected from 493 mothers with children younger than seven years of age, 22% of who reported becoming a parent while a teenager. The study utilised a

self-report questionnaire and checklists to measure child- and parent-centred variables of the HLE. Child-centred reading variables included book ownership, age first read to, library visit frequency and use of magnetic letters. Parent-centred reading variables included library visit frequency, how often the mother reads for fun, and a vocabulary measure. In addition, demographic information was collected. Results compared the factors between parents who reported having a child as a teenager, and those of non-teenage mothers. Burgess found the HLE provided by teenage mothers included less print exposure, fewer children's books, fewer library visits, less play with magnetic letters, and more frequent television watching. It was also found that teenage mothers themselves read for pleasure less often, which resulted in a lower incidence of child exposure to adult-led literacy practices. This lower incidence of reading for pleasure may have been due to the lower levels of literacy skills demonstrated by teenage mothers (as discussed in Section 1.2), which may mean reading for pleasure was not an enjoyable experience.

Although the Burgess study was notable for providing a rare examination of the HLE of teenage mothers, it presented with limitations. While gathering from a large population, including 22% teenage mothers, it is not clear whether the respondents were teenagers at the time of survey completion, or had been when they had their first child. Additionally, group means were not reported, making comparison between similar surveys challenging, even on identical measures. Despite the limitations, Burgess' (2005) findings indicate that children of teenage mothers have different home literacy experiences, compared with children of older mothers, on a range of measures. The scarcity of data available in this area suggests the literature would benefit from further exploration of the HLE of teenage mothers across a range of contexts, such as mothers who are currently teenagers, and those attending school as opposed to being out of education. As discussed in Section 1.2, Magnuson (2007) demonstrated the value of teenage mothers returning to education on their children's

development and the quality of the home environment, suggesting differences may be observed between these two groups.

1.7.3 The Role of Maternal Reading Beliefs in Emergent Literacy Development

Mothers are likely to play a key role in the facilitation and encouragement of emergent literacy in the home environment. Previous sections have described the roles maternal education and literacy skills can play in children's reading development. Mothers' beliefs about the importance of early reading experiences is also associated with children's reading development, providing further support for the intergenerational nature of literacy transmission.

DeBaryshe (1995) used two studies to explore the role of maternal beliefs about shared reading on children's early experiences. The first study (N=60) involved low-income families, while the second (N=56) focused on middle-income families, both with preschool-aged children. In both studies measures were taken of SES; maternal literacy (as measured via three questions regarding comfort and interest in reading); children's reading exposure and interest; maternal reading beliefs; and children's oral language competence. In addition, one reading session per family was audio-recorded and coded for frequency of six types of questions, five categories of feedback, and frequency of conversation versus reading of the book text. Mothers with higher levels of education and from higher SES groups reported more positive attitudes and beliefs towards shared reading. Mothers with more positive beliefs also exposed their children to more frequent shared book reading. Further, their positive beliefs related to the manner in which they shared books, with more positive mothers using a greater variety of questions and feedback, and spending more time engaged in book conversation (as opposed to reading the book text). Maternal beliefs were associated with child's reported interest in reading, but not their oral language competency. The author

suggested that a lack of higher level cognitive strategies used by the mother during reading may influence the linguistic competence of the child.

Other studies have reported similar relationships between maternal beliefs and shared reading experiences, but also children's emergent literacy and language development (Bingham, 2007; Cottone, 2012). Mothers with more positive literacy beliefs provided higher quality home literacy environments, which was consequently related to children's development. For example, Cottone (2012) explored the relations between maternal education, maternal reading beliefs, print knowledge and phonological awareness. There was a strong positive correlation between maternal education and emergent literacy skills. There was also a strong positive correlation between maternal education and reading beliefs. Mothers from Cottone's (2012) study with lower education levels reported less empowerment, more barriers, and viewed reading as a skill learnt through drills and mechanics, rather than a skill acquired through regular and positive interactions with a variety of literacy from a young age. Her findings suggest the importance of parent training programmes, especially for mothers with low-education that target literacy beliefs as well as behaviours.

In a group of 45 low-SES families, Curenton and Justice (2008) also explored the impact of reading beliefs and mothers' levels of education on children's emergent literacy skills. Their results demonstrated that mothers with lower education levels had children with significantly poorer pre-literacy skills. Also, mothers with higher levels of education had more positive attitudes towards shared reading, but the frequency of reported home literacy practices did not vary depending on education level. Further analysis showed that mothers' beliefs about shared reading mediated the impact of maternal education on children's pre-literacy skills. Meagher, Arnold, Doctoroff, and Baker (2008) also described how maternal beliefs can impact on the types of behaviours mothers demonstrate during shared reading.

Mothers who believed shared reading should involve learning displayed more learning-based behaviours (specifically scaffolding, specific questions and providing information). Mothers who believed shared reading was primarily about having fun displayed actions that made reading more positive (specifically giving higher levels of praise). Further, mothers with a fun-centric reading belief also predicted the use of higher levels of learning-based behaviours. Meagher et al.'s (2008) results suggest learning and fun during shared reading are compatible and interventions may wish to consider the value of integrating both of these features.

In all, these findings suggest mothers' beliefs and attitudes towards reading impact on the frequency and manner with which they engage their children with books, and also children's language and literacy development. Thus, cultivating a positive attitude towards reading may be an important component of emergent literacy interventions, especially in a population such as teenage mothers who may have negative attitudes towards reading due to their own previous experiences.

1.7.4 Section Summary

Section 1.7 explored emergent literacy and its development. Emergent literacy was first described in general terms, before being presented with regards to at-risk populations. The evidence suggests children from at-risk environments (such as low-SES or low maternal education) are at greater risk of impeded emergent literacy development.

One important aspect of emergent literacy development is the home literacy environment. This includes aspects such as number of books owned; frequency of joint book reading; exposure to literacy materials; frequency of library visits; and parents' own attitudes towards reading (Bracken & Fischel, 2008; Burgess et al, 2002; Bus et al, 1995; Cottone, 2012). The HLE has been shown to be strongly predictive of later literacy skills. The limited

information available on the HLE provided by teenage mothers suggests it may not as rich as that provided by older mothers, placing children of teenage mothers at greater risk of hindered literacy development.

Finally, the role of mothers' beliefs about reading was explored. Evidence suggests mothers' beliefs play an important role in the frequency and manner in which mothers shared books with their children, and that this impacts on children's language and literacy development.

1.8 Emergent Literacy Interventions

Given the importance of early literacy experiences for children's reading development and later academic achievement, interventions targeting enriching children's emergent literacy skills are widely reported in the literature. The following section will review the literature regarding interventions targeting emergent literacy development. Existing emergent literacy interventions vary in their focus, for example parental reading style (Chow, McBride-Chang, Cheung & Chow, 2008; Dale, Crain-Thoreson, Notari-Syverson & Cole, 1996; Whitehurst et al., 1988), print-referencing interventions (Ezell & Justice, 2000; Justice & Ezell, 2000, 2002) and alphabet knowledge (Piasta & Wagner, 2010). Reviews of intervention literature are in agreement on the effectiveness of multiple styles of interventions at improving children's reading outcomes (Justice et al., 2003; Mol, Bus, De Jong & Smeets, 2008; Piasta & Wagner, 2010; Reese, Sparks & Leyva, 2010; Sénéchal & Young, 2008). They also provide guidance on relevant areas to consider when implementing interventions with populations with diverse needs (for example low-SES families).

Reese et al. (2010) completed a review of 11 studies on the effectiveness of parent-focused interventions for children's language and literacy development across three contexts

(book reading, conversations and writing). Their results confirmed the effectiveness of parent-targeted interventions across all three contexts. The review highlighted some important points when considering design and implementation of interventions. First, they identified that the majority of studies with a reading focus utilised a dialogic reading approach. Dialogic reading uses adult-initiated behaviours during shared reading (such as asking open-ended questions, repeating and expanding the child's utterance, and following the child's lead and interests) in order to increase the child's engagement and interaction with the book and provide adult models of language (Whitehurst et al., 1988). This approach to intervention relies heavily on the use of video as a teaching strategy, which when used exclusively, was shown to be less effective in a population of less-educated parents, who preferred a direct instruction model. Secondly, trainings that targeted the parents directly (as opposed to those situated in a preschool classroom environment) were most effective at improving children's outcomes.

Sénéchal and Young (2008) examined the effectiveness of parent-targeted interventions in older children (kindergarten to grade three) and identified the most effective interventions for children were those where parents were instructed to coach their children on literacy-based activities (e.g. learning the alphabet, word reading, and using flash cards). This is relevant for children who have developing reading skills, but does not address the needs of emergent readers (such as those aged four years and younger).

Mol et al.'s (2008) review focused on interventions using a dialogic reading model of instruction. This review showed that while these interventions were successful at improving children's expressive vocabulary, they were less effective in populations where children were at greater risk (i.e. by SES or parental education level). Additionally, results suggested older children (4-5 years old) scarcely benefitted from dialogic reading interventions, indicating

these emerging readers may benefit more from interventions that focus on skills beyond enriched book conversations.

This existing body of review literature suggests that a range of emergent literacy interventions are available, and have been proven to be effective at the specific skills they target. It also suggests caution must be taken when implementing interventions with low-SES families, as they may not experience as much benefit as their middle and upper-SES counterparts. Existing studies with at-risk children tend to focus directly on the children and/or within the preschool environment (Justice & Ezell, 2002; Justice et al., 2010; Lonigan, Anthony, Bloomfield, Dyer & Samwel, 1999; Ya-yu, Chuang & Haskell, 2009), potentially due to difficulties with accessing the parents of this population. Much less is known about the effectiveness of interventions within the lower SES demographic that target parents.

Justice and Pullen (2003) included print-referencing in their evaluation of promising interventions for emergent literacy development. Print-referencing includes behaviours such as asking questions and making comments about print, and tracking print when reading. Use of these strategies during shared reading has been shown to improve children's print awareness, word concepts, and alphabet knowledge in both typically developing and at-risk pre-schoolers (Ezell & Justice, 2000; Justice & Ezell, 2000, 2002). Much of Justice and colleagues' intervention work focuses on print-based interventions implemented in the pre-school classroom environment (e.g. Ezell & Justice, 2000; Justice et al., 2003; Justice & Ezell, 2002; Justice, Kaderavek, Fan, Sofka & Hunt, 2009; Justice et al., 2010). These interventions tended to target the reading behaviours of preschool teachers, or use professionals such as researchers or Speech-Language Pathology students to implement print-focused programmes within the preschool environment. All interventions demonstrated positive effects on children's print-based knowledge. This provides evidence that adult-led storybook reading and print-focused intervention programmes can have positive impacts on

children's development of print awareness. However, interventions conducted within the preschool context eliminated involvement by the parents. This means that once the intervention period has ended, limited carry-on of the positive aspects of print-focused shared reading is likely to occur. Further, an opportunity to support the enrichment of the home literacy environment is excluded by focusing only on the preschool setting. Emergent literacy interventions including parents in the intervention model have been shown to demonstrate the greatest effects (Lonigan & Whitehurst, 1998; Whitehurst et al., 1994).

Other interventions have attempted a different approach, by covering a variety of different emergent literacy skills through parent-targeted programmes. In a small study (N=6) of parents with literacy difficulties, Taverne and Sheridan (1995) implemented a parent-training programme targeting the duration, frequency and quality of interactive book reading. The seven-week programme provided parents with picture books to keep and addressed general interactive book reading techniques. Details on the specific targets of the intervention programme were not described but measures of interactive book reading included: 1) examining a storybook and pointing out its main parts; 2) labelling and discussing picture content; 3) reading the story aloud to the child; 4) pausing to question child about his or her understanding. Parents were also encouraged to teach identification of book components and encourage child identification of print characteristics. The training sessions included a variety of audio and visual teaching strategies such as listening to a reading of the book and watching a video of a parent modelling various interactive book-reading skills. Training sessions also included general discussion, modelling, and role-playing, and occurred in both individual and small group sessions. Book-reading sessions between parent and child were recorded weekly and a comprehensive behaviour coding system was presented. However, when presented as results, all codes were aggregated and reported as a single measure of interaction. Results indicated all parents increased the number of meaningful interactions during shared reading,

although, only 50% of the cohort maintained gains at follow-up. The study is constrained by a small sample size with a lack of a control group or measure, and the aggregation of behaviour codes limiting the usefulness of results. In order to best determine the impact of a broad-approach intervention, measures need to be able to determine which areas are responding to the intervention. Further, better description of the intervention programme is required to enable any replication. Despite its limitations, this study is one of the few that includes some useful information on potential characteristics of an effective intervention with low-literacy parents such as the use of multiple methods of information translation (e.g. role-play, modelling, discussion, use of audio and video).

Some larger scale studies have reported in more detail on the specific features of their intervention (Baker, Piotrkowski & Brooks-Gunn, 1998; Jordan, Snow & Porche, 2000). Both these studies were large cohort studies utilising either a control group or multiple cohorts to strengthen methodology. Jordan et al. (2000) covered a range of emergent literacy topics in their five-month programme, including general literacy development, letter/sound awareness, narrative skills, vocabulary, and using non-fiction books. The programme was based around monthly training sessions and provided books with scripted language activities to be completed at home. Associated activities also occurred in the kindergarten classroom environment. Results were primarily focused on child outcomes and demonstrated significant improvements in children's language for families who participated in the programme (n=177), compared to a non-participating control group (n=71). The greatest gains were seen for those children with the lowest language scores at pre-test. Baker et al. (1998) also provided books with associated scripted activities in a two-year longitudinal, randomised-controlled, two-cohort intervention. Measures in this study were limited to standardised measures of cognition and school outcomes in reading and maths. Results were inconsistent between cohorts, with cohort one demonstrating significant gains in cognition compared to

controls following intervention, and in reading at the one-year follow-up. Conversely, cohort two were not different to the control group on any measure at post-intervention or long-term follow-up. The authors reported that cohort analyses of attrition, data availability and amount of intervention packets received could not explain the conflicting responses. Given that the study did not track participation in the programme beyond the provision of resources, some possible explanations for the different response between cohorts could be factors not explored in the study, such as the parent's own literacy level, or the quality of the home literacy environment.

Neuman (1996) provided books while utilising a book club approach to parent-focused shared reading intervention. Participants included low proficiency (n=18) and proficient (n=23) parent readers (based on self-report) and their preschool children (M 50 months). The book club was designed to be a place for parents to meet and discuss children's books, and read together with their children. Held over a 12-week period, sessions included choral reading of the week's book, followed by an engagement of the discussion of the story. Three key questions were the focus of discussions: what would you want your child to take away from this book; what kinds of questions and comments would you use to stimulate a discussion of the story; and how would you help your child revisit this book. Following the discussion, parents would read the book with their child. Recordings were made from selected reading sessions and were used to analyse parent-child interactions with regards to three types of books (high predictable, predictable and narrative). Interactions were also coded for 11 verbal behaviours (including bridging, clarifying, labelling, feedback and predicting). Finally, changes in children's receptive language skills and concepts of print were investigated. Results showed that patterns of book reading varied across texts, with different texts showing greater use of different verbal behaviours. Parent reading proficiency also indicated different preferences for verbal behaviours. Parents with lower reading ability

used strategies of attention vocative (directing attention to picture or print), chiming (reading along with the text), and repeating (copying a child's previous utterance) more often. More proficient readers were more likely to focus on verbal behaviours that lead to meaning-based interactions (such as elaborating, feedback and recalling). Children of both low and proficient parent readers significantly increased on language and print concepts measures following the intervention, with children of low-proficiency parents making the greatest gains. These results are promising for future work with parents of low reading proficiency as they suggest significant gains in children's literacy skills can be made from parent-focused interventions that target shared storybook reading.

Manz, Hughes, Barnabas, Bracaliello and Ginsburg-Block (2010) explored the applicability of family-based emergent literacy interventions to at-risk populations, including those from low-income families. The 31 intervention studies reviewed all utilised a caregiver-focused intervention model with children aged 2-6 years. Of these 31 studies, only six were implemented with a sample considered 100% at-risk and specifying mothers as the primary interventionist. The intervention targets for these most-at-risk samples included dialogic reading (two studies), storybook reading (three studies) and one study targeting general oral language. While six of the 31 studies identified caregiver literacy needs as a factor, none included an adult literacy component, despite the potential for literacy weakness to prohibit full understanding or involvement in the intervention programme. The findings of this review indicated limited generalisability of family-based emergent literacy interventions to low-income families.

Much of the existing literature on early intervention literacy programmes is focused on children aged three years and above. Much less is known about the efficacy of interventions that target parents of infants, despite evidence suggesting the positive impact of reading with young children (Raikes et al., 2006). Hardman and Jones (1999) evaluated the

effectiveness of an early book reading initiative with 40 caregivers and their seven-month-old babies. Parents were provided with a 'Baby Book Bag', which included a book, advice about the importance of books and reading, a library card, and other related materials. Book groups were also set up, which consisted of fortnightly group sessions focused on the value of shared book reading, encouraging songs and rhymes, choosing and making appropriate books, and developmental issues. It was not clear from the study who facilitated these groups. Parent interviews were conducted pre- and post-intervention when babies were seven and nine months old, to examine the frequency of book related activities in the home. Comparison of the two interviews indicated at post-intervention, mothers had significantly more books and increased the frequency of shared reading in the home. This study adopted a very general approach to intervention, and used parent report as the only outcome measure. Despite this, the results indicate even a generalised approach to intervention can effect change in some important home literacy features, even with parents of very young children. As discussed in Section 1.7.2, the number of books in the home and frequency of shared reading are important in supporting the development of early literacy skills.

The literature presented in this section can help provide guidance as to the qualities of a potentially effective emergent literacy intervention for teenage mothers. Direct, parent-focused instruction over multiple sessions with a balance of code-based and meaning-focused content may address the needs of the lower SES sample of mothers who have children who are more likely to require support in a range of early literacy areas. The provision of books and resources is a popular component of many effective interventions, and may be even more relevant for populations that are reported to have fewer books at home (see Section 1.7.2.1 on the HLE provided by teenage mothers). Further, evidence suggests that it is important to consider the adult's level of literacy when developing an intervention. While this may not necessarily impact on the success of the intervention, it can provide important information on

the manner in which information is transferred and the level of materials selected. One notable feature of the emergent literacy intervention literature is the heavy focus on using behavioural-level coding to track change in response to intervention. Little attention is given to a more detailed understanding of language use during shared reading interactions. Finally, certain interventions have been shown to be less effective in low-SES groups, or with older children (such as dialogic reading). Despite its popularity and proven effectiveness with other groups, further investigations may be required into how to translate the main features of dialogic reading to a low-SES group and children of varying ages.

1.8.1 Section Summary

Section 1.8 examined the literature on emergent literacy interventions. This section suggests that emergent literacy interventions are generally effective at improving outcomes for children's language and literacy development. Particular considerations may need to be made for low-SES or low-education mothers (which may include teenage mothers) when considering the type and implementation of interventions in order to obtain the best outcomes.

1.9 Language Development and Literacy

The development of oral language and associated meaning-focused skills is one important strand for early literacy achievement. This association is demonstrated by the considerable number of studies indicating that children with delayed language development have an increased tendency to struggle with reading. Catts, Fey, Zhang and Tomblin (1999) explored the language basis of reading in a longitudinal investigation of the language and literacy skills of 604 children in the US. Participants were assessed in kindergarten on a battery of assessments measuring phonological processing and oral language. At grade two,

the same cohort was assessed on a range of word recognition, reading comprehension and intelligence tasks. Based on these results, the cohort was then separated into good and poor readers, and associations between their kindergarten language scores and their second grade reading abilities were examined. The results indicated that the majority of poor readers at second grade had identifiable oral language deficits in kindergarten, with 57% presenting with receptive deficits and 50% presenting with expressive deficits. A later study using the same cohort followed these children through to 10th grade, to determine if these early language deficits had a persistent effect on later reading outcomes (Catts, Bridges, Little, & Tomblin, 2008). Children were assessed on a range of reading comprehension and word recognition tasks at grades 2, 4, 6 and 8, and those with identified language impairment at kindergarten were compared to those with typically developing language. While both groups demonstrated a similar growth trajectory, children from the language-impaired cohort consistently scored significantly lower than the typically developing cohort on all standardised measures.

Several longitudinal studies indicate that early language delay leads to adverse effects on literacy development later in life (e.g. Johnson et al., 1999; Lewis, Freebairn & Taylor, 2000; Paul, Murray, Clancy & Andrews, 1997). One such series of studies utilised a 12 year longitudinal investigation of preschool children identified with language impairment (N=87) (Bishop & Adams, 1990; Bishop & Edmundson, 1987; Stothard, Snowling, Bishop, Chipchase & Kaplan, 1998). The cohort was initially assessed on a range of measures (expressive phonology, syntax, morphology, semantic relationships, vocabulary, verbal comprehension of instructions, and non-verbal IQ) initially at 4;0, 4;6 and 5;6 years of age . They were tested again at 8;6 years, and a follow-up was completed at 15-16 years of age with 71 of the original sample. Their findings suggested that outcomes at 15-16 years were strongly associated with language skills at age 5;6, even when earlier identified language

impairments had been resolved. The results of these longitudinal studies illustrate the pervasive and long-lasting effect early language deficits can have on later reading performance and support the importance of early intervention for literacy and language development.

1.9.1 The Role of Input on Language Development

The language environment in children's homes provides much of the early language children are exposed to, and has implications for development across a range of literacy-specific measures. For example, rich home language environments provide considerable opportunities for children to develop a broad vocabulary, which is known to be one of the strongest predictors of a child's reading and academic success at school entry (Cunningham & Stanovich, 1997).

Two significant variables to consider when examining the richness of a home language environment are the quantity and quality of language children are exposed to, both of which have received attention in the literature. Quantity of language input (also referred to as word tokens) is frequently determined by the number of words parents speak to their children, and has an important influence on children's development. Hart and Risley (1995) explored the impact of exposure to language quantity by investigating the different home language experiences of children from 42 families representing three socio-economic groups (welfare, working class, and professional). Their results demonstrated significant variation in the quantity of language children from families of a higher SES were exposed to compared to those from low SES families (a difference of around 32 million words by age five). These differences also equated to variations in children's vocabulary, with children from homes with a higher quantity of language experiencing greater vocabulary growth. Hoff (2006b) demonstrated similar findings to Hart and Risley (1995) when comparing mother's speech

with their child's vocabulary growth. In a sample of 61 mothers and children, Hoff determined that properties of maternal speech input (specifically number of tokens, number of types and mother's MLU) predicted children's vocabulary growth. Hoff also observed SES differences, with higher SES mothers using more word types and tokens, and longer utterances.

Another way to explore the home language environment is to examine the quality of language to which children are exposed. Quality includes aspects such as the diversity of vocabulary (number of word types), the frequency of use of rare or sophisticated words, and the context of language being used.

Studies have demonstrated that diversity of parental language input corresponds to children's language development and that variations are observed between different SES groups (Hoff, 2003; Huttenlocher, Haight, Bryk, Seltzer & Lyons, 1991; Huttenlocher et al., 2010). For example, Huttenlocher et al. (2010) longitudinally investigated the impact of the diversity of language input (word types) on children's later language outcomes. Their study included 47 parent-child dyads with children between ages 14 and 46 months. Dyads were filmed during 90 minutes of daily activity every four months (nine visits in total). Video tapes were then transcribed and analysed for features of language input by the parents, and children's subsequent language production, which was used as a proxy measure for child language development. Lagged correlations were employed to determine if parent's input influenced children's language use four months later. The impact of demographic variables (years of education and/or income bracket) was also explored. Results indicated that children's language use (via word types) was predicted by parental language input, wherein the more diverse language a child was exposed to, the greater their language development would be four months later. Further, demographic variables were also a highly significant predictor of children's language growth. Some methodological limitations were present

within this study that may limit the generalisability of findings. While reported to draw from a demographically diverse group, only five families were classified to have up to high school level education, meaning a very small number were considered to be ‘low-education’ families. Also, child language output was used as a proxy for their language development. This meant the language development the child could demonstrate was limited by the context of the filming (e.g. a mealtime or while playing with toys), and the language opportunities provided by the parent. Finally, the videos were taken from 90 minutes of daily activity, which meant there was potential for considerable variation between the language opportunities presented.

When investigating the impact of context on parents’ and children’s language, Weizman and Snow (2001) used density of sophisticated/rare words as a measure of language input. Their study included 53 low-income mother-child dyads in conversations across five contexts (toy play, magnet play, mealtime, story books, and information books). Also longitudinal in design, language input across these five contexts was measured via a home visit when children were five years of age. Children’s language development via the PPVT-R (Dunn & Dunn, 1981) was then assessed at the end of kindergarten, and during second grade. Language sophistication was determined using the updated version of the Dale-Chall Rare Word List (Chall & Dale, 1995), which is comprised of the 3000 words teachers judge as known by most fourth graders. Results examined the relationship between lexical input (as sophisticated/rare words) and children’s vocabulary development, but also included the impact of context on language production. Their results found that mealtimes provided the most opportunity for exposure to rare words, followed by play-based scenarios. The book context was examined in two ways: one which excluded vocabulary drawn from the book texts, and one which included it. When excluded, both book contexts provided the least exposure to rare words of all contexts. Conversely, when including book vocabulary,

information books followed by story books provided the most opportunity for exposure. This suggests that the context is an important factor when investigating the language children are exposed to in the home. In particular, the types of resources provided may have a considerable impact on the type of language parents use. Books of either type (story or information) clearly provide the greatest opportunity for parents to use rare words, and may act as a reminder or suggestion for how parents could increase the richness of language used. Consistent with Huttenlocher et al. (2010), parental language input (in this case, through use of sophisticated/rare words) was positively related to children's later vocabulary development (Weizman and Snow, 2001). It is clear, however it is measured, that language input in the home is important for children's language development.

Another important measure of language quality for pre-schoolers is language that is decontextualised. Decontextualised language is talk that moves beyond the 'here and now' and may include reference to events that occurred in the past or will occur in the future, connection of events to everyday life, definitions, descriptions or classification of words, or encouragement to make predictions and inferences about events and characters (Curenton, Craig, & Flanigan, 2008; Haden et al., 1996). This type of language places more cognitive demands on children by requiring comprehension beyond the immediate context. For example, a child being asked what might happen next in a story is using much more cognitive and linguistic skill than when they are being asked where their shoes are. Decontextualised language is often structured in sentences more complex than children are exposed to in talk of a more contextualised nature (Curenton & Justice, 2004). Further, decontextualised language is aligned with the type of language demands expected at school, as children are exposed to a wide range of vocabulary and concepts that are removed from their everyday environment. Parent's use of decontextualised language is associated with children's expressive and

receptive language and vocabulary skills (Gelman, Coley, Rosengren, Hartman & Pappas, 1998; Rowe, 2013).

In a longitudinal study of language exposure, Rowe (2012) attempted to determine the relative roles of quality and quantity of parental talk and the impact this had on children's vocabulary development with 50 parent/child dyads from diverse backgrounds. Analysis was completed of 90-minute free-play interactions at three time points during the child's preschool years (18, 30 and 42 months). Rowe's results demonstrate the different role quality and quantity of language input from parents play at different developmental stages. She purports quantity (using a diverse and sophisticated vocabulary) has more of an impact in the second year of life as a child is developing their vocabulary, and quality (using decontextualised language) becomes more important in the third and fourth year of life, as children are cognitively and developmentally ready for more complex language exposure. These results indicate the importance of both quality and quantity of language exposure in the home as children grow. This is especially relevant when considering interventions for the teenage parent population due to the known risks for their children to experience literacy and language delays. Children of teenage parents are also more likely to have multiple siblings, closer together in age (Moore et al., 1993), thus potentially benefiting from the provision of a home language environment rich in both quantity and quality of language exposure.

Some information is available on the quality and quantity of language input provided by teenage mothers when compared to older mothers (Lacroix, Pomerleau & Malcuit, 2002; McDonald Culp, Osofsky & O'Brien, 1996). McDonald Culp et al. (1996) compared the amount of maternal speech, contingent responsiveness, joint attention and five functions of maternal speech of teenage mothers (n=18) with older mothers (n=14) when talking and playing with their one-year-old children. Infants' vocalisations were also measured. Results demonstrated differences in the quality and quantity of speech used by the two groups.

Teenage mothers spoke significantly fewer words, had fewer utterances while engaged in joint attention, labelled objects less, and used less positive speech and more command utterances. Children of teenage mothers also vocalised significantly less. Lacroix et al. (2002) explored similar features of language input in a larger longitudinal study. This sample consisted of 125 mother-child dyads that were divided into three groups: teenage mothers (n=32), low-SES adult mothers (n=54) and middle-SES adult mothers (n=39). Children's language and cognitive development was tracked and mother's use of four descriptive forms and nine functions was measured during a 10-minute free-play session at 18, 30 and 36 months. Form and function use varied between groups, with teenage and low-SES adult mothers using more utterances that controlled or directed the child, and fewer that informed or questioned. While differences were observed from middle-SES adult mothers, teenage mothers and low-SES adult mothers used a similar style of language and interaction when talking with their children. Maternal utterance use explained between 15 and 45% of the variance in children's language and cognitive development, with predictors varying as a function of the child's age.

This examination of language input provides some important insights into working with teenage mothers. Firstly, differences have been demonstrated in the way teenage mothers talk to their children with regards to both quality and quantity of input compared to older mothers. Secondly, both quality and quantity of language input is important for children's development and therefore both aspects should be included in an effective intervention programme. This is further evidence that teenage mothers are a population in need of support to improve language and literacy interactions with their children.

1.9.2 Language Use During Shared Reading Interactions

As previously discussed, substantial evidence exists to support the important role shared book reading has for children's language and literacy development, and intervention studies have shown it is possible to effect change in the way parents interact with their children at a behavioural level during shared reading. However, it is also relevant to consider what it is about shared book reading that contributes to children's development of emergent literacy and language skills. In order to do this, analysis must occur beyond that of observable behaviours and delve deeper into the language and discourse skills being used during a reading interaction.

One context from which to explore the type of language being used by parents is during shared reading interactions. Shared reading is viewed as a particularly effective means for providing children with enriched interactions to support their development of emergent literacy and language skills (Bus, 2001; Bus et al., 1995; Lonigan & Whitehurst, 1998). While a growing body of literature has investigated the behaviours and foci (e.g. print concepts or use of dialogic reading strategies) parents demonstrate when reading with their young children, less attention has been given to the quality and quantity of language mothers use during shared reading. This can be completed through an examination of extratextual talk (talk which is additional to the text of the book). This type of talk is important to observe as it provides information on the language parents produce beyond the story text, and therefore is a more accurate representation of their independent, spontaneous language use. Further, analysis of talk produced by parents independent of the story text may provide insight into the quality of language interactions occurring beyond shared reading, such as during free-play, mealtimes and in day-to-day conversations. The quality and quantity of extratextual talk has been reported to vary depending on socio-economic status, with lower SES parents using

talk with less lexical richness, and fewer incidences of labelling during shared reading (Mol & Neuman, 2014). These results are similar to those demonstrated by Hart and Risley (1995) and (Hoff, 2006b) when examining language use in parent-child conversations.

Language use during shared reading and other literacy-rich activities has been shown to impact on children's language and emergent literacy skills. For example, Neumann, Hood, and Ford (2013) demonstrated that the frequency with which mothers reference environmental print with their 3-4-year-olds is related to children's development of print concepts, name and letter writing. Fletcher, Cross, Tanney, Schneider, and Finch (2008) reported positive relationships between caregivers' use of expansions and questions and their children's expressive language. Mol and Neuman (2014) showed that parent's use of lexical richness and contingent responsiveness during shared reading of information books predicted children's expressive and receptive vocabulary.

Britto, Brooks-Gunn and Griffin (2006) conducted one of the few studies examining extratextual talk used by teenage mothers, and used this as a means to explore the school readiness and language abilities of their children. A sample of 126 African-American teenage mothers were observed during a shared reading interaction that was coded on presence and frequency of five different behaviours associated with child language and literacy outcomes, including decontextualised language use, timing of maternal talk and positive feedback. Results identified two different classifications of book reading patterns: story readers and story tellers. Story-reading mothers focused mostly on reading the text of the book and did not initiate much extra-textual talk. In contrast, story-telling mothers utilised a style characterised by more decontextualised language, labelling, positive feedback and greater use of expressive language. The majority of mothers (71%) showed a preference for story reading, compared to a much smaller proportion, who preferred a story teller approach. Story-telling mothers had children with higher expressive language scores at 40 months following

the initial reading observation. This difference in children's language scores is likely due in part to the higher quality of interaction and language exposure provided by the story-telling mothers during a meaningful activity. While Britto et al.'s study was unique in that it provided a rare insight into the shared reading interactions of a large sample of teenage mothers, this aggregation of mothers into dichotomous categories has the potential to mask important information on the more detailed aspects of mother's behaviours during shared reading.

In a more socioeconomically diverse sample than Britto et al. (2006), Curençon et al. (2008) investigated parent and child's use of decontextualised talk across three story contexts (story-creating, story-reading, and story-telling). Their analysis examined seven different 'types of talk', on a continuum of contextualised to decontextualised, and how parent and child use of these types of talk varied by story context. Their findings suggest the story context plays an important role in the amount of language parents and children use, with the story-reading context producing the most balanced interaction. A balanced interaction is important for complex language learning, as children need both adequate and high-quality modelling from parents, as well as an opportunity to practice their developing language skills. Should one party dominate the interaction, one of these aspects contributing to language learning (modelling or practice) will suffer.

Haden et al. (1996) provided further insight into how the relative contribution parents and children make to the interaction matters, through their investigation of mothers' extratextual comments during storybook reading. Their longitudinal study examined the reading interactions of 19 preschool children and their parents with a familiar and unfamiliar storybook. They categorised mothers' contributions as stylistic differences and explored what effect this was having on children's contributions to the shared reading interaction. The analysis determined three different styles of maternal reading interaction: 'describers',

‘comprehenders’ and ‘collaborators’. Describers were those who provided an emphasis on vocabulary and expository-style language, by extensively describing the picture and naming characters. Comprehender-style mothers showed a preference for extratextual talk that focused on the development of print concepts and knowledge around the process of reading. Collaborators preferred to elicit children’s commentary and used confirmations to convey that this was encouraged and welcomed in the interaction. The researchers determined that mothers’ style of reading (describing, comprehending or collaborating) had an impact on children’s contribution to the interaction. For example, children with mothers who preferred a ‘comprehender’ style made the least amount of comments during the interaction, therefore limiting their opportunities to practice the language they are learning. While Haden et al.’s study provides some information on the effect maternal reading preferences can have on children’s contribution to shared reading interactions, the relatively small size of the study and participant characteristics (white, middle-class sample) may limit generalisability to more diverse populations. The study focused on the impact of maternal reading style on children’s input to a shared reading interaction in a broad sense (based on three stylistic classifications), however, it was beyond its scope to explore children’s involvement with the overall interaction (for example the amount of time the child was an active and engaged participant).

A more detailed analysis of the relative impact parent and child contribution can have on an interaction can be completed using a conversational coding system proposed by Fey (1986). Fey coded conversations at the discourse level and classified statements to the degree to which they initiated, maintained or extended a topic, or extended a topic tangentially. According to Fey, relatively large proportions of maintenance and extension comments in an interaction indicate the child’s willingness to participate and attend to their reading partner’s conversational acts. A child demonstrating high levels of initiations of new topics or tangential responses is less aware of and engaged in the exchange with their parent. Typically

applied to conversational contexts, this method of coding may also provide insight into parents' and children's contribution to shared reading interactions. Children's levels of engagement during shared reading (such as a child who engages in discussions around a book) is important to consider, as reading styles that engage and motivate children to be active participators show positive impacts on children's language and emergent literacy skills (Mol et al., 2008). This impact is shown to be greater in interventions that target the home reading environment (compared to preschool) of low-SES families (Lonigan & Whitehurst, 1998).

It is likely that parents who are providing rich and responsive shared reading interactions are presumably going to provide these higher quality language experiences during other interactions with their children. Thus, intervening with at-risk populations for the quality of their shared reading interactions may provide an impetus for improved language interactions on a daily basis.

1.9.3 Section Summary

This section discussed the interaction between early language and literacy development. It then explored in more detail how language input, whether quality or quantity, can vary, and how this may play an important role in children's later language abilities. Finally, language use was considered from the perspective of shared reading.

1.10 Part Two Summary

Part two of this chapter presented literature on children of teenage mothers. Section 1.6 described the existing literature involving children of teenage mothers and interventions that have attempted to improve outcomes for this group. Section 1.7 addressed emergent literacy development and in particular how the home literacy environment can impact on

children's development. Interventions to support children's emergent literacy development were then described in Section 1.8. Finally, Section 1.9 discussed the interaction between language and literacy, and how language input from the home may influence children's development.

1.11 Summary and Thesis Aims

Intergenerational literacy transmission is the central pillar of this thesis. That is, the manner in which knowledge, behaviours and beliefs are transmitted from one generation to the next. In a population of young children, the knowledge, behaviours and beliefs are those which are impressed on them predominantly by their parents. Should their parents consciously or subconsciously feel negatively towards literacy, the experiences children received in their early literacy environments could be entangled with similarly negative connotations, or, perhaps partially or entirely absent. Figure 1.2 attempts to capture the intergenerational nature of the current thesis' research and very briefly summarise key points addressed in the preceding literature review.

The focus population of this thesis is teenage mothers and their young children. Sections 1.2 and 1.6 outlined the ample evidence suggesting this is a population at risk for a variety of adverse outcomes, including mother's educational achievement and children's language and literacy development. In Section 1.4.2 the review went on to discuss the role of motivation and engagement for successful implementation of adolescent-targeted literacy interventions. Later, Section 1.7.3 outlined the impact of maternal reading belief, and how this can have important consequences for children's emergent literacy development. All of these factors interact to influence the quality of the home literacy environment and the early literacy experiences to which children are exposed. Substantial literature was presented to

highlight the importance of children's early literacy experiences for their later language and literacy development.

The current thesis attempts to encompass all of the components presented in Figure 1.3 by intervening first with teenage mothers, to support their own literacy skills and motivations; and then by providing another intervention to empower teenage mothers to facilitate their own children's language and literacy development. Considering Bronfenbrenner's (1992) ecological systems perspective discussed in Section 1.1.1, this intervention could be considered to occur at the microsystem level, aiming to influence interaction across system levels, in order to support the best possible outcomes for teenage mothers and their young children, both now and in the future.

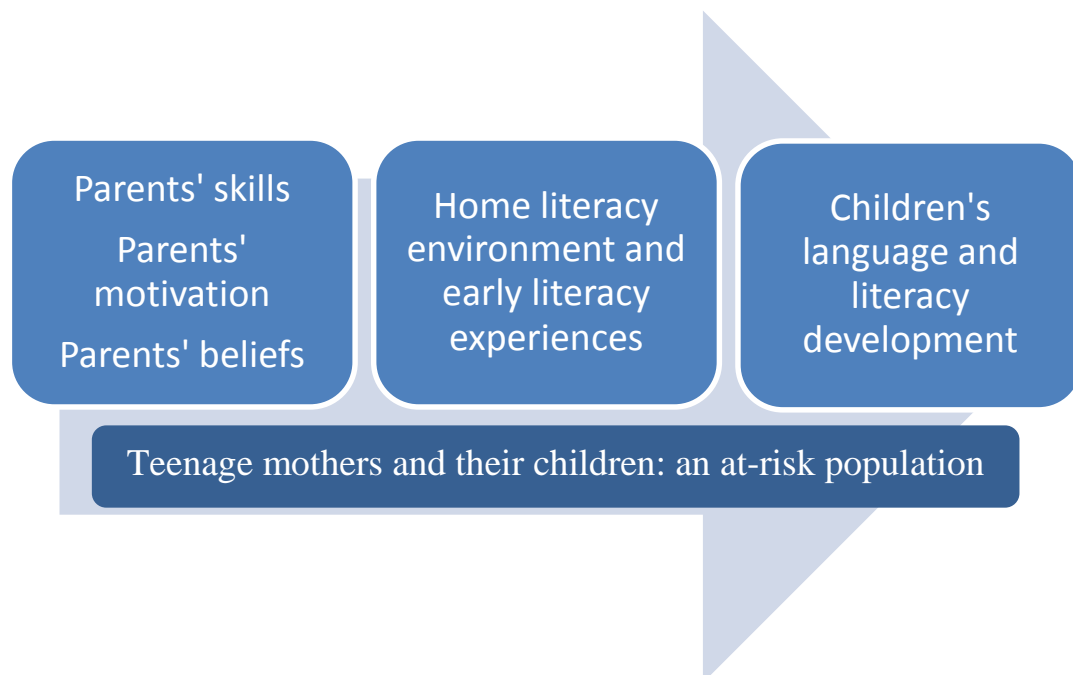


Figure 1.3: Intergenerational Literacy Transmission

The structure of the remainder of this thesis consists of six studies, which include an examination of the method and results of each study, as well as a comprehensive discussion.

The final chapter revisits the thesis' key discussion points, providing a summary of findings along with implications for practice and future directions.

The primary aims of this thesis are to:

1. Describe the home literacy environments provided by teenage mothers.
2. Describe the language and literacy skills of teenage mothers, and the language and development of their children.
3. Evaluate the effectiveness of an intervention designed to improve the literacy skills of teenage mothers.
4. Explore the impact of a parent-focused emergent literacy intervention for teenage mothers on their behaviour and language use during shared reading interactions with their young children.

Specifically, the following questions were addressed:

1. What are the home literacy environments provided by teenage mothers?
2. What are the language and literacy skills of teenage mothers?
3. What are the immediate effects of a multi-component literacy intervention on the literacy skills of teenage mothers?
4. What is the language and general development of children of teenage mothers?
5. What are the immediate effects of a parent-focused emergent literacy intervention on the reading behaviours used by teenage mothers during shared reading interactions with their young children?

6. What are the immediate effects of a parent-focused emergent literacy invention on the linguistic and discourse features during shared reading interactions of teenage mothers and their young children?

Chapter 2

A Survey Exploring the Home Literacy Environments Provided by Teenage Mothers Attending a Teen Parent Unit

2.1 Introduction

Children's early literacy experiences are vital for their later literacy development and success (Burgess et al., 2002; Sénéchal & LeFevre, 2002; Sénéchal et al., 1998). Parents thus play a key role in providing a rich and varied literacy experience, which will primarily occur within the home environment in the early years. Understanding the Home Literacy Environment (HLE) of families provides a snapshot of a child's early literacy experiences. The quality of the HLE is a key predictor of the development of emergent literacy skills such as alphabet knowledge, phonological awareness, vocabulary, and print concepts (Sénéchal & LeFevre, 2002). The quality and richness of the environment includes factors such as frequency of parental reading, frequency of child's exposure to books, number of books in the home, and the utilisation of a variety of literacy-based activities (e.g., magnetic letters or writing activities) (Rashid, Morris, & Sevcik, 2005).

The HLE of a number of populations have been described in the literature including typically-developing children from a variety of socio-economic backgrounds, children with disabilities, and children who are second language learners (Fitzgerald, Roberts, Pierce, & Schuele, 1995; Hammer, Miccio, & Wagstaff, 2003; Payne et al., 1994; van Bysterveldt, Gillon, & Foster-Cohen, 2008). One group that has received limited attention in the literature is children of teenage mothers. It is important to examine the HLE provided by teenage

mothers as this group is likely to experience a number of factors that may compromise their ability to promote their children's emergent literacy skills, such as socio-economic disadvantage, maternal educational underachievement and early school leaving (Fergusson & Woodward, 2000; Woodward, Fergusson, et al., 2001). As described in Chapter 1, teenage mothers and their children are at greater risk of difficulty with reading development, and understanding the HLE provided by teenage mothers is essential for the informed development of interventions designed to enhance the early literacy development of their children. The following study aimed to gather information about the home literacy environments of teenage mothers who attend Teen Parent Units throughout New Zealand via an online survey. This survey was carried out to establish a need for emergent literacy engagement support for this at-risk population.

Little information is available about the HLE provided by teenage mothers internationally and this issue has not been previously explored within the New Zealand context. Burgess (2005) is one of the only studies that explored the HLE provided by teenage mothers. As discussed in Chapter 1, Burgess (2005) compared the HLE provided by 108 teenage mothers in the US with 385 older mothers. Teenage mothers provided less rich HLEs than their older counterparts. They provided lower levels of print exposure, less library visits, greater hours of TV watching, and had less book ownership. Teenage mothers also presented with lower overall vocabulary scores. Teenage mothers also reported to read significantly less frequently for fun and have less exposure to adult books. Teenage mothers may thus need support to provide an optimal HLE to support the development of their children's emergent literacy skills. Further, teenage mothers' own language literacy skills may need to be addressed, as indicated by their lower vocabulary score, in intervention efforts to enhance the HLE provided. This will enable the development of an intervention programme at a level appropriate to the target group.

Screen behaviour is another factor often explored under the umbrella of the HLE. Access to screens is common in New Zealand, with 98% of homes from a recent media use survey of 708 households reporting to have a television (Broadcasting Standards Authority, 2015). Of the homes surveyed, 96% reported their preschooler engaged with media to some extent. Excessive screen usage has been associated with language and cognitive delay, decreased academic performance, increased aggression and obesity (Chonchaiya & Pruksananonda, 2008; Christakis & Zimmerman, 2007; Sharif & Sargent, 2006; Zimmerman & Christakis, 2005), and routine screen use in a home with young children may also disturb activities such as shared reading, leading to a less rich home literacy environment. Collecting information on screen behaviour alongside information about the HLE is important, as it provides further data from which to gain an understanding of the activities being undertaken in the home.

Chapter 1 presented a body of information on the important role of the home environment in early literacy development and how this impacts on later literacy outcomes. This included aspects such as frequency of engagement with a range of literacy-based activities and parental attitudes towards reading. The relationship between early literacy experiences and later literacy achievement is well established, and therefore provides further motivation to explore the home literacy environments of at-risk populations, such as teenage mothers.

The current study utilised an online survey to gather information on four key themes relating to the Home Literacy Environments of teenage mothers:

1. What are the reading and screen behaviours of teenage mothers and their children (i.e. frequency of reading and screen use, book ownership, age reading began, public library use)?

2. What do teenage mothers find challenging and enjoyable about reading with their children?

3. What do teenage mothers view as the most important skills their children will learn when going to school?

3. What do teenage mothers view as their role when helping their child learn to read?

2.2 Method

2.2.1 Research Design

This study adopted a descriptive research design and reports data collected via an online survey of the home literacy environment provided by teenage mothers.

2.2.2 Participant Recruitment Process

Following ethical approval by the University of Canterbury Educational Research Human Ethics Committee (ERHEC), contact details for all Teen Parent Units (TPUs) in New Zealand were gathered via an online search and consequently a database was identified. Contact information was available for 16 schools. Communication was made initially from the primary researcher via an email explaining the purpose of the survey and what participation would be required from their students. A follow-up call was made to units who did not reply to the initial email. Of the 16 schools contacted, one declined to be involved due to time limitations, and one was unable to be reached via phone. Fourteen schools were provided with the link to the online survey. From this pool, students from 12 schools participated; three participants declined to indicate their school.

The location of the TPUs varied across New Zealand. They included schools in large metropolitan cities and more rural settings. All schools were government funded and had a

role cap of 30 students per unit. The number of enrolled students tends to fluctuate and change throughout the year due to the varying circumstances of the students. The maximum number of students who received this survey was 420.

Students were not contacted directly; schools that agreed to participate following email or phone contact were sent the link to the online survey and were encouraged to distribute it among their students. All survey data was gathered via Survey Monkey (Survey Monkey, 2012). Respondents followed the link provided by their teachers and completed all survey questions via the website.

2.2.3 Participants

Forty-two teenage mothers responded to the survey, giving a response rate of 10%. Online surveys, while able to reach a broader audience in a time-efficient manner, have on average a 23% less response rate than those given on paper, and difficult to engage populations have an even lower potential response rate (Nulty, 2008). Response rates of other online surveys examined varied from 1% to 53.6% (Basi, 1999; Nulty, 2008; Trenholm & Miranda, 2006; van Bysterveldt et al., 2008). Therefore, a response rate of 10% is considered satisfactory and within the response rate of other online surveys. Of the 42 respondents, one participant did not complete the survey and their information was discounted, leaving a sample of 41 individuals. While gender information was not specifically sought, TPUs are only funded for the primary caregiver, which is almost exclusively the mother. All mothers enrolled at the TPUs are aged 21 years and under.

Respondent distribution was isolated to the North Island of New Zealand, due to intervention studies within the current research occurring at all Teen Parent Units in the South Island at the time of data collection. Distribution of responses by area can be seen in Figure 2.1. Responses from the Auckland region were across three different schools and have

been combined for ease of reporting. When comparing the response distribution to the overall student distribution of TPUs in the North Island, there are some differences. The Wellington region (Upper Hutt and Wellington combined) was overrepresented in the survey and Auckland was underrepresented. The remaining areas' responses are within 3% of the overall distribution of TPU students in the North Island.

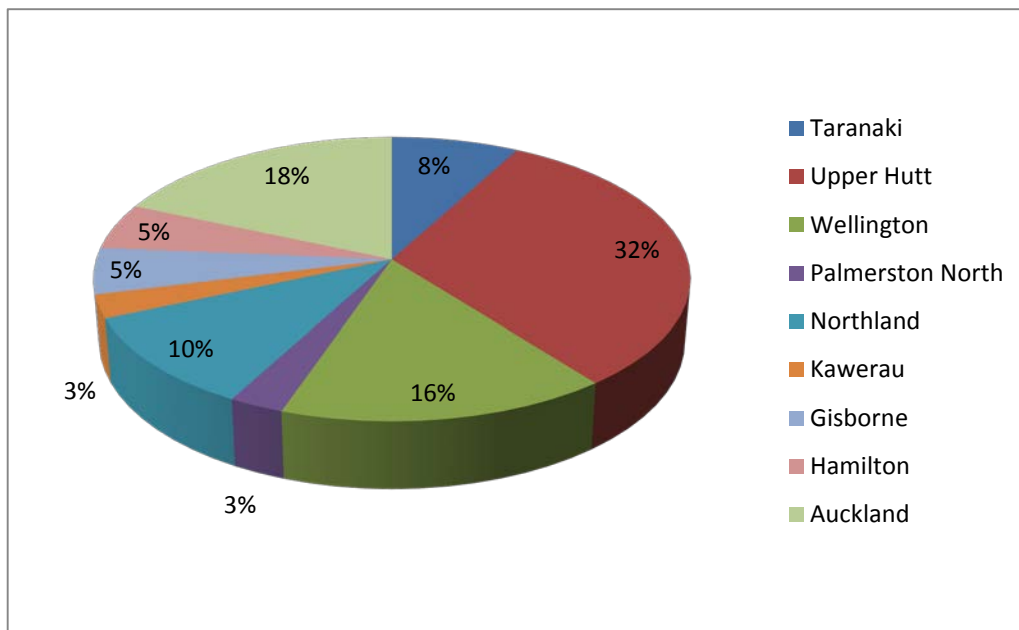


Figure 2.1: Survey Respondent Distribution by Area

Information gathered on the ages of the respondents' children indicated that age varied from birth to four years and older. The mean age of children was not collected, however the majority of respondents had children aged 1-2 years (38.1%). Five respondents indicated they had more than one child (8.2%). Socioeconomic information was not gathered in this survey; however three quarters of all teenage mothers in New Zealand receive some kind of benefit. As described in Chapter 1, all TPUs in New Zealand have a Decile ranking of 1, the lowest possible in the New Zealand Ministry of Education's decile system (Ministry of Education, 2011). Participants should thus be broadly categorised as coming from a low socioeconomic background. It must be acknowledged, however, that students attending TPUs are drawn from a variety of different social backgrounds and circumstances and the SES

status and Decile ranking of the school may not be indicative of the student's socio-economic circumstances before becoming a parent. Information was not collected on the living situations of the mothers (e.g. at home with their own parents, living independently/with a partner). While the amount of time children spent in childcare each week was not collected, TPUs provide on-site childcare, which children can attend full time during school hours. Therefore, it can be assumed that the majority of participants' children were in childcare up to 30 hours per week.

2.2.4 Survey Design

The Home Literacy Survey used was developed based on a Developing Literacy Questionnaire from van Bysterveldt and colleagues (van Bysterveldt et al., 2008). The original survey was shortened and simplified to be appropriate for the age and estimated educational level of the young mothers. Its focus was narrowed to target primarily the reading behaviour, reading challenges and enjoyment, and television and computer usage in the homes of teenage mothers. Prior to distribution, the questions were reviewed by two Speech-Language Pathologists and the final draft of the survey was piloted with three teenage mothers. Two questions were reworded to adjust for some ambiguity noted by the pilot respondents. The final version included 22 questions, under the headings: *Reading Books*, *Television and Computer Use*, *Skills for School*, and *Parent's Role*. From these 22 questions, four key themes emerged for analysis. These were Reading and Screen Behaviours, Reading Enjoyment and Challenges, Skills for School, and Parent's Role. One question from the *Television and Computer Use* section was excluded from analysis due to the ambiguity of some answers which was not identified during the piloting process. In addition, short answer questions regarding examples of books children like to read, TV programmes/DVDs they like to watch, and computer programmes they like to play were also excluded from analysis due

to the multiple different responses received (listings of various titles of books and television programmes enjoyed by their children).

Question types included a mixture of short answer (32%), multiple choice (27%), categorical (22%), yes/no (9%), Likert scale ranking (5%) and fill-in-the-blank (5%) responses. The short answer questions gathered descriptive information on areas such as what mothers enjoyed and found challenging about reading with their child, the types of books, TV/DVD shows and computer games their child enjoyed, and what they viewed as their role in helping their child learn to read. Categorical and multi-choice questions explored the number of books owned by both parent and child, the frequency of reading for enjoyment for both parent and child, the frequency of public library usage, and how often their child watched or used the TV/DVDs/computer. One Likert scale question gathered information on the child's perceived enjoyment of reading compared to other activities. A paper version of the survey can be found in Appendix 1.

2.2.5 Data Analysis and Reliability

As survey data was collected online, reliability for data entry was not required. A coding system for the three short answer questions included in the analysis was developed by the primary researcher. Surveys were initially examined for key themes present in the responses and then these themes were discussed with an independent Speech-Language Pathologist who had been trained to implement the coding system. Following agreement of the themes, short answer responses were coded independently by the primary researcher and the independent coder, with an inter-rater reliability of 99.3%. Any discrepancies were resolved via discussion prior to data analysis. All additional survey response statistics were automatically calculated by the online survey tool.

2.3 Results

Results will be presented as a group, under four key themes: Reading and Screen Behaviours, Reading Enjoyment and Challenges, Skills for School, and Parent Role.

2.3.1 Reading and Screen Behaviour

The majority of participants began reading to their child before their baby was six months old, and almost all respondents were reading with their children before they were one year old. Five respondents (12.2%) indicated they were reading to their child before they were born. Responses are represented in Table 2.1.

Table 2.1: Age Mothers Began Reading with their Children

Age of Child	No. of respondents	%
Before birth	5	12.2
Birth – 3 months	11	26.8
3 – 6 months	11	26.8
6 months – 1 year	12	29.3
Older than 1 year	2	4.9

When asked about the frequency of reading for pleasure for both mothers alone, and with their children, the majority of respondents indicated they read with their children daily (61%) or every week (24.4%). It appeared many teenage mothers did not prioritise their own reading for enjoyment with only 29.3% indicating they read ‘every day’, and the majority indicating they read ‘sometimes’ (34.1%). Comparisons of reading frequency for mothers by themselves and to their children are presented in Table 2.2.

Table 2.2: Frequency of Parental Reading for Pleasure for Self and to Child

Frequency	Parent Reading for Self (%)	Parent Reading to Child (%)
Never/rarely	9.9	2.4
Sometimes	34.2	12.2
Every week	26.5	24.4
Every day	29.4	61.0

Table 2.3 describes the screen behaviour (frequency and length of time TV/DVD/computers are used in the home) of survey participants. Results indicated the majority of children in this survey watched DVDs ‘sometimes’ (34.2%) or ‘every week’ (34.2%), with the majority doing this for less than one hour per day (58.4%). Television watching was more popular, with 53.7% of children watching TV ‘sometimes’ and 24.4% watching ‘everyday’. Length of time was consistent with DVD watching, with 58.5% watching for less than one hour per day. Computer, laptop or tablet ownership occurred in 73.2% of young mothers surveyed, which is very close to the most recent estimate of computer ownership in New Zealand of 71.6% (Statistics New Zealand, 2006). Only 17.1% of mothers with access to a computer indicated their child uses it. For those children who used computers of some description, almost all (95.1%) used it for less than one hour per day.

Table 2.3: Frequency of Screen Usage by Children

Frequency	DVD/VCR (%)	TV (%)
Never/rarely	14.6	14.6
Sometimes	34.2	53.7
Every week	34.2	7.3
Every day	17.0	24.4

Figure 2.2 graphs book ownership as a comparison between mothers and children. Overall, results showed children own more books than their mothers did, with the majority of mothers (36.6%) indicating they owned between 10 and 25 books. The most frequently occurring category for children’s book ownership was 25-50 books. However, 22% of respondents indicated they owned fewer than 10 children’s books. The mean and median number of books owned by mothers was 10-25, and 25-50 for children.

The majority of mothers indicated they ‘never’ or ‘rarely’ used the public library (39%). It should be noted that many TPUs have a small children’s library on site, and this may be used as an alternative source of reading material for families that is not captured by this survey.

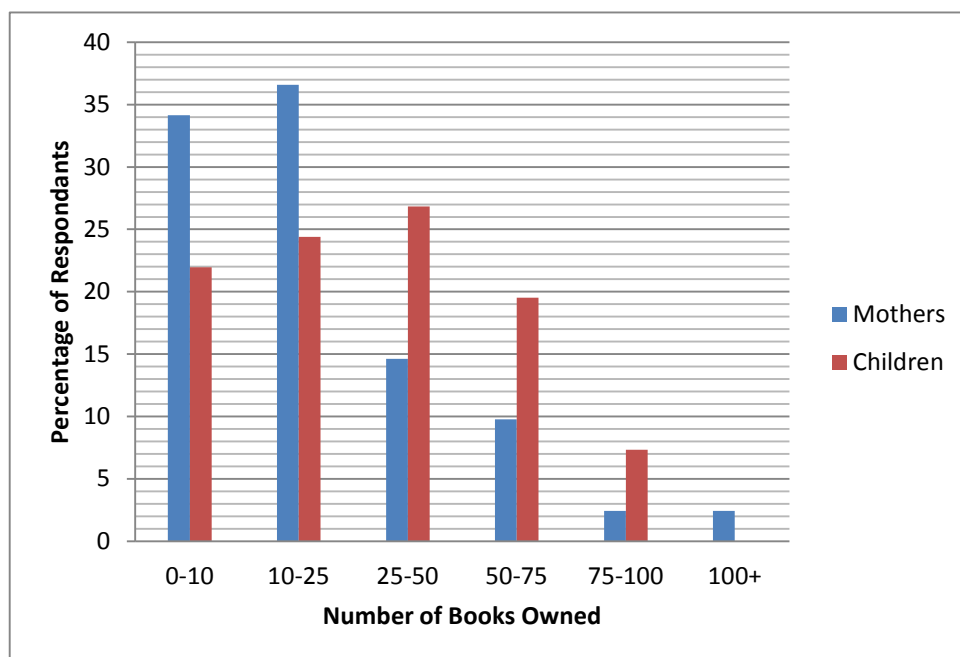


Figure 2.2: Mother and Child Book Ownership

2.3.2 Reading Enjoyment and Challenges

These descriptive survey questions asked mothers to respond in their own words to ‘what do you enjoy most about reading with your child’ and ‘what do you find challenging about reading with your child’.

2.3.2.1 Reading Enjoyment

The majority of respondents enjoyed reading to their children, and responses fell under four key themes, which are presented in Table 2.4. The reasons for enjoyment included seeing shared reading as a time of bonding (30%); it being a pleasurable experience for mum or child (30%); it being a good time for teaching and learning (22.5%); or it being a good time to practice communication skills (12.5%). Some quotes from participant responses are included below to illustrate mothers’ enthusiasm for book reading with their young children.

“the look on her face when I teach her about the new animals and what sounds they make, and the look in her eyes when she says the name of the animal or when she makes to noise for the first time”

“the fact that all this energy out of no were comes out of him and that he loves all the clours and different pitchers. He smiles alot when I am reading which makes it a really enjoyable time and I like it very much” (sic)

“I love reading to my daughter by having that mums and bubs bond, I enjoy her listening and pointing out the pictures she likes”

Table 2.4: Enjoyment of Reading with Children

Enjoyment	No. of respondents	%
Time for bonding	12	30
Pleasurable experience for mum or baby	12	30
Time for learning or teaching	9	22.5
Communication	5	12.5
No enjoyment	1	2.5
Other	1	2.5

2.3.2.2 Reading Challenges

The challenges indicated by teenage mothers when reading to their children were varied. Respondents indicated difficulty with their children focusing or staying still and the child's level of understanding not being high enough as the main challenges of book reading. Almost 20% of respondents indicated they found nothing challenging about reading with their children. Table 2.5 presents the frequency of responses for all themes for this question. Other challenges included finding time, reading without being distracted by other children, the child not wanting to read a whole book, and the repetition of the same book over and over again. Additionally, quotes are included below to provide a more qualitative illustration of responses.

“when he trys to take the book away or when he turns the pages when he haven't even looked at it” (sic)

“that he isn't picking up any words and isn't speaking yet”

“will me and his dad cant read that much so we cant read to him that much but the more we read to him the more we pik up” (sic)

Table 2.5: Challenges of Reading with Children

Challenge	No. of respondents	%
Trouble staying still or focusing	8	19.5
No challenge	8	19.5
Level of child's understanding	8	19.5
Grabbing or pulling the books	7	17.1
Will not read a whole book	3	7.3
Parent's own reading challenges	2	5
Other children's attention	2	4.9
Finding time	1	2.4
Repetition of books	1	2.4
Other	1	2.4

2.3.3 Skills for School

When asked to list in order of importance the most important skill/s that their child will learn when he/she goes to school, 41.5% (n=17) of respondents listed reading or literacy first. An additional 41.5% (n=17) included reading or literacy in their answer in a position other than first. The remaining 17% (n=7) did not include reading or literacy in their answer, although three participants of this 17% did list English as an important skills, which could be broadly interpreted to encompass reading.

2.3.4 Mother's Role

Finally, mothers were asked to indicate what they saw as their role when helping their child learn to read. This question was interpreted differently by respondents with some (4.9%) indicating they thought it was 'important'. However, a key theme that emerged was mothers viewing themselves in a teacher role, whether this is through the teaching of vocabulary and grammar, or the importance or skill of reading in general. Over half of respondents (51.2%) indicated they viewed their role as that of a teacher in some way. Table 2.6 outlines the response by theme and frequency. Many mothers (31.7%) viewed their role as acting as a good reading role model and providing a reading environment for their children.

Table 2.6: Mother's Role as Literacy Teacher

Role	No. of respondents	%
Teacher role of some description	21	51.2
Providing reading environment/being a reading role model	13	31.7
Of importance	3	7.3
Not sure	2	4.9
Other	2	4.9

2.4 Discussion

This descriptive survey gathered information on the HLEs of teenage mothers attending Teen Parent Units across New Zealand within four broad themes. Each of these themes will be discussed in turn.

The first theme that was examined was the overall reading and screen behaviour within the homes of teenage mothers (such as frequency of reading and screen use, book ownership, age reading began and public library use). Over half of the survey's respondents (61%) reported they read with their children every day (though the scope of this survey did not capture the duration of the reading interaction). This result is comparable to other investigations into reading frequency in low SES homes, which reported 54% of parents read to their preschooler everyday (Bracken & Fischel, 2008). However, almost 40% of the respondents read to their children on a weekly basis or even less frequently. While using a slightly different scale, Progress in International Reading Literacy Survey (PIRLS) data indicated 55% of parents/caregivers of Year 5 students in New Zealand reported engaging in a range of literacy activities (including reading books) "often" when their children were preschoolers (Chamberlain, 2011). The PIRLS results also demonstrated a positive relationship between frequency of engagement with literacy activities as a preschooler and Year 5 reading scores (a difference of 38 scaled score points between families who "often" versus "sometimes" engaged). Frequency of shared reading has been shown to predict children's expressive vocabulary and morphological skills, even after controlling for children's non-verbal intelligence, parental education and parental literacy (Sénéchal et al., 2008). This may be in part due to the introduction of novel words and more complex linguistic forms than children would typically be exposed to from television or in conversation. Crain-Thoreson, Dahlin and Powell (2001) also demonstrated that parents used richer vocabulary during shared reading compared to free-play contexts. Increasing the frequency of shared reading in the home may help to mitigate the increased risk of delayed language development that children of teenage parents may experience. Thus, enhancing the quantity and quality of shared reading may be an important component of an intervention designed to enrich the home literacy environment provided by teenage mothers.

Most mothers reported reading by themselves less often than with their children and owned fewer books for their own use. Parents' attitudes towards reading has been shown to be a key factor in discriminating between high- and low-achieving readers in New Zealand (Martin, Mullis, & Gonzalez, 2004 cited in Chamberlain, 2011). Parents who promote reading as an activity of value and meaning through positive attitudes and modelling can help motivate children to read. The results of this survey indicate teenage parents may not view their own reading behaviours as significant as their children's, which may impact on the value placed on reading in the overall home environment and the potential for children to see reading as an activity of importance. Higher levels of parent education have been associated with greater parent interest in reading and greater child interest in reading in a low-SES sample (Bracken & Fischel, 2008). Burgess' (2005) findings demonstrated that teenage mothers have lower vocabulary skills than older mothers. Further, in Chapter 1 the increased risk of educational underachievement in the teenage mother population was discussed. Taken together, the impact that mothers' literacy skills have on their motivation to read must be considered. The need for interventions to target mothers' literacy skills, as well as support their provision of a rich HLE environment, is worthy of examination.

Book ownership in this sample was relatively low, with most families reporting owning between 25 and 50 children's books. This is comparable to preschoolers' book ownership in other low-SES families (Bracken & Fischel, 2008). According to PIRLS data, New Zealand is included in the countries with the highest degree of book ownership, where 25% or more of students had families who reported over 100 books in the home (Mullis et al., 2011). This appears to be in contrast to the amount of books owned in the homes of teenage parents. At the other end of the PIRLS data, only 2% of students had families who reported fewer than 25 books in the home. It must be noted that the PIRLS figures were taken from families with children in the equivalent of Year 5 in the New Zealand school system, which

gives more time to build up a substantial book collection than the mothers in this study. Interestingly, the PIRLS data also noted a worldwide trend of decreasing ownership of books, which is perhaps paralleled with an increase in ownership of other literacy media (Mullis et al., 2011). Compared to national data indicating 43% of mothers visit the library with their preschoolers “often” (Mullis et al., 2011), teenage mothers’ use of the public library is low. This may be due to a number of reasons not captured by this survey, including ability to borrow children’s books from their school, or their lack of transport. Low levels of book ownership, combined with infrequent library usage suggests that the HLE environments of teenage mothers surveyed in the current study were lacking in richness of literacy resources, which may be having negative impacts on their children’s emergent literacy development.

Screen behaviour, whether in the form of DVDs, TV or computers, was common among respondents, with television watching being the preferred option. A recent comprehensive longitudinal study into the life experiences of children growing up in New Zealand reported on television and DVD usage in 4829 two-year-olds (Morton et al., 2014). Their findings showed the majority of 2-year-olds (79%) watched TV or DVDs daily, with 64% of this group watching for 1-3 hours per day. A smaller proportion of this group (9%) were reported to watch more than three hours per day. The current recommendation of the American Paediatric Association is for no screen usage for children under the age of two, and no greater than to 1-2 hours per day of quality programming for preschoolers (Council on Communications Media, 2011). This New Zealand data is in stark contrast with the screen use reported in the current study. While screen behaviour is common among children of teenage mothers, only a quarter of parents surveyed reported their children watch TV every day, with even less watching DVDs or videos. This discrepancy in findings may be in part due to the different age of children in the current study, with the majority being under two years of age. Child-care attendance may also impact on the amount of screen time to which

children are exposed. A large-scale examination of screen exposure in preschoolers in the US found that children attending routine centre-based childcare were exposed to less screen time than their peers who were cared for in at-home settings (Tandon, Zhou, Lozano, & Christakis, 2011). All participants in the current study had children in childcare settings outside the home compared to only 56% of participants in the Morton et al (2014) data set. While it is promising to see reported screen usage in this population of teenage mothers less than nationally reported data of a similar age, it is still beyond the recommendation of no screen time for children under two years of age. With evidence suggesting screen usage may inhibit the frequency of literacy-centric activities such as shared reading, this data may begin to provide insight into what other activities are impacting on the frequency of shared reading in the homes of teenage mothers.

The second theme that was explored was what mothers found challenging and enjoyable about reading with their children. A variety of factors were mentioned with regards to what is challenging about reading with their children, which is perhaps indicative of the age range of children in this survey and the likely developmental differences present. Some mothers indicated their child's lack of understanding or ability to talk back as a source of frustration. It is evident that mothers with such frustrations would benefit from instruction regarding the types of behaviours their young children may demonstrate during shared reading (such as their non-verbal communication). In addition, they may also benefit from an understanding of what an infant may be gaining from a shared reading experience before they can communicate.

In one small study of infants aged 8-12 months, Makin (2006) described the linguistic and para-linguistic features of 10 parent-child dyad reading interactions, to illustrate what young children may be learning from early literacy experiences. Their findings suggested that children as young as eight months are exposed to a variety of behaviours during shared

reading that foster later literacy development. These included pleasant interactions to support development of a positive disposition towards reading, as well as exposure to range of emergent literacy strategies such as use of literacy-related terms, introduction to print concepts, and most frequently, strategies to support language and cognitive development. Teenage mothers have a developing wealth of knowledge about their children's development and are prime candidates for a programme that helps them form links between development and the importance of providing early literacy experiences.

Enjoyment factors were classified under four key themes and included a time of bonding or a pleasurable experience for mum or child, as well as a good opportunity to practice communication skills, and participate in teaching and learning. Participants were able to identify a range of factors that they found enjoyable about reading with their children, indicating at least in part, their view of shared reading as a positive and motivational experience.

While much research attention has been given to measurable factors of the HLE, others are interested in the broader conceptual view of the HLE, and include less tangible factors such as maternal reading beliefs and motivation as a component of their investigations. Maternal reading beliefs are thought to guide a mother's interaction with her child and have been shown to associate with child literacy outcomes due to the way they shape parents' behaviour around their children with regards to literacy (Bingham, 2007; Curenton & Justice, 2008).

To explore the third theme of the survey, mothers were asked to list the skills they viewed as most important that their child will learn when they go to school. Literacy was viewed as a significant priority for these mothers with the majority expressing reading and writing in their top two responses. This response pattern indicates knowledge of the

significance of reading and writing as important academic skills. The scope of this survey did not allow deeper investigation into the level of preparedness and competency teenage mothers feel regarding helping their own child develop important precursor skills to reading and writing. Additionally, this survey did not explore the mothers' own knowledge as to how the home environment plays a significant part in the later success of children's academic performance. Results regarding library use, mothers' own reading behaviours, and challenges highlighted by mothers during shared reading, indicate some gaps in knowledge of appropriate developmental behaviours for children during shared reading, and the importance of literacy-centric activities within the home.

The final survey theme considered the mothers' view of their role in helping their children learn to read. Responses indicated the majority of mothers saw themselves in a teaching role to support their children's reading development, followed by providing a reading environment or being a reading role model. Teen Parent Units act as a format of education for teenage mothers to gain their secondary school qualifications, but also as a source of parenting advice and guidance, among other services. The importance of reading to your children is a focus of many TPUs, and the comments made by respondents to this survey indicated the impact of this focus. Responses indicated teenage mothers recognised the important role they play in supporting their child's early literacy development, but other areas of the survey suggested they potentially lack the skills and knowledge to optimise the environment for their child's learning. An effective approach to intervention with this group needs to support teenage mothers to build their children's early literacy development through the provision of high-quality literacy experiences, while building on their existing knowledge and motivation.

The overall findings of this study provide further information on the HLE provided by teenage mothers, and in particular, those from a New Zealand context who are enrolled in an

educational facility. The results of the first theme provide evidence that there is a need for greater HLE support for teenage parents, as evidenced by the quantitative data on book ownership, library visits and parental reading behaviours. Findings from the remaining three themes demonstrate teenage mothers are a potentially motivated population, with a vested interest in their children's development and an emerging understanding of the importance of early literacy experiences. Taken with the existing data on the risk profiles of teenage mothers and their children, the potential to intervene to support and empower this population to provide high-quality HLE for their children is evident.

2.4.1 Limitations

The current study would have benefited from accessing a larger number of respondents, and including greater detail into demographic characteristics (e.g. age of parents and children, living situation and childcare arrangements) and the literacy skills of participants. This would have added strength to the methodological design of the survey and provided a further level of detail on the home literacy environments of teenage mothers. In addition, adding a greater range of questions to the survey, for example investigation into print resources beyond books, use of magnetic letters and alphabet puzzles, and literacy apps/software, as well as mothers' own perceptions of themselves as readers would have provided a greater understanding of the many influences present with regards to children's literacy development.

2.4.2 Conclusion

The home literacy environment is clearly an essential component for developing adequate emergent literacy skills and it is widely shown that the best place for this to occur is in the family home. Literacy practices are gaining increasing focus in both policy and practice in New Zealand, and the scope of families being targeted is broadening. Teen Parent

Units provide a source of information and guidance on effective literacy practices to the often vulnerable population of young mothers and their children. Despite their efforts, they often lack the depth of research-based knowledge to provide the best possible information and experiences to teenage mothers around this essential area of their children's development. In addition, because the main focus of TPUs is for parents to gain school qualifications, limited time and attention is available to increase teenage mothers' knowledge and skills in an area such as emergent literacy development. The results of this survey, taken together with other literature in the area highlight children of teenage mothers as being at risk of less desirable home literacy environments than peers with older mothers. This consequently places them at greater risk of literacy delay, and underachievement in school.

With so little known about this population, particularly in the New Zealand context, further research should be conducted into the HLE and literacy skills of both teenage mothers and their children. A comprehensive exploration of this population should begin with an investigation of the mother's own literacy and language skills. This data would enable an appropriately-designed intervention to address any parental needs, indicated by assessment.

Chapter 3

Describing the Language and Literacy Skills of Teenage Mothers Attending an Educational Facility in New Zealand

3.1 Introduction

Existing literature on the general educational achievement of teenage mothers indicates they tend to have lower levels of education (typically measured in years of schooling completed) than older mothers (Basch, 2011; Fergusson & Woodward, 1999, 2000; Klepinger et al., 1995; Woodward, Fergusson, et al., 2001) and are less likely to enrol in post-secondary education (Ou & Reynolds, 2013). In turn, this contributes to the increased likelihood of adverse outcomes for their children (Brooks-Gunn & Furstenberg Jr, 1986; Fergusson & Woodward, 1999; Keown et al., 2001; Pogarsky et al., 2006). When describing the population, existing studies have favoured broad educational attainment measures (such as school qualification attainment or years of school attendance). Less attention has been given to investigations into teenage mothers' specific language and literacy skills, and this lack of in-depth information on the language and literacy performance of this population creates a challenge when determining the need for, or, specific targets for intervention.

Further, any current information focused on teenage mothers within New Zealand is non-existent. Quantitative research into New Zealand teenage mothers is primarily isolated to a large-scale longitudinal study from a cohort in the late 1980s (e.g. see Fergusson & Woodward, 2000; Woodward, Fergusson, et al., 2001). For example, Fergusson and Woodward (2000) explored the relationship between pregnancy and educational achievement

in a cohort of 520 young women from birth to 21 years of age. Of the 520 participants, 8.1% (n=42) became pregnant before 18 years of age. This group was shown to achieve a lower number of pass grades (A, B or C) in School Certificate (New Zealand's official secondary school qualification prior to NCEA), were more likely to leave school early, and were less likely to be enrolled in tertiary education at 21 years old. In another approach, Bennett et al. (2013) found that US female students who performed poorly on a national reading measure were more likely to become teenage mothers. While these studies suggest that teenage mothers may be at risk for poor literacy and educational achievement, limited attention has been given to language and literacy skills specifically.

Of further importance is the impact this lower educational attainment has on teenage mothers' abilities to provide a rich and stimulating home environment for their children. Research has demonstrated that the quality of the home environment and parent-child language interactions impact on children's language and literacy outcomes (Magnuson, 2007; Roberts et al., 2005; Weigel, Martin, & Bennett, 2006) and teenage mothers have been shown to provide less than desirable home environments and less rich language interactions when compared with older mothers (Burgess, 2005; Lacroix et al., 2002; McDonald Culp et al., 1996). Chapter 2 suggested that teenage mothers also provide less frequent shared reading experiences with their children. Of additional concern is that current literature suggests that at-risk populations (which may include teenage mothers), are less responsive to previously successful interventions to target these important areas (Mol et al., 2008). Walker et al. (2011) suggested that maternal education is a protective mechanism for early child development by increasing the parent's ability to access and benefit from interventions. Therefore, improving maternal education levels in teenage mothers is important to ensure they are benefitting the most from interventions focusing on the home language and literacy environment.

The group under investigation in the current study are unique from those in the existing literature as they are currently enrolled in school at a Teen Parent Unit. The language and literacy skills of teenage mothers who have chosen to return to education have not been previously explored, and the current study is the first of its kind. The positive impact teenage mothers' return to school has on their children's later reading success has been documented (Magnuson, 2007) Therefore it is important to determine the language and literacy skills of teenage mothers who have returned to school as they may differ from those who have not with regards to their skills, motivation to learn and engagement with education.

The study presented in this chapter used comprehensive one-to-one assessments to investigate the language and literacy skills of teenage mothers attending an education facility. The study aimed to contribute to the existing body of knowledge of teenage mothers' academic abilities beyond broad measures previously adopted in the literature (such as school qualification achievement or national achievement assessments), and with the results, identify the need for targeted literacy intervention.

The study described in this chapter sought to answer the following question:

1. What are the non-verbal reasoning, language (specifically receptive and expressive language), vocabulary, and literacy skills of teenage mothers attending a Teen Parent Unit?

3.2 Method

This study employed a descriptive design to detail the non-verbal reasoning, language and literacy skills of teenage mothers.

3.2.1 Participants

The participants were 41 young mothers attending one of two Teen Parent Units (TPUs) in a large metropolitan city of New Zealand. Following ethical approval by the University of Canterbury ERHEC, forty-three female teenage mothers were invited to participate in the current study (19 from school A, and 24 from school B), with forty-two mothers (19 from school A and 23 from school B) agreeing to be involved. Data was unable to be collected for one mother due to time constraints, so data for a research group of 41 mothers is presented. Prior to participant recruitment, consultation was conducted with school management, teachers and stakeholders of two TPUs in the South Island of New Zealand. The primary researcher also visited the schools on several occasions to meet with mothers and teachers, observe the daily routine, and establish rapport and knowledge of the unique TPU classroom environment. Following appropriate permissions from the school management, a presentation was completed with each of the two classes, outlining the complete research study. The study's rationale was presented to participants, along with information as to what participation would involve.

Background information such as number of schools attended prior to the TPU, length of time at the TPU and additional information on their personal backgrounds and children was also collected via an informal interview with each mother. Details such as date of birth and ethnicity were gathered from school records. The age of the research group ranged from 15 years, 6 months to 21 years, 7 months ($M=18;7$; $SD=1;3$). Mothers presented with varying educational backgrounds, having attended between 1 and 4+ other educational providers before enrolling at the TPU. Complete data for number of schools attended is not presented as mothers were often uncertain how many previous schools they had attended or for how long. The majority of the parents identified as primarily NZ European (63.4%), followed by Maori

(29.3%), and Other (Thai, Cook Island Maori and British; 7.3%). All but one mother spoke English as their first language, although eight mothers reported speaking a second language to some degree in the home environment. The current NCEA (National Certificate of Education Achievement; New Zealand's official secondary school qualification) level was distributed relatively evenly among the group: 39% were working at Level 1, 36.6% at Level 2, and 24.4% at Level 3. The vast majority of mothers had one child (90.3%), with the remaining having two children. A small proportion of the group (7.3%) were pregnant with their 2nd child. Due to the transient nature of many participants' living situations, this information was not collected as part of this study.

3.2.2 Measures

The comprehensive assessment battery investigated the non-verbal reasoning, language, vocabulary and reading skills of the mothers via four standardised assessments. The tools were selected to give standardised scores for the population age range spanned by the mothers. Standard scores are a common way of measuring performance in educational and psychological tests. Scores are based on a scale with a statistical mean (or average score) of 100 and a standard deviation of 15. An average performance on a standardised tests falls in a standard score range of 85-115. In the case of the Clinical Evaluation of Language Fundamentals 4th edition (CELF-4), scaled scores are collected. Scaled scores have a mean of 10 and standard deviation of 3. Average performance on a scaled score test is considered to fall between 7 and 13.

3.2.2.1 Test of Non-Verbal Intelligence 4th Ed. (TONI-4) (Brown, Sherbenou, & Johnsen, 2010)

The TONI-4 provided an estimate of the mothers' cognitive abilities on a non-verbal measure. The test requires the participant to complete a series of patterns, by choosing the

appropriate option from a selection. The completed tests provided a raw, age-based standard (index) score and a percentile. Standard scores for each participant were collected and analysed.

3.2.2.2 Clinical Evaluation of Language Fundamentals 4th ed. Australian Standardised Edition (CELF-4 Australian) (Semel, Wiig, & Secord, 2006)

The CELF-4 is a comprehensive assessment of expressive and receptive language skills for individuals aged 5-21 years. The test is comprised of three subtest clusters each for expressive and receptive language, which can be combined to provide a core language score. Language clusters and the core language score are available in raw and standard scores, and percentile ranks. Results from the CELF are presented as scaled scores.

The Receptive Language cluster was selected for the assessment battery, as it provides a cumulative measure of the participants' skills on three subtests of receptive language. The subtests consisted of: *Word Classes* (Receptive and Expressive), *Semantic Relationships*, and *Understanding Spoken Paragraphs* (USP).

The *Word Classes* subtest evaluates the participant's ability to understand relationships between semantically related words, and then express why they are related. For example, the words 'authentic', 'genuine', 'puny' and 'uncontrolled' are presented verbally. The participant first has to identify that 'authentic' and 'genuine' are related, and then explain that they are related because they refer to something that is real. Results for *Word Classes* are presented in three ways: individual scores for the expressive and receptive components respectively, and a total score for the *Word Classes* subtest.

The *Semantic Relationships* subtest explores the participant's understanding of semantic relationships in sentences. Individuals are presented with a sentence and are

required to choose two correct options from four visually presented options that answer a target question.

The *Understanding Spoken Paragraphs* subtest evaluates the participant's ability to understand information presented in spoken form. A paragraph is presented orally and the participant is required to answer a question examining their understanding of the paragraph content, and make inferences and predictions from the information presented.

3.2.2.3 Peabody Picture Vocabulary Test 4th Ed. (PPVT-4) (Dunn & Dunn, 2007)

The PPVT-4 examines understanding of spoken English words, and therefore provides a measure of receptive vocabulary. Participants are presented with a series of four pictures and a verbally presented word, and are asked to choose which of the four pictures best represents the word given. Standard scores, which are available for ages 2 years, 6 months to 90+ years, were used for analysis

3.2.2.4 Woodcock-Johnson Reading Mastery Test 3rd Ed. (WRMT-3) (Woodcock, 2011)

Standardised for ages 4 years, 6 months to 56+ years, the WMRT-3 provides an overview of participants' reading skills in three main clusters (Readiness, Basic Skills and Reading Comprehension). The Readiness cluster was deemed inappropriate for the age group due to the early reading skills it assessed (such as letter identification and rhyme production) and was excluded. Five subtests from the remaining two clusters were completed: *Word Identification*, *Word Attack*, *Word Comprehension*, *Passage Comprehension* and *Oral Reading Fluency*. Raw and standard scores were provided for individual subtests, as well as the cluster. Standard scores for individual subtests were used for analysis.

Word Identification requires the participant to read real words of increasing difficulty. This subtest measures the participant's ability to decode at the single word level. *Word Attack* is a similar task, using nonsense words instead. This subtest measures the ability to apply phonological and structural analysis skills to the production of unfamiliar words.

The *Word Comprehension* subtest is composed of three sections, each examining a different level of cognitive processing: Antonyms, Synonyms and Analogies. The first two sections require the participant to read a presented word and produce an appropriate antonym or synonym, and the third section requires the participant to complete an analogy, for example "plumber is to wrench as painter is to (brush)".

Passage Comprehension is a cloze task that examines the participant's ability to read a provided passage and identify a missing word based on the application of vocabulary and comprehension skills. Examinees were instructed to read the passages silently, although if they insisted on reading aloud, this was permitted. According to the assessment manual, items are designed so that an acceptable response requires comprehension of all sentences in the passage in order to correctly complete the blank.

Oral Reading Fluency (ORF) requires the participant to read aloud two passages on a variety of subject matters. Mastery of this subtest requires efficient and accurate decoding. Errors are marked by the examiner and the following error types are identified: addition, mispronunciation, omission, provided word, repetition, reversal and substitution. Errors were uncorrected by the examiner, with the exception of 'provided word', where a word from the passage was provided if a participant was unable to decode it independently. Self-corrections were marked but not included in the final score. Raw passage scores for this subtest are calculated based on the number of words read correctly per 10 seconds. Passage scores are then combined to create an ORF raw score, which is converted to a standardised score.

3.2.3 Procedures

Assessments were administered by the primary researcher in accordance with standardised test administration guidelines in a quiet room within the school environment. The complete battery of tasks took approximately two hours, depending on the level of the mother. The assessment battery took longer the more successful the mother was at progressing through the tasks. The battery was completed over one or two sessions, as appropriate to the participants' stamina and the schools allocated breaks. Additional breaks were incorporated as necessary through the sessions to maintain motivation and engagement and reduce the effects of fatigue.

3.2.4 Reliability

For transcription and reliability purposes, all assessment tasks were recorded on a high quality audio recorder (Olympus WS-110). All tasks were administered and scored online during the assessment sessions by the primary researcher and were checked for reliability and accuracy by an independent rater at a later date. The rater was a qualified Speech-Language Pathologist, independent to the research project and trained in the appropriate protocols for standardised assessment administration. Inter-rater reliability was completed for scoring of 20% (n=9) of mothers on the *Word Identification*, *Word Attack*, *Word Comprehension*, *Passage Comprehension* and *Oral Reading Fluency* subtests. The remaining assessments were checked for accuracy of marking and scoring. Reliability was established through listening of the audio-recorded sessions and re-scoring of the relevant subtests. The rater's scores were then aligned with the original scores and any disagreements were discussed until a resolution was achieved. Reliability was 98% for *Word Identification* and 100% for the remaining subtests. Any discrepancies between the markers were resolved prior to final analysis.

3.3 Results

Descriptive statistics are presented for the 41 mothers across all four key assessments and subtests in Table 3.1. Further analysis was completed on individual participants who performed below average (standard score of less than 85) on the measure of reading comprehension ability (the *Passage Comprehension* subtest of the WRMT-3).

Table 3.1: Participants' Performance on Standardised Assessments

Measure	Mean	SD	Range
TONI-4	91.71	6.39	80 – 115
PPVT-4	81.17	11.70	42 – 101
CELF-4			
Word Classes Rec.	6.51	2.69	1 – 13
Word Classes Ex.	7.00	3.19	1 – 12
Word Classes Total	6.51	3.0	1 – 12
Semantic Relationships	7.83	2.66	2 – 14
USP	6.46	2.62	1 – 11
WRMT-3			
Word ID	83.63	16.68	55 – 116
Word Attack	89.85	20.06	55 – 124
Word Comprehension	81.00	12.26	55 – 99
Passage Comprehension	82.85	13.01	56 – 110
ORF (n=38)	87.55	10.78	56 – 114

Note. Age, (years;months). TONI-4, Test of Non-Verbal Intelligence Fourth Edition (Brown et al., 2010). PPVT-4, Peabody Picture Vocabulary Test Fourth Edition (Dunn & Dunn,

2007). CELF-4, Clinical Evaluation of Language Fundamentals Fourth Edition (Semel et al., 2006). Rec. = receptive language, Ex. = expressive language, USP = understanding spoken paragraphs subtest, WRMT-3, Woodcock-Johnson Reading Mastery Test Fourth Edition (Woodcock, 2011), Word ID = word identification subtest, ORF = oral reading fluency subtest.

3.3.1 Test of Non-Verbal Intelligence 4th Ed. (TONI-4)

Participants scored an average of 91.71 (SD = 6.39) on the Test of Non-Verbal Intelligence (TONI-4), indicating as a group, non-verbal reasoning skills fell within the average range of 85 - 115. Non-verbal reasoning was a relative strength of the group, with only 7% (n=3) falling below average on this measure.

3.3.2 Clinical Evaluation of Language Fundamentals 4th Ed. Australian Standardised Edition (CELF-4 Australian)

On measures of *Word Classes* (receptive and total), and *Understanding Spoken Paragraphs*, the group scored just below average (range 7-13), with scores of 6.51 (SD=2.69), 6.51 (SD=3.0) and 6.46 (SD=2.62), respectively. Participants were just within average range on the remaining *Word Classes* (expressive; mean=7, SD=3.19) and *Semantic Relationships* (mean=7.83, SD=2.66) subtests. Scores on these subtests, as reported in Table 3-1, varied from the very lowest possible score (1), to above average (14), demonstrating the wide range of receptive language abilities present within this group.

The mean scores indicate participants had most difficulty with the *Understanding Spoken Paragraphs* subtest, a task which required them to listen and respond to verbally presented information. A number of participants expressed difficulty with concentrating on the verbal information as the passage was being read aloud, which may have impacted on their ability to answer the follow-up question accurately. Almost half of the total group (46%,

n=19) scored below average on this subtest. Similarly, 49% (n=20) scored below average on the receptive language measure, and consequently the *Word Classes Total* subtest. Thirty-nine percent and 27% of the group scored below average on the *Word Classes* (expressive) and *Semantic Relations* subtests, respectively.

3.3.3 Peabody Picture Vocabulary Test 4th Ed. (PPVT-4)

Group performance was just below average, with a mean of 81.17 (SD=11.7) and 60% of the group (n=25) scored below average on this assessment measure. A wide range of receptive vocabulary ability occurred within the group, with standard scores ranging from 42 – 101. The lowest score of 42 was achieved by a mother who spoke English as a second language. When this data was removed and the means recalculated, the average only lifted negligibly to 81.97, so the score did not have a great impact on the group statistics, and was retained in the analysis.

3.3.4 Woodcock-Johnson Reading Mastery Test 3rd Ed. (WRMT-3)

On measures of non-word reading (*Word Attack*) and *Oral Reading Fluency*, group performance was within average range at 89.85 and 87.55, respectively. For all remaining subtests, group performance was just below average. Again, the range of scores on this assessment measure was substantial. *Word Identification* and the two comprehension tasks (word and passage) were the most difficult for the group, with between 41% and 61% of the group falling below average on these measures.

3.3.5 Examination of Low-Achievement Subgroup

A closer examination of results was completed on the subgroup of mothers who scored below 85 on the *Passage Comprehension* subtest of the WRMT-3 (see Table 3.2). This was in order to determine the language and literacy needs of the most struggling mothers

and enable design of an appropriately targeted intervention. Means for all assessment measures were observed to decrease when compared to the wider cohort. The score range on all subtests indicate the distribution of skills within this group remained broad, with scores from the lowest possible (55) to above average (124). Despite this range, with the exception of non-verbal reasoning measured via the TONI, all means were below average. Of particular note are the low mean scores on tasks measuring vocabulary (PPVT), word-level decoding (*Word Identification*), word- and passage-level comprehension (*Word and Passage Comprehension*), and all language tasks from the CELF. The relative strengths of this group were *Semantic Relationships*, non-word reading, and *Oral Reading Fluency*. These areas were also relative strengths of the wider cohort.

Table 3.2: Low-Achievement Subgroup’s Performance on Standardised Assessments

Measure	Mean	SD	Range
Age of mother (n=25)	18;7	1;2	15;6-21;2
TONI-4	90.2	5.26	42-93
PPVT-4	75.92	10.34	42-93
CELF-4			
Word Classes Rec.	5.48	2.57	1-10
Word Classes Ex.	5.68	3.17	1-11
Word Classes Total	5.28	2.82	1-11
Semantic Relationships	6.72	2.31	2-12
USP	5.4	2.24	1-8
WRMT-3			
Word ID	77.72	17.26	55-106
Word Attack	82.8	21.24	55-124
Word Comprehension	74.68	11.08	55-93
Passage Comprehension	74.48	8.32	56-84
ORF (n=24)	83.67	10.46	56-100

Note. Age, (years;months). TONI-4, Test of Non-Verbal Intelligence Fourth Edition (Brown et al., 2010). PPVT-4, Peabody Picture Vocabulary Test Fourth Edition (Dunn & Dunn, 2007). CELF-4, Clinical Evaluation of Language Fundamentals Fourth Edition (Semel et al.,

2006). Rec. = receptive language, Ex. = expressive language, USP = understanding spoken paragraphs subtest, WRMT-3, Woodcock-Johnson Reading Mastery Test Fourth Edition (Woodcock, 2011), Word ID = word identification subtest, ORF = oral reading fluency subtest.

3.4 Discussion

This chapter reports the non-verbal reasoning, language, vocabulary and literacy skills of teenage mothers attending an education facility. There was considerable variability between individuals across all measures. Some participants demonstrated skills above average abilities, while others performed considerably below age-expected levels. A closer examination of participants with low reading comprehension levels indicated that this subgroup presented with low performance on all measures except non-verbal reasoning. This data suggests teenage mothers choosing to re-engage with school come from a diverse range of educational backgrounds and with considerable variation in their language and literacy abilities. As discussed previously teenage parents are at risk of a range of educational disadvantages. These findings provide a unique in-depth examination of the language and literacy skills of teenage mothers.

Teenage mothers' literacy skills are of particular significance when considering the impact underachievement in this area may have on their young children. Oxford and Spieker (2006) examined this relationship in a longitudinal study of 154 preschoolers born to teenage mothers. They explored six risk factors for potential predictors of a below average score on the PLS-3 (Preschool Language Scale, 3rd edition; Zimmerman, Steiner, & Pond, 1992) at 54 months of age. Their analysis showed low maternal verbal ability was one of the two most relevant predictors of a child's low score on the PLS-3. The other risk factor was a high-risk linguistic environment (i.e. lower scores on items measuring maternal warmth and cognitive stimulation). Mothers with low verbal ability were also more likely to provide a high-risk

linguistic environment, compounding the risk for children's language development. For children whose mothers presented with at least average performance on the PPVT, the high-risk linguistic environment was not a significant predictor of their below average PLS score. Results from Chapter 2 showed that the HLE provided by teenage mothers in New Zealand should be enhanced. Taken with the results from the current study suggesting teenage parents have generally low language and literacy skills, multiple elements of risk for children's language outcomes are established.

These findings highlight the need for intervention to raise the verbal ability of teenage mothers in order to decrease the risk for their young children of developing below average language and literacy abilities. Chapter 1 described the heavy focus on literacy-related skills in the adolescent population, and the impact language and literacy difficulties may have on school achievement. Further, language development in adolescence is highly influenced by reading-related tasks and as such, interventions to improve language may be most beneficial when coming from a literacy focus. Results of the current study suggest this cohort of teenage mothers present with both language and literacy difficulties, and therefore an effective intervention would need to consider both of these aspects. Assessment data indicates intervention with the current study's cohort may need to include a focus on vocabulary, comprehension at the word and passage level, decoding, and both expressive and receptive language. This would be in order to raise the mothers' own language and literacy skills, but also to help mitigate the risk for their children's development.

Further, additional interventions to enhance the language learning environment in the home (for example through enhanced language exchanges between parent and child) would be especially beneficial for children of mothers with low language skills. The optimal way to enhance outcomes for children of teenage mothers may be to firstly target the mothers' own

language and literacy skills, and then improve their knowledge and ability to provide a rich and stimulating home language and literacy environment.

Mothers who have chosen to return to school are a particularly powerful target group as they have indicated their interest and motivation in re-engaging with education. As discussed in Chapter 1, Magnuson (2007) demonstrated the powerful impact that returning to education following the birth of a child can have, particularly for children of teenage mothers. Her results demonstrated positive associations between teenage mothers returning to education and their children's reading skills. The effect was greater in teenage mother families than those of older mothers.

In addition, some research suggests that the quality of the home literacy environment is more significant in predicting children's performance on literacy tasks than maternal education alone. Christian, Morrison and Bryant (1998) found that children from homes with low levels of maternal education (measured as number of years of formal school completed) but a rich home literacy environment outperform children (on a range of literacy-based tasks) from homes with better educated mothers but a less rich home literacy environment. This suggests that when working with mothers with low education levels (such as teenage mothers), interventions that focus on the home literacy environment can provide potentially positive outcomes for their children. When taken together, the findings from Magnuson (2007) and Christian et al. (1998) suggest that the children of teenage mothers would benefit most from interventions that support their parents to further their own education, but also aim to enrich the home literacy environments provided. When targeted together, these two factors (maternal education and home literacy environments) have the potential to create powerful change in the reading outcomes of children of teenage mothers. The opportunity for interventions to effect intergenerational change in at-risk group is considerable, with the potential to not only modify trajectories for teenage mothers, but also their children.

3.4.1 Limitations

The current study would have benefitted from a more thorough assessment of the participants' language skills at the written level, to establish if any interaction existed between written and oral language and literacy skills. Further, more comprehensive background information would have provided greater detail on the impact that previous experiences (both academic and non-academic) had on participant's performance. A larger sample size would have allowed for the ability to segment the group into low, medium and high achievers and explore in greater detail the effect of past experiences on language and literacy abilities. Nevertheless, this study represents the first attempt at a comprehensive assessment of the language and literacy skills of New Zealand teenage mothers attending an educational facility and provides evidence to support the development of a language and literacy-focused intervention.

3.4.2 Conclusion

The results of this study have identified a clear need for literacy intervention for a considerable proportion of the participants. When compared with an age-matched population, and considering the normal distribution of scores on standardised measures, it would be expected that 16% of the population would score below average on these measures. However, the results of this study indicate 61% of this cohort presented with below average receptive vocabulary scores – over three times what would be expected. Further, those in the low-performing group showed the most difficulty in not just one or two areas, but a broad range of language- and literacy-based tasks.

An appropriate intervention to lift the literacy abilities in this group would need to fulfil a number of requirements, namely, the ability to target a range of language and literacy skills in a motivating and engaging manner, as well as the suitability for implementation in

the classroom environment. The language levels of these adolescents were below average compared to their peers and their literacy needs were broad, including decoding, vocabulary, and comprehension areas. Therefore, effective interventions would need to consider how to target these skills at a level appropriate to the mothers' abilities while remaining age appropriate and suitable for the curriculum level at which they are currently working. Research into effective classroom-based literacy interventions for teenage mothers is non-existent, thus an experimental approach would need to be taken, drawing from research completed in populations with similar characteristics and backgrounds and adapted to include those design features identified above. Similar considerations would need to be made for interventions that target enrichment of the home literacy environment.

Chapter 4

An Exploration of a Multi-Component Literacy Intervention for Teenage Mothers Attending a Teen Parent Unit

4.1 Introduction

Teenage mothers demonstrate a greater risk for low achievement in literacy (Bennett et al., 2013; Oxford & Spieker, 2006), which may have a negative impact on their own children's language and literacy development. Despite these difficulties, literacy intervention studies for this group are sparse. Chapter 3 presented data on the language and literacy skills of 41 teenage mothers attending a Teen Parent Unit in a large metropolitan city within New Zealand. The results of the comprehensive assessment battery indicated 60% of the cohort performed below average on standardised tests of their vocabulary and passage comprehension skills. This may have been in part due to their early disengagement with education and consequent lack of learning opportunities. As explored in Chapter 1, the implications for this educational underachievement on the young children of teenage mothers are well-reported (Burgess, 2005; Keown et al., 2001; Wadsworth, Taylor, Osborn & Butler, 1984). Additionally, difficulties with literacy limit the future potential for this population to engage with higher education, to increase their job prospects and improve their economic status. Further, they may limit the effectiveness of interventions designed to support the learning outcomes of their children. Intervening with this vulnerable group thus provides an opportunity to halt negative intergenerational literacy effects.

The literature review in Chapter 1 highlighted the limited information available on interventions for adolescents not identified with any learning or other difficulties, but who are struggling with literacy (such as the teenage mothers in this study). Other literature exploring adolescent reading interventions has recognised motivation and engagement as an important consideration in the development of effective interventions for adolescents, and this could be viewed as even more relevant when working with a previously disengaged population. Guthrie and Wigfield (2000) reported that student engagement, over and above the type of instruction, is the primary factor that influences student outcomes. When intervening with a group of students presenting with largely negative experiences around literacy achievement and a history of education disengagement, a motivating and engaging intervention seems essential to affect any change in their literacy skills. Film is increasingly being used as a method of motivating reluctant learners to engage with classroom content (Champoux, 1999; Koskinen, Wilson, Gambrell & Neuman, 1993; Parkhill et al., 2011; Voller & Widdows, 1993). The intervention explored in this study was chosen for its engaging nature, which integrates popular and familiar movies, with a variety of literacy-based activities. The intervention had previously been shown to engage a group of disengaged students with similar characteristics to teenage mothers (Parkhill & Davey, 2012) and was suitable for implementation in the classroom environment. Its multi-component nature also targets a range of literacy skills, a factor identified as successful by Edmonds et al. (2009). This is important as the assessment data presented for teenage mothers with reading comprehension difficulties in Chapter 2 indicated they needed support across vocabulary, comprehension and language.

This study examined the effectiveness of an intervention that integrated the engaging nature of popular movies with same-language subtitles, and multi-component literacy-based activities, to increase literacy skills in a group of teenage mothers with reading

comprehension difficulties. To assess the effectiveness of the intervention, the following research questions were addressed:

1. What is the impact of a multi-component literacy intervention on teenage mothers' literacy skills? Specifically, passage comprehension, oral reading fluency, vocabulary, spelling and morphology.
2. Does a multi-component literacy intervention improve the targeted literacy skills of a research cohort to a greater extent than those of a general comparison cohort?

4.2 Method

4.2.1 Study Design

A pre-test/post-test research design with a general comparison group was employed to evaluate the effectiveness of a literacy intervention for 10 teenage mothers with reading comprehension difficulties.

4.2.2 Context

All participants were drawn from three Teen Parent Units (TPUs) across two metropolitan cities of New Zealand. Chapter 1 provides further detail on the context of TPUs in New Zealand.

4.2.3 Participant Recruitment

Forty-one young mothers were participants in the initial eligibility assessment stage, which was described in detail in Chapter 3. Following ethical approval by the University of Canterbury ERHEC, the students' non-verbal intelligence, language and vocabulary performance were assessed by an initial assessment battery consisting of: the Test of Non-

Verbal Intelligence Fourth Edition (TONI-4; Brown et al., 2010), the Peabody Picture Vocabulary Test Fourth Edition (PPVT-4; Dunn & Dunn, 2007), and the Receptive Language subtest cluster of the Clinical Evaluation of Language Fundamentals Fourth Edition Australian Standardized Edition (CELF-4 Australian; Semel et al., 2006). *Word Identification, Word Attack, Word Comprehension, Passage Comprehension, and Oral Reading Fluency* subtests of the Woodcock-Johnson Reading Mastery Test Third Edition (WRMT-3; Woodcock, 2011) were administered to establish the students' reading abilities. Background information such as number of schools attended prior to the TPU, length of time at the TPU and additional information on their personal backgrounds and child/ren was also collected via an informal interview with each student. Demographic information was gathered from school records.

Students who scored more than one standard deviation below the mean on the *Passage Comprehension* subtest of the WRMT-3 were invited to participate in the intervention (n=25). Of the 25 students who met this criterion, six left school between testing and the implementation of the intervention programme; eight students were excluded due to clashes between the intervention sessions and their regular academic curriculum; and one student was on maternity leave during the intervention. The remaining 10 students comprise the research cohort. An additional four students from a third TPU (school C), along with nine of the students from schools A and B who qualified but did not complete the intervention, acted as a general comparison group. Research and comparison cohort characteristics are presented in Table 4.1.

Table 4.1: Characteristics of Participants

	Research Cohort (n=10)		Comparison Cohort (n=13)	
	Mean	SD	Mean	SD
Age	18;10	1;2	18;6	1;2
# schools	2	-	2	-
# children	1	-	1	-
TONI-4 SS	90.5	4.8	91.5	5.9
PPVT-4 SS	73.5	12.8	78.8	10.0
Ethnicity	60% NZ Euro		46% NZ Euro	
	30% Maori		42% Maori	
	10% Other		12% Other	

Note. Age, (years;months). # schools = number of schools attended prior to TPU.# children = number of children students have. TONI-4, Test of Non-Verbal Intelligence Fourth Edition (Brown et al., 2010). PPVT-4, Peabody Picture Vocabulary Test Fourth Edition (Dunn & Dunn, 2007). SS = standard score. NZ Euro = New Zealand European.

4.2.3.1 Research Cohort

The research cohort consisted of 10 young mothers (school A: n=5, school B: n=5) who were working at NCEA Level 2 or lower in the New Zealand curriculum. Students ranged in age from 15;6-19;5 years (M=18;10 years).

4.2.3.2 General Comparison Cohort

A general comparison cohort of 13 participants (school A: n=2, school B: n=7, school C: n=4) was established from students from schools A and B who were unable to or opted not to complete the intervention programme, and students from a third TPU (school C) whose data was collected strictly as a comparison measure. Due to ethical and feasibility reasons,

students in the general comparison cohort were not able to be matched or randomised to the research cohort. No significant differences were found between cohorts on pre-assessment measures of age ($p=.351$), passage comprehension score on the WRMT-3 ($p=.183$), vocabulary score on the PPVT-4 ($p=.418$), or non-verbal intelligence score on the TONI-4 ($p=.663$). General comparison cohort students completed one time point of the assessment battery, results of which were compared to the post-intervention scores of the research cohort. Due to time limitations placed on the study by the participating schools, the comparison cohort did not receive the intervention programme, however, general advice was provided to the schools on how to support these students' literacy and language needs. At the time of assessment, students ranged in age from 16;4 to 20;0 ($M=18;6$, $SD=1;2$).

4.2.4 Assessment Procedure

Eligible research students completed all components of the assessment battery at pre- and post-intervention to monitor the effect of the programme. Standardised measures were completed as part of the assessment of the wider cohort of teenage parents described in Chapter 3; criterion-referenced measures were gathered in an initial assessment session at the beginning of the intervention programme. Post-assessment of all measures occurred in the two weeks following the end of the intervention programme. General comparison students completed one episode of the same assessment battery. All assessments were administered by the primary researcher, a qualified Speech-Language Pathologist, in accordance with standardised test administration procedures. For individual test items, students were assessed in a quiet room within the school environment; the group items were administered in the classroom setting. Ninety percent of scoring was completed in real time, with the exception of the Oral Reading Fluency subtest, which was scored from the audio recording at a later date. All assessment tasks were audio recorded for reliability purposes.

4.2.5 Pre- and Post-Intervention Assessment Measures

4.2.5.1 Standardised Measures

Passage Comprehension and *Oral Reading Fluency* subtests from the WRMT-3 were administered to track changes in reading comprehension and fluency. Different form versions were used for pre- and post-intervention assessment to eliminate any potential learning of items. Standard scores were analysed for each assessment to measure progress.

4.2.5.2 Criterion-Referenced Measures

Criterion-referenced tasks were developed to provide a sensitive measure of change in spelling, vocabulary and morphological awareness skills in response to the intervention.

4.2.5.2.1 Spelling

The spelling assessment consisted of a 15-item verbal spelling test that included proximal, medial and distal items (Hogan, 2012). Proximal words (n=5) were taken from activities within the intervention that directly targeted spelling; medial words (n=5) were morphological derivations of the proximal words (e.g., the medial item ‘continuously’ was selected based on its relationship to the proximal item ‘continuous’); and distal words (n=5) were words taken from the ceiling of an Australian age-equivalent spelling test (South Australian Spelling Test Form A) from Westwood (2005).

4.2.5.2.2 Vocabulary

The vocabulary task consisted of 14 cloze sentence items, which required the student to choose from a given list of words to complete sentences. Words from vocabulary-specific activities within the research intervention were selected as the proximal measures (n=5); words exposed to students during the intervention but not directly targeted for their meaning

were selected as medial targets (n=5); and words selected from the ceiling end of a New Zealand standardised vocabulary measure (NZCER, 2008) acted as the distal measures (n=4).

4.2.5.2.3 Morphology

The 18-item morphology task was adapted from Carlisle (2000) and Kirk and Gillon (2007). In this activity, students were read a prompt word and then a short sentence that they had to complete using a word related to the initial prompt. For example, “Permit. Father refused to give _____ (permission)”.

4.2.5.3 Attendance

Students’ attendance to the intervention was measured by the researcher as present or absent for the intervention session. Attendance ranged from 9 to 23 sessions (mean=14.7, SD=4.9).

4.2.6 Intervention

The intervention was based on the AVAILLL (Audio-Visual Achievement in Language Literacy and Learning) programme, a classroom-based literacy and language intervention using same-language subtitling of popular movies, and associated books (Parkhill & Johnson, 2009; see www.avaiill.com/research.html for programme details). Based on the concept of using same-language subtitled movies to improve reading comprehension and vocabulary, the programme activities are designed to engage and motivate students to read; target reading comprehension and vocabulary; and use movies as a way to interest students in the associated novel. The programme utilised five movies and one BBC documentary series as the film component of the intervention. These were: The Freedom Writers, Boy in the Striped Pyjamas, The Blind Side, October Sky, The Golden Compass,

and the documentary series Planet Earth. The associated books used in the programme were: The Freedom Writers, Boy in the Striped Pyjamas, and The Blind Side.

The research cohort completed 26 one-hour sessions of the literacy intervention. Sessions occurred three times per week for a period of nine weeks. Intervention sessions required systematic completion of a range of literacy-focused activities, integrated with watching of the associated movie and reading from the related book. Table 4.2 provides a more detailed description of the activities. Further information on the programme details can be accessed via the programme's website (www.avaiill.com/research/html).

Table 4.2: AVAILLL Activity Descriptions

Activity name	Key task focus	Activity description	# of times used in intervention
Word Bank	Vocabulary, Morphological Awareness	Students search for words within subtitles that are unfamiliar or interesting to them. At the end of a video clip, words are explored for definition and morphological characteristics.	18
Take a Dictionary to the Movies	Vocabulary	The movie is paused on the subtitle containing a challenging word and students find the word in a dictionary and record the meaning.	5
Sound Effects	Reading Fluency	Students search for and write down all sound effect subtitles (identified by italics) in a video clip.	3
Surprise Subtitles	Reading Fluency	The film is stopped unexpectedly eight times, and students write down the last subtitle they read on screen.	2
Next Word Hunt	Reading Fluency	As the movie plays continuously, students write down the word that immediately follows a common word (e.g. 'in') in the subtitles.	2
Film's End but Book's Beginning	Reading Fluency, Reading Comprehension, Oral Reading Fluency, Imagery	First half of the session was the 'Surprise Subtitles' activity, second half of the session was the 'Read It, See It' activity.	2

Spelling Challenge	Spelling	The film is stopped eight times on challenging words, which students study and record, with a focus on spelling.	2
The Last Word	Reading Fluency	Students record the last word in the subtitle on screen after the film is stopped.	2
Synonym Search	Vocabulary	Students are provided with a list of eight words, which they have to locate the synonym for when the film stopped.	2
Match the Meaning	Vocabulary	Students are provided with eight definitions, which they have to match to a word in the subtitle when the film is stopped.	2
Spellbound	Spelling, Reading Fluency	During continuous watching of a film, students locate in the subtitles and correctly record words of ten or more letters.	2
What's the Word	Vocabulary, Spelling	A combination of two activities that focus on word games such as making words from a letter string, and matching letter strings to a word from the subtitle.	1
Read it See It	Imagery	Students retell a scene from a piece of writing or a film clip using drawings.	1
Word Before	Reading Fluency	Students search for key words in subtitles and write down the word that occurs before it.	1

Sessions began with an introduction of the activity and goals of the day, a brief overview of the targets covered from last session and a synopsis of where the movie was stopped (where necessary). The remainder of the session consisted of a selection of three literacy-based activities. Depending on the focus of the task, the activities would occur while the movie was being watched, during pauses to the film, or after the film segment had been completed for the session. In addition to the literacy activities, sessions included viewing at least 20 minutes of same-language subtitled film footage, with the exception of one activity that focused solely on written text from an associated book.

The original structure and timing of the programme was modified to be more suitable to the timetable of the participating schools. Some activities from the original programme were deemed unsuitable or unnecessary for this research group due to the group's age and interests and were removed. Two additional activities were written by the researcher to cater for the students' needs. One adaptation allowed for the completion of a movie that was watched only in-part during the original programme; the second was a targeted vocabulary/morphology activity to focus on an identified need highlighted by pre-assessment data in the activities that did not already include this as a focus ('Word Bank'). During this activity, targeted vocabulary and other words of interest from the films' subtitles were discussed and pulled apart to investigate their roots, morphological structure and other characteristics of interest to the students. Along with dictionary usage, students became comfortable with terms like prefix, suffix, tense and root words, and grew their skills around using the morphology of a word to help interpret what it may mean. Furthermore, discussion occurred in response to the students' interest of subjects and events raised from the content of the films or books.

Sessions were completed face-to-face in a classroom setting. All activities were facilitated by the primary researcher and completed by the research students.

4.2.7 Intervention Fidelity

Eleven randomly selected intervention sessions (just over 20% of the sessions) conducted by the lead researcher were evaluated by a trained independent reviewer familiar with the intervention activities and protocol. The reviewer listened to audio recordings of the selected sessions and recorded the presence and where appropriate, frequency of the following elements: an introduction of the day's session, a review of the previous session's content; a vocabulary activity, a word study activity, and at least one additional literacy activity. In addition, frequency of behaviour management techniques required were also recorded.

Analysis of the sampled sessions showed 100% of sessions adhered to the treatment fidelity protocol described for introduction, review, vocabulary activity and literacy activity. Adherence to fidelity protocol for the word study activity was seen in 81.8% (9 out of 11) of sessions. Ninety percent of sessions (10 out of 11) required a range of behaviour management strategies to keep students on task.

4.2.8 Reliability

Inter-rater reliability of assessment measures was completed for 20% of research participants in passage comprehension, morphology and oral reading fluency subtests. To establish reliability, the independent rater listened to audio recordings of the four verbally presented subtests and scored as per her interpretation. The rater's scores were then aligned with the original scores, and any disagreements were discussed until a resolution was met. The rater was a qualified Speech-Language Pathologist, independent to the research project, and trained in the appropriate procedures for the assessments used. Marking accuracy was checked on remaining subtests (spelling and vocabulary). Reliability was 100% for these measures.

4.3 Results

4.3.1 Research Cohort

Descriptive statistics of pre- and post-intervention assessment scores for the intervention cohort in passage comprehension, oral reading fluency, vocabulary, spelling and morphology subtests, p values and effect sizes are presented in Table 4.3. A non-parametric Wilcoxon Signed Rank test was employed to compare changes in standard scores for standardised measures and raw scores for criterion-referenced measures. No significant differences were found for passage comprehension ($p=.138$), oral reading fluency ($p=.258$), vocabulary ($p=.215$), or spelling ($p=.206$) measures. A significant improvement was observed for morphological awareness from pre- to post-intervention assessment of the research group ($z=-2.501$, $p=0.012$), with a moderate effect size ($r=.56$).

Effect size was calculated by dividing the z value by the square root of N (where N = the number of observations over the time points) (Pallant, 2013). Effect size is useful for comparing the magnitude of difference between two groups, and is particularly pertinent in small group studies, where the impact of statistical significance can be masked by small sample sizes. An effect size of .25, for example, indicates that the research cohort outperformed the control cohort by one quarter of a standard deviation, and may be viewed as a ‘small-medium’ effect size using the proposed interpretation rules of Cohen (1988). With the exception of the morphological awareness subtest, effect sizes for the research group pre- to post-intervention measures were primarily small-moderate (see Table 4.3), supporting the null hypothesis and indicating a limited impact of the intervention on the group’s literacy skills.

Table 4.3: Research Cohort Performance on Pre-test and Post-test Literacy Measures

Measure	Pre-test Mean (SD)	Post-test Mean (SD)	z	p	r
PComp	71.1 (8.07)	75.1 (10.94)	-1.482	.138	0.33
ORF	82.1 (11.95)	80.9 (11.93)	-1.131	.258	0.06
Vocabulary	4.6 (3.81)	4.4 (3.33)	-1.239	.215	0.28
Spelling	3.2 (3.19)	4.1 (2.64)	-1.265	.206	0.28
Morphology	9.9 (5.17)	12.6 (3.37)	-2.501	.012*	0.56

Note. PComp and ORF scores presented as standard scores; vocabulary, spelling and morphology presented as raw scores. PComp = Passage Comprehension subtest of WRMT-3. ORF = Oral Reading Fluency subtest of WRMT-3.

* $p < 0.05$.

4.3.2 General Comparison Cohort

Results from the general comparison cohort on measures of passage comprehension, oral reading fluency, vocabulary, spelling, and morphology were compared to the post-intervention assessment results of the intervention cohort to establish if the intervention cohort's skills in these areas were greater than that of a statistically equivalent comparison cohort who did not receive the intervention. A non-parametric Mann-Whitney test was employed to compare means between the two cohorts on stated measures, and no significant differences were observed. Table 4.4 presents a descriptive comparison of the research and comparison cohort results. Effect sizes were also calculated as above to compare the impact of the intervention. Effect sizes for all measures were small, further supporting the null hypothesis that the intervention showed limited impact on the literacy skills of the research group.

Table 4.4: Cohort Comparison on Literacy Measures

Measure	Research Cohort (n=10) Mean (SD)	Comparison Cohort (n=13) Mean (SD)	z	p	r
PComp	75.1 (10.94)	76.15 (9.19)	-1.155	.248	0.24
ORF	80.9 (11.93)	83.30 (9.13)	-.405	.685	0.08
Vocabulary	4.4 (3.33)	4.7 (4.26)	-.063	.950	0.01
Spelling	4.1 (2.64)	4.3 (3.17)	-.063	.950	0.01
Morphology	12.6 (3.37)	11.6 (4.77)	-.250	.803	0.05

Note. PComp and ORF scores presented as standard scores; vocabulary, spelling and morphology presented as raw scores. PComp = Passage Comprehension subtest of WRMT-3. ORF = Oral Reading Fluency subtest of WRMT-3.

4.4 Discussion

A multi-component literacy intervention was implemented with a group of teenage mothers in an exploratory evaluation of how to build the literacy skills of teenage mothers with a broad range of language and literacy difficulties. Results examined the effect of the intervention on standardised and criterion-referenced measures of reading, and compared post-intervention results with a general comparison group. Results indicated no significant group change in standardised or criterion-referenced measures of reading ability, with the exception of morphological awareness.

Vocabulary and morphology were the most frequently targeted areas in the programme, with morphology showing the greatest change. While the vocabulary component of the intervention targeted the teaching of definitions of specific key words, the morphological awareness component focused on teaching components of words such as prefix and suffix, and built on students' awareness of using the parts of a word to analyse its

meaning. Unlike single-word vocabulary learning, this strategy is transferable to a range of words, thus providing a foundation of knowledge for students to apply to future unfamiliar words. As attendance was variable among the group, if a student missed the session where a specific vocabulary term was targeted, they would be less likely to show learning of that item in a post-intervention assessment. However, as morphological awareness was built on throughout the entirety of the intervention, this strategy of analysing unfamiliar words could be applied in the post-intervention assessment by all students who participated in any amount of the intervention sessions.

Struggling adolescent readers are a population with long-ingrained difficulties, for which there is unlikely to be a 'quick fix'. While a significant improvement was observed in morphological awareness, no other assessed area was noted to improve in response to intervention. Further, no significant difference was noted between the research group following intervention and the comparison group on any measures. A number of reasons for this lack of improvement can be hypothesised. The implemented intervention was 26 hours long, and integrated interventions of this nature and in this timeframe may not be sufficient in length or depth to create an adequate improvement in a range of literacy skills. While literacy interventions have been shown to benefit older readers (Scammacca et al., 2007), long periods of intervention may be required to show any significant improvements. A large-scale one-year long intervention (of approximately 160 lessons) targeting a range of literacy skills in previously identified struggling adolescent readers concluded that individuals with significant reading problems require intensive interventions that last for longer than one year (Vaughn et al., 2011). Given the time-constrained nature of a secondary school timetable, this is a challenge still needing to be addressed within the system, in order to better support struggling readers.

An additional aspect to consider when examining the minimal impact of the intervention is its multi-component nature. Multi-component literacy interventions tend to have moderate effect sizes coupled with very large confidence intervals, suggesting considerable variability in impact (Scammacca et al., 2007). It is possible that the multi-component nature of the present intervention, which aimed to target a wide range of literacy skills in a relatively short period of time, effectively ‘watered-down’ the impact of the teaching. Coupled with the short length of intervention, this may have resulted in insufficient dosage to produce significant impact on the variables measured. Successful outcomes reported from the implementation of this intervention in other studies (e.g. Parkhill & Davey, 2012; Parkhill & Johnson, 2009; Parkhill et al., 2011) were based on one measure of reading comprehension that was repeated at pre- and post-intervention. These studies also included all participants in a classroom/cohort within the intervention design regardless of literacy level at pre-intervention assessment. Additionally, comparison or control groups were not utilised, resulting in a limited ability to make conclusions on the broader effectiveness of the intervention. The current study employed a methodologically more extensive investigation by monitoring the intervention’s impact on a range of literacy and language measures for participants with reading comprehension difficulties, and compared results to a comparison group. Further, alternate test forms were used where possible to eliminate test/re-test effects. This analysis indicates that the intervention’s previously positive outcomes may not be generalisable to a more diverse population, such as teenage mothers. While time is a noted challenge when working with secondary school students, a closer analysis and prioritisation of the students’ areas of need at pre-assessment, as well as a strategy-focused (such as morphological awareness), rather than content-focused (such as specific vocabulary terms) intervention programme, may improve the impact of future interventions. While the utilisation of a multi-media resource such as same-language subtitled movies has promise for

its motivational factor, further research is required to establish the best method for integrating effective literacy intervention within this format to target diverse populations such as teenage mothers.

Despite the many challenges when working with struggling adolescent readers, there is a clear need for high quality intervention studies that aim to address the significant dearth of literature on effective and motivating interventions. Additionally, teenage mothers are not able to be classified as ‘typical’ adolescent readers, struggling or otherwise, due to their responsibilities as a mother and interrupted educational experiences. The intergenerational implications of maternal literacy/education impacting on a child’s future success at school are well documented and teenage mothers are perhaps an even more vulnerable population than most mothers.

4.4.1 Limitations

Improving the methodological design through the use of randomisation and larger sample sizes would have provided an increased ability to better understand the impact of the intervention on participants’ skills. In particular, the inclusion of a randomised control group would have provided additional strength to the research design. Additionally, participants’ attendance rates to the sessions may have limited their ability to fully benefit from the intervention. Attendance is an observed challenge in studies targeting teenage mothers and presents a challenge for researchers to mitigate. Providing the intervention in the school context provided a potential alleviation of this challenge, but further consideration is necessary in future studies to improve attendance rates further. Future interventions may also need to consider the short length of time taken to complete the intervention, and consider how to integrate the intervention into a longer period of time within the school year.

4.4.2 Conclusion

Eligibility assessment indicated a clear need for literacy support for this cohort of teenage mothers. The range of literacy difficulties in this group was broad, so a single-target approach (i.e. only vocabulary) is unlikely to address their needs adequately. However, ongoing support with the classroom setting to greater address the range of needs, as a follow-up to structured intervention, may provide greater outcome effects. Best practice would consider the inclusion of targeted literacy activities such as vocabulary building, word study, and reading comprehension strategies into all aspects of classroom learning.

The findings of this study also begin to build a picture of the type of intervention that may be effective in a population of teenage mothers. Future interventions (regardless of the focus) would benefit from the inclusion of a small number of clearly identified goals, multiple exposures to learning opportunities, and strategy-based teaching, utilising an engaging and motivating medium.

Chapter 5

Describing the Language Skills and Developmental Profiles of Children of Teenage Mothers in New Zealand

5.1 Introduction

Earlier chapters in this thesis have focused on the language and literacy skills of a group of teenage mothers, and an exploratory intervention to augment their development within a school setting. Additionally, the home literacy environments provided by teenage mothers within New Zealand have been described. Results of a longitudinal study of children of teenage mothers in the 1980s concluded that the life course of teenage mothers and their children are strongly linked (Furstenberg Jr, Brooks-Gunn, & Morgan, 1987). As discussed in Chapter 1, the nature of early literacy development has been recognised as strongly intergenerational, with the mother's own education and beliefs around literacy influencing her children's development. Therefore, the attention of this thesis will now turn to the children of the teenage mothers reported on in Chapters 3 and 4.

Early speech and language development is often acknowledged as a powerful indicator of a child's overall development and cognitive ability, and provides valuable information on their future success at school (Catts, Fey, Tomblin, & Zhang, 2002; Johnson, Beitchman, & Brownlie, 2010; Nation & Snowling, 2004). One group known to be at higher risk of communication difficulties is the children of teenage mothers. Chapter 1 outlined some of the substantial body of evidence suggesting that children of teenage mothers are at greater risk of a number of adverse outcomes, ranging from behaviour difficulties and

cognitive delay, to protracted differences in communication, when compared to peers with older mothers (Baldwin & Cain, 1980; Brooks-Gunn & Furstenberg Jr, 1986; Keown et al., 2001). However there are some limitations within the existing body of literature. As discussed in Chapter 1, the key limitations include the age range of the children measured, the type of measurements used, the age of the existing studies, and a lack of attention given to the parents' language and literacy skills. The study presented in this chapter attempts to address these issues by detailing the language development of a recent cohort of children of teenage mothers, from a range of ages, and across a variety of standardised and non-standardised measures (including development and language, both clinician assessed and parent report). Most notably, this group of teenage mothers were enrolled in school and actively working towards attainment of their secondary school qualifications during the study. Current school enrolment is an important characteristic of this cohort as maternal education has frequently been reported as a factor influencing the outcomes of children of teenage parents (Dubow & Luster, 1990; Luster, Bates, Fitzgerald, Vandenbelt & Key, 2000; Mollborn & Dennis, 2012a, 2012b; Pogarsky et al., 2006).

The study described in this chapter aimed to answer the following research question:

1. What are the language, vocabulary and developmental profiles of children of teenage mothers attending school as determined by standardised and non-standardised measures?

5.2 Method

5.2.1 Participants

The participants for this descriptive study were 36 children of teenage mothers (21 boys, 15 girls) ranging in age from 4 to 46 months ($M=17$ months, $SD=10$ months). Mothers

of these children ranged in age from 16;8 to 21;7 ($M=18;6$, $SD=1;1$). All participants were children of teenage mothers participating in the other studies within this thesis (Chapters 3 and 4). Mothers reported their children had no histories of speech, language, hearing, or neurological impairment. The ethnic distribution of the children was predominantly New Zealand European (69%), followed by Maori/Pasifika (28%). The remaining 3% were classified as Other. English was the home language for all children, with the exception of one child whose mother spoke to him only in Thai at home. Three children had exposure to a second language in the home environment. All children were the first born in their family, with two children in the sample having a younger sibling.

5.2.2 Procedures

Following ethical approval by the University of Canterbury ERHEC, necessary permissions were gained from parents and early childcare centre (ECC) staff prior to commencing assessment. All assessments were administered by the primary researcher in accordance with the standardised test administration and were conducted over an eight-week period between February and April 2013. Assessment occurred in the childcare setting, primarily in a quiet corner of the main activity area. Initial assessment included parental interview and report, followed by observation of children by the assessor, and finally interactive assessment strategies as appropriate for the assessment measure. Each assessment battery required approximately 1.5 hours to complete. Language samples were audio-recorded and transcribed using SALT (Systematic Analysis of Language Transcription; Miller, Gillon, & Westerveld, 2012) software at a later date.

5.2.3 Assessments

Children were assessed on measures of expressive and receptive language ($n=29$), and general developmental progression ($n=31$). Time restrictions limited collection of data for the

entire cohort on these measures. In addition, a vocabulary measure was collected for 20 children (as per the age range indicated by the assessment). Finally, for children aged over two years of age, play-based language samples were collected (n=8).

5.2.3.1 Preschool Language Scales 5th Ed. Australian and New Zealand Language Adapted Edition (PLS-5) (Zimmerman, Steiner, & Pond, 2011)

The PLS-5 is a standardised assessment of preschool children's expressive and receptive language, suitable for use from birth to 7 years, 11 months. Its primary purpose is for the identification of language delay and disorder, but it can also be used as a measure of typical language development. Test administration times vary depending on the age of the child but for children from 12 months to 3 years of age the average administration time is 45-55 minutes. The test consists of two standardised scales (Auditory Comprehension and Expressive Communication), as well as a Total Language Score. The Total Language Score (TLS) comprises a composite standardised score based on the children's performance in both expressive and receptive language measures. Standard scores, which were analysed for each subtest, were computed based on normative data provided by the assessment manual (mean=100, SD=15).

5.2.3.2 Adaptive Behaviour Assessment System 2nd Ed. (ABAS-2) (Harrison & Oakland, 2003)

The ABAS-2 is a standardised, multi-dimensional tool used to collect information on the adaptive skills of individuals from birth to 89 years of age. Information from the ABAS-2 can be used to describe strength and weakness profiles, identify disabilities and disorders, and track an individual's progress in a range of skill areas over time. The following forms are available: Parent/Primary Caregiver form (ages 0-5), Parent form (ages 5-21), Teacher/Daycare Provider form (ages 2-5), Teacher form (ages 5-21), and Adult form (ages

16-89). For the purposes of this study, the Parent/Caregiver form was completed by parents of 31 children in the sample. The ABAS-2 collates information on a child's development in 10 key skill areas: Communication; Community Use; Functional Pre-Academics; Home Living; Health and Safety; Leisure; Self-Care; Self-Direction; Social; and Motor. For children younger than one year, Community Use, Functional Pre-Academics, and Home Living were excluded, as per administration guidelines. The test uses a Likert scale of four options: *'is not able'*, *'never or almost never when needed'*, *'sometimes when needed'*, and *'always or almost always when needed'* (scored as 0 - 3). Parents checked which item they thought best described their child's independent (unassisted) performance on a range of tasks.

Skill Area results were calculated as scaled scores (mean=10, SD=3), and summed to provide information on four key development domains: Conceptual, Social, Practical, and GAC (General Adaptive Composite). Composite scores are presented in the four developmental domains and are standardised to age-related norms. Scores have a mean of 100 and a standard deviation of 15.

5.2.3.3 MacArthur-Bates Communicative Development Inventory 2nd Ed. (CDI) (Fenson et al., 2007)

The MacArthur-Bates CDI is a parent-report inventory of the vocabulary and early communicative skills of children aged from 8 to 30 months. It comprises two forms. The Words and Gestures form examines vocabulary, comprehension and production from 8 to 18 months, and the Words and Sentences form investigates the acquisition of vocabulary and grammar in children 16 to 30 months. Both vocabulary checklists are organised into semantic categories (19 categories for the Words and Gestures, and 22 categories for the Words and Sentences).

A New Zealand adaptation of the CDI: Words and Sentences (Reese & Read, 2000) was chosen for this study as a more accurate measure of vocabulary items likely to be present in the New Zealand lexicon. Multiple adaptations of the Words and Sentences form have been produced internationally. They are not direct translations or matches of the original version, but take into account the cultural and linguistic diversities of different countries and ethnicities. A New Zealand adaptation of the Words and Gestures form is not yet available, and so the American version was used accordingly. As per Reese and Read (2000) all scores are compared to US norms, as New Zealand based norms for either form are not currently available.

5.2.3.3.1 *Words and Gestures (CDI:WG)*

The Words and Gestures component of the CDI presents a parental report on a child's comprehension and production of a range of common phrases and 396 vocabulary items. Mothers of children aged 0;8 to 1;6 (n=10) completed the CDI:WG in a classroom session supervised by the primary investigator. Raw number of words understood and produced, and standard scores (mean=100, SD=15) were collected for each participant.

5.2.3.3.2 *Words and Sentences - New Zealand adaptation (CDI:WS) (Reese & Read, 2000)*

The New Zealand English-adapted version of the CDI Words and Sentences was completed by mothers of children aged 1;7 to 2;5 (n=10) in a supervised classroom period within the school day. Mothers were required to mark whether their child produced a range of 676 different vocabulary items. Total expressive vocabulary as a raw and standard score (mean=100, SD=15) was collected and utilised for analysis.

5.2.3.4 Language Sample

Language sample collection was based on free-play sessions within the Early Childcare Centre (ECC) environment for children in the sample two years and older ($n = 8$) due to an increased likelihood for children in this age range to speak in multiple-word utterances (Miller & Chapman, 1981). The play was child led, using a range of age-appropriate toys available within the ECC environment. The examiner (who was familiar to the children), utilised a variety of language facilitation strategies to promote language production (Paul, 2007). These included self and parallel talk, recasting, expansions and imitations. Language samples were 15 minutes in length, and analysis was completed on the first 50 complete and intelligible child utterances within the 15-minute transcript. All language samples were transcribed by the examiner via digital audio recordings and checked for accuracy and reliability by an independent, trained Speech-Language Pathologist, familiar with transcription and language sampling protocols. Any discrepancies in the transcripts were discussed and resolved before analysis was undertaken. All analysis was completed using the SALT software package (Miller, Gillon, et al., 2012).

Language sample analysis investigated quantitative measures of language production. Measures were selected that displayed developmental relevance and clinical robustness in the literature, and were known to be reliable when taken from a short utterance (50 complete and intelligible utterances) (Heilmann, Nockerts, & Miller, 2010; Miller & Chapman, 1981). Syntactic and semantic analysis included MLU-m (mean length of utterance in morphemes) which was then compared to Brown's Stages of Development (Brown, 1973); NDW (number of different words); and WPM (words per minute). Additionally, mazes and a composite of omissions and errors were reported.

MLU-m was selected as it provides information on children's morphologic and syntactic skills, and has been shown to be almost perfectly correlated with MLU-w (Parker & Brorson, 2005). It is also strongly correlated with age, and is a widely used indicator of language delay (Miller & Chapman, 1981). NDW, a measure of lexical diversity, is a robust indicator of a child's semantic proficiency (Miller, 1991) and has been shown to provide a more sensitive measure of lexical diversity than type-token ratio. It is also useful in discriminating between typically developing and delayed language (Watkins, Kelly, Harbers & Hollis, 1995). Mazes are considered as any false start, repetition or reformulation of an utterance, and provide information on a child's general discourse skills. Finally, omissions and errors reflect normal processes in children's development and have also been suggested as clinical markers for language impairment (Bedore & Leonard, 1998; Rice & Wexler, 1996). Omissions included all word and bound morphemes, and errors consisting of any incorrect use or over-generalisation, incorrect determiner, tense or lexical error. For the sake of analysis, omissions and errors were combined to create a composite score as per Heilmann et al. (2010). Below is a short excerpt from a language sample. It includes coding examples of mazes, bound morphemes, and omissions by the child.

C I made square/s. [bound morpheme: plural s]

E You made squares.

C Yeah.

E Wow that's a nice pattern.

:03

E What do the other ones do?

E What pattern does this make?

:04

E It makes look it makes bumps.

E Are you putting the lid on.

C Yeah.

E Yeah.

E What's inside?

C (Um) playdough/'s in there. [maze; contracted copula]

E Oh some playdough's in there.

:02

C Put *it in there. [omission]

E Put that in there too.

C Yeah.

E Yeah open the lid.

E Will it fit?

C Yeah.

E Well good.

5.2.4 Reliability

The PLS-5 was scored by the primary researcher during administration. An independent Speech-Language Pathologist checked scoring and data entry on a random sample of 20% of test forms. Inter-rater reliability was 90%, with discrepancies resolved before analysis. The ECC's policies prohibited the use of video recording, so recording for fidelity purposes was not possible.

Following the mother's completion of the ABAS-2 questionnaires, scoring was undertaken by the primary researcher. Reliability of standard score analysis was completed on a random sample of 20% of test forms for standard scoring procedures by a qualified Speech-Language Pathologist who was also independent to the study. Inter-rater reliability for standard scoring was 100%.

Raw scoring calculations, standard score analysis, and data entry were checked for 25% of CDI forms by a Speech-Language Pathologist independent to the research study and familiar with the CDI scoring protocols. Scoring reliability was 100%.

Transcription fidelity and coding reliability was completed for all of the language samples. First, the primary researcher transcribed all language samples from the audio footage recorded and coded as per SALT conventions (Miller, Andriacchi, Nockerts, Westerveld, & Gillon, 2012). Utterances were segmented into communication units (c-units) as per Loban's (1976) guidelines, with interrupted, unintelligible and abandoned utterances excluded from analysis. Analysis of the transcripts were based on 50 complete and intelligible (C&I) utterances. To ensure agreement with the initial transcription and coding, an independent Speech-Language Pathologist, trained in language transcription and SALT coding protocols, checked reliability of the audio footage with the transcripts, and accuracy of coding. Any differences were discussed and resolved.

5.3 Results

5.3.1 Preschool Language Scale 5th Ed. (PLS-5)

The purpose of this assessment was to describe the expressive and receptive language skills of participants. Data on this measure was collected on 29 children (12 girls, 17 boys) in total, and was then separated into younger (aged 0 – 18 months) and older (aged 19 months and above) age groups, as presented in Table 5.1. Results indicated that the younger group were performing below average (i.e., a standard score of less than 85) on both Auditory Comprehension and Expressive Communication subtests, with a mean standard score of 84.73 (SD=15.30) and 79.47 (SD=15.63) respectively. Consequently, the composite Total Language Score, was also below average (mean=81, SD=14.82). Normal distribution would suggest 16% of the population would fall below average. However, 67% (n=10) of 15 children in the younger group achieved a standard score of <85 on the Total Language Score.

Conversely, the older age group presented a different profile. Results indicated that these participants were performing within the average range (standard score of 85-115) on both Auditory Comprehension and Expressive Communication subtests, with a mean standard score of 88.79 (SD=7.55) and 96.21 (SD=9.76) respectively. The Total Language Score was also within the average range (mean=91.86, SD=7.06) and only 14% (n=2) of the 14 children in this group, achieved a standard score <85 on the Total Language Score. This figure is compatible with expectations from a normal population distribution. The smaller standard deviations in the older group's scores also reflected less variability than that of the younger group.

Table 5.1: Children's Age and Performance on PLS-5

Group and Measures	n	Gender (% girls)	Mean	SD	Range
Younger	15	46.6% (n=7)			
Age			10 mon	3 mon	5 – 16 mon
Auditory Comprehension			84.73	15.30	53 – 110
Expressive Communication			79.47	15.63	50 – 104
Total Language Score			81.00	14.82	50 - 104
Older	14	35.7% (n=5)			
Age			27 mon	8 mon	19 – 46 mon
Auditory Comprehension			88.79	7.55	73 – 100
Expressive Communication			96.21	9.76	81 – 112
Total Language Score			91.86	7.06	80 – 104

Note: PLS-5 = Preschool Language Scales 5th Ed. Australian and New Zealand Language Adapted Edition (Zimmerman et al., 2011). mon. = age in months. Gender indicates percentage of girls in sample. Scores presented as standard scores.

5.3.2 Adaptive Behaviour Assessment System 2nd Ed. (ABAS-2)

This assessment provides an overall picture of the developmental progression of participants in 10 skills areas. As with the PLS-5, the total participant cohort of 31 (13 girls, 18 boys) were separated into younger (0-18 months) and older (19 months and above) age groups. Results are presented in Table 5.2. Across the four domains, standard scores were all situated within one standard deviation of the mean for both the younger and the older groups.

Figure 5.1 presents results for the total participant cohort for each of the four domains, by standard score ranges. A standard score in the range of 70-84 is considered below average; 85-100 within average; 101-115 above average; and a score in the range of 116-130 is considered well above average performance on this assessment measure. In contrast to the PLS-5 results, fewer than 10% of the cohort scored below average on measures of Social, Conceptual and GAC (9%, 3% and 6%, respectively). The exception to this was the Practical domain, in which 29% of the cohort scored in the below average range (at least one standard deviation below the mean).

Table 5.2: Children's Age and Performance on ABAS-2

Group and Measures	n	Gender (% girls)	Mean	SD	Range
Younger	15	53.3% (n=8)			
Age			8 mon	3 mon	4 – 14 mon
Conceptual			99.53	12.45	80 – 123
Practical			94.67	8.96	80 – 116
Social			103.73	8.88	90 – 121
GAC			98.27	10.26	78 – 120
Older	16	31.3% (n=5)			
Age			26 mon	8 mon	19 – 46 mon
Conceptual			97.25	10.41	86 – 119
Practical			86.69	10.91	76 – 111
Social			96.69	9.11	80 – 113
GAC			96.00	8.62	81 – 111

Note: ABAS-2 = Adaptive Behaviour Assessment System 2nd Ed. (Harrison & Oakland, 2003). mon. = age in months. GAC = General Adaptive Composite. Gender indicates percentage of girls in sample. Scores presented as standard scores.

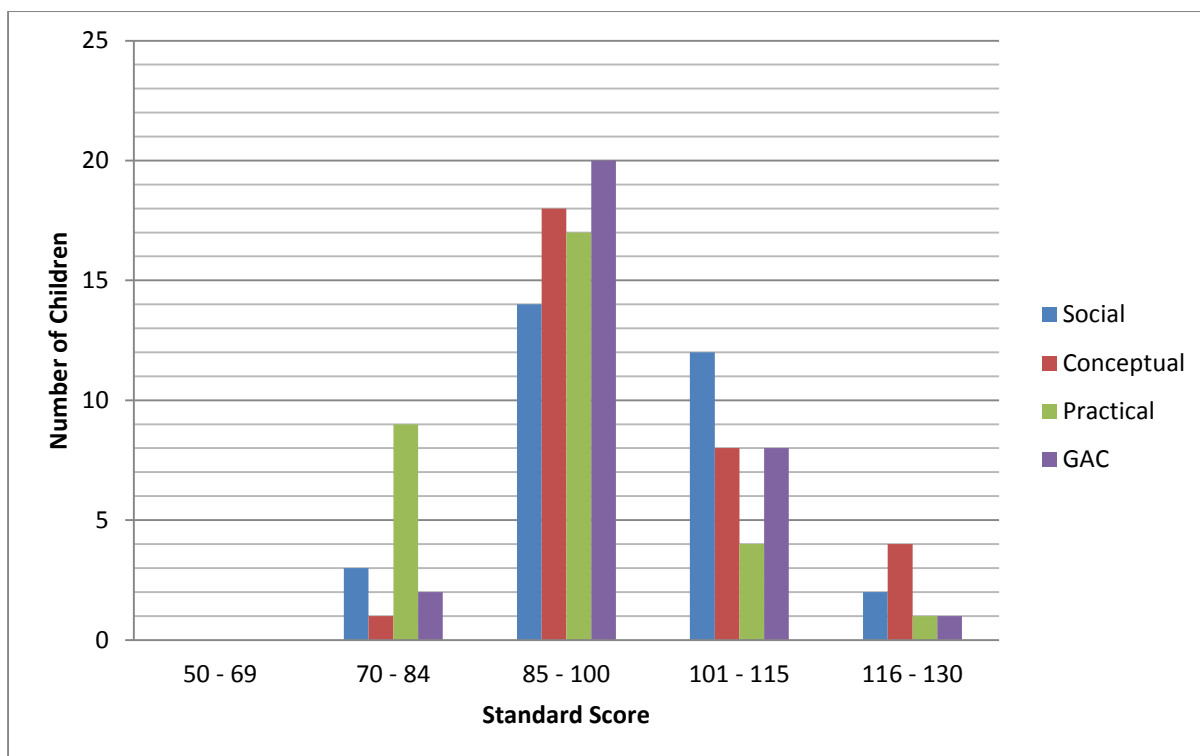


Figure 5.1: ABAS – 2 Results by Standard Score Range

5.3.3 Communication Development Inventories

5.3.3.1 CDI: Words and Gestures

The Words and Gestures form of the CDI was completed by mothers of 10 children (five girls, five boys) ranging in age from 8 - 15 months (mean=11.5 months, SD=2.8 months). Results are reported as total words (raw) and standard score for words *understood* and *produced* for each participant (see Table 5.3).

Children’s performance based on their standard scores results was generally within average range. Only two out of 10 children performed below the average of 85 on *words understood*; the remaining eight participants achieved at or above the mean of 100. All participants scored within or above average range on the measure of *words produced*.

Table 5.3: Children’s Age and Performance on CDI - Words and Gestures

Participant	Gender	Age (mon.)	Words Understood (Total)	Words Produced (Total)	Words Understood (SS)	Words Produced (SS)
LS	m	15	269	8	119	92
BL	m	15	38	20	76	104
BA	f	15	261	9	110	90
HT	f	12	144	6	110	98
DS	m	11	64	2	104	102
FK	f	11	110	27	110	119
AM	f	11	23	0	84	92
ST	m	9	66	0	112	102
ML	f	8	59	1	112	104
TT	m	8	18	3	100	112

Note. m = male, f = female, mon. = age in months. SS = standard score.

Figures 5.2 and Figure 5.3 compare the research cohort’s total *words understood* and *produced* to normative data (50th percentile) taken from the CDI (Fenson et al., 1993). Plot comparison for *words understood* demonstrated a positive increase with age, in line with the normative data set. The exception to this was the two research data points at 15 months. These points varied considerably from the normative data line. A deviation was also reflected in their standard scores. With regards to *words produced*, research and normative data followed a similar upwards trajectory related to age. One outlier is noted, aged 11 months. This participant produced 27 words at 11 months of age, equating to a standard score of 119. This is considered above average when compared to a typical population distribution.

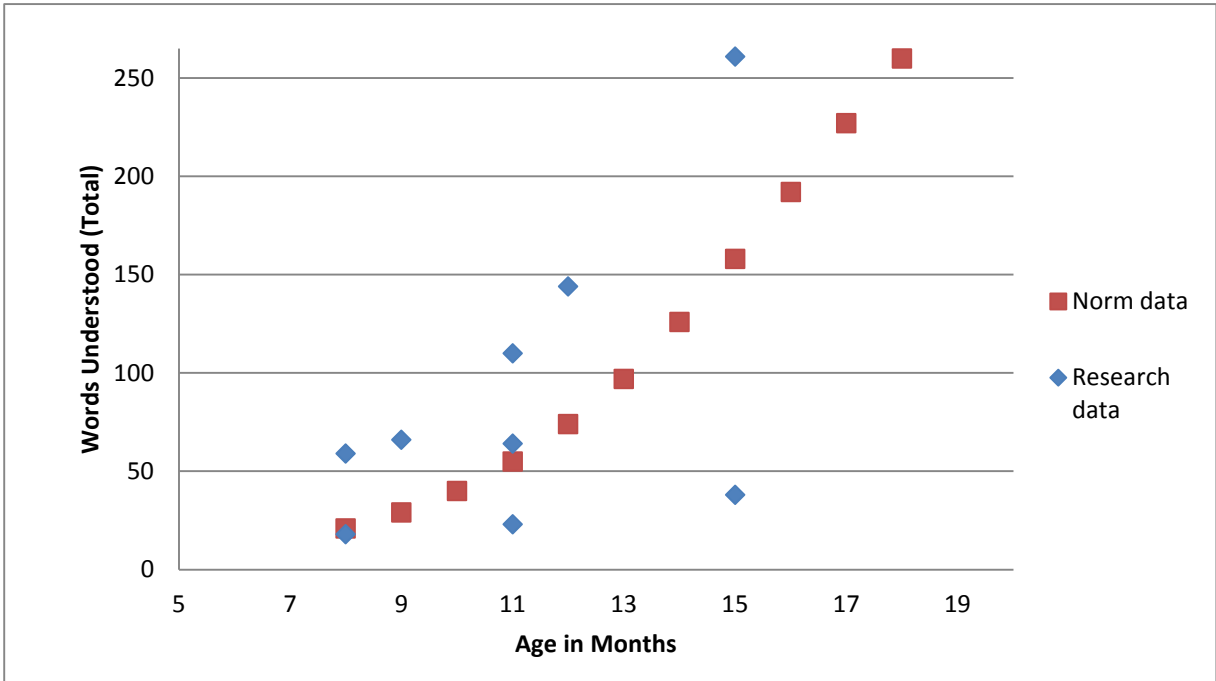


Figure 5.2: CDI:WG Research/Normative Data Comparison – Words Understood (Total)

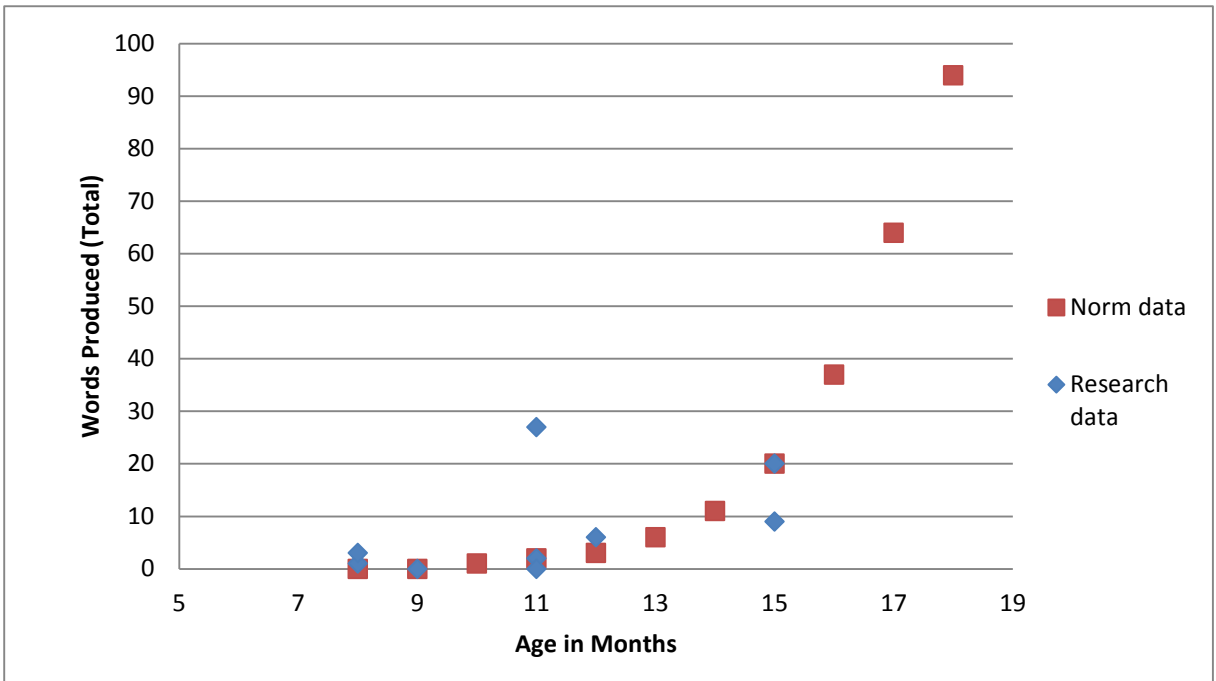


Figure 5.3: CDI:WG Research/Normative Data Comparison – Words Produced (Total)

5.3.3.2 CDI: Words and Sentences

Mothers of 10 children (six boys, four girls) completed the Words and Sentences form of the CDI. Results for each participant are presented in Table 5.4. The children ranged in age from 17-28 months (M=23.2 months, SD=3.7 months). Results indicated all children scored within or above the average range (85-115), with the exception of one child, who achieved a score of 76. Two children scored within the average range but below the mean of 100.

Table 5.4: Children's Age and Performance on CDI - Words and Sentences

Participant	Gender	Age (mon.)	Words Produced (Total)	Total Vocabulary (SS)
MM	m	28	575	112
HE	m	27	637	125
XB	m	26	645	125
MS	f	25	586	119
RG	m	24	57	76
KB	f	24	152	87
BC	f	22	249	100
JJ	m	21	247	108
CS	m	18	255	119
LP	f	17	52	92

Note. m = male, f = female, mon. = age in months, SS = standard score.

Figure 5.4 presents a comparison of the research cohort with normative data for total number of words produced. This comparison indicates the majority of the group (7 out of 10 children) clustered above the 50th percentile line, which was also reflected in the standard scores of total vocabulary. The remaining three children were below the normative data line.

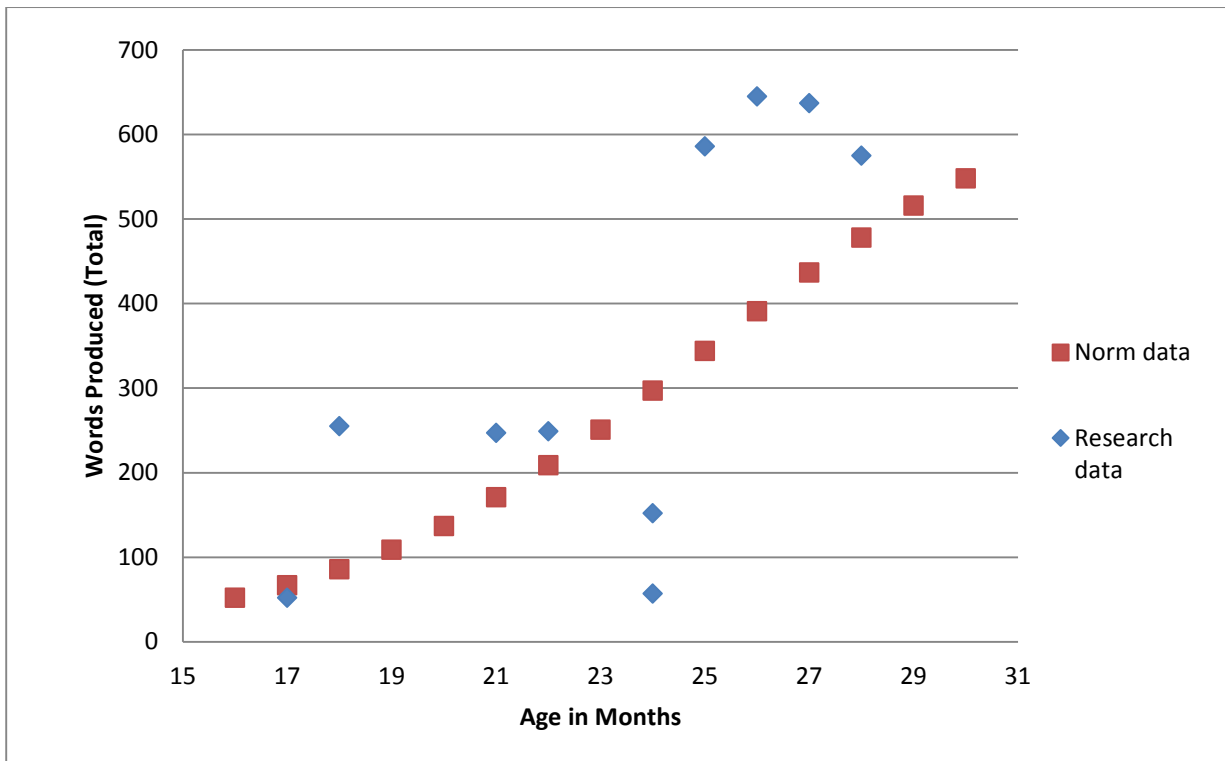


Figure 5.4: CDI:WS Research/Normative Data Comparison – Words Produced (Total)

5.3.4 Language Sample

Table 5.5 presents individual measures of NDW, percentage of mazes and number of errors and omissions from a language sample for eight children (three girls, five boys) aged 25 - 46 months (mean = 32 months, SD = 7 months).

The first measure, NDW, increased in relation to age, with the older children producing more words than the younger children. This increase with age is expected, as children develop larger vocabularies, and therefore greater lexical diversity as they get older. The percentage of mazes observed from this language sample analysis was consistently low. Omissions and errors were also low across the group, with the exception of participant KS, who produced 18 omissions and errors. A closer examination of his sample indicated 14 of these were omitted bound morphemes, of which 11 were the omission of the /s/ in the

contractible copula ‘that’s’. This morphological structure is not expected to be present within a child’s lexicon until 42 months of age (Brown, 1973).

Table 5.5: Children’s Age and Results for Language Sample Analysis

Participant	Gender	Age	NDW	% Mazes	No. O/E
MN	f	48	89	7%	9
LM	m	40	50	0%	0
NO	m	33	42	3%	3
PC	f	30	44	2%	5
MS	f	28	45	0%	5
KS	m	28	35	2%	18
MM	m	26	28	0%	2
HE	m	25	25	1%	7

Note: NDW = number different words, % mazes = % of mazes, No. O/E = number of omissions and errors.

Table 5.6 presents the children’s MLU-m and how these related to age-expected measures as per Brown’s stages (1973). These results demonstrated that the majority of participants produced MLU-ms lower than would be expected for their age.

Table 5.6: Children’s MLU-m: Comparison with Brown’s (1973)

Participant	Gender	Age	MLU-m	Brown’s Stage	MLU-m Mean	MLU-m Range	Within expected range?
MN	f	48	3.94	Early IV	4	3.7-4.5	Y
LM	m	40	2.36	II	3.5	3-3.7	N
NO	m	33	1.52	Late I	2.25	2-2.5	N
PC	f	30	1.86	II	2.25	2-2.5	N
MS	f	28	1.44	Late I	2.25	2-2.5	N
KS	m	28	1.86	Late I	2.25	2-2.5	N
MM	m	26	1.66	Late I	1.75	1.5-2	Y
HE	m	25	1.44	Late I	1.75	1.5-2	N

Note: MLU-m = mean length utterance in morphemes.

5.4 Discussion

This chapter presented comprehensive data on the language and developmental progression of children of teenage mothers attending an educational facility. Consistent with the hypothesis and other studies exploring the language and development of children of teenage mothers, a broad range of skills were present (Luster & Vandenberg, 1999; Oxford & Spieker, 2006). A closer examination of the results of individual measures presents an interesting profile of these children's skills.

Developmental progression, as measured by maternal report from the ABAS-2, indicated the majority of this cohort performed within or above average limits. Particular strengths appeared to be Social (encompassing skills such as interacting socially and engaging in recreational activities) and Conceptual skill domains (consisting of communication, early academics, and skills needed for independence, self-control and responsibility).

Conversely, results from the PLS-5 (describing expressive and receptive language development) indicated a considerable proportion of younger participants had language skills below what would be expected for their age. In contrast, the older children performed within normal limits on all measures. This is in conflict to other literature investigating the language skills of children of other low-SES groups. Some evidence suggests that the impact of SES on language development is expected to increase with age, with negative effects on language and development becoming more apparent from around age 30 months and older (Morisset, Barnard, Greenberg, Booth & Spieker, 1990; Pungello, Iruka, Dotterer, Mills-Koonce & Reznick, 2009). This later emerging differentiation has also been shown in the general developmental trajectories of children of teenage mothers (Mollborn & Dennis, 2012a). The results from the current study suggested younger children displayed more overt signs of

language delay, at least via clinician report, and older children presented with stronger language for their age. One reason for this may be the impact of mothers attending school. Younger children in the cohort had mothers who had spent less time in the school environment. This may have resulted in less time for the positive impact of school attendance to permeate into the home environment. Parents of older children have typically been at the TPU for longer and have thus accessed early childhood education and maternal education for a greater duration. Attendance of high-quality centre-based childcare is positively related to children's language development (National Institute of Child & Human Development Early Child Care Research, 2000).

The results of the older group of children were remarkably similar to those reported by another study of the language development of children of teenage parents. In a larger population of 30-month-old children, Luster and Vandenberg (1999) reported the mean receptive subtest score on the PLS-3 to be 86.8 ($n=70$, $SD=11.4$), and expressive subtest score to be 94 ($n=62$, $SD=12.1$). While Luster and Vandenberg's study used an earlier version of the PLS and a more constrained age group than the current study, it is worthy to note the similarities of results between the two studies.

Language sample analysis suggested these children presented with lower MLU-ms than expected for their age range. While these scores represented mild difficulties, they indicate syntactic ability may be a worthy area of enhancement within this small sample. In addition, the results of the PLS-5 and language sample analysis were in contrast to the parent-report measure of vocabulary via the CDI (for both younger and older children), with most of the sample scoring within or above average range. These results suggested that while mothers reported children to have appropriately developing vocabulary, clinician assessment of their broader language competencies indicated that language development was a factor worthy of addressing. While the CDI is agreed to have good validity with other structured tests and

language samples, less confidence is reported in the results of parent reports from low-SES and low parental education samples. Arriaga et al. (1998) compared CDI results of from 103 children ages 16-30 months from low-income families with three middle-class samples drawn from the CDI normative data. They found significant differences between the two income brackets on percentile scores of expressive vocabulary. Further, these differences were observed as an entire income distribution shift in the negative direction. Starkly contrasting high and low scores from each income bracket were not determined to affect the mean or median scores. This SES difference is in line with a cautionary note from CDI developers that the normative data is based on a predominantly middle-class sample and caution must be used when interpreting results from samples of low-education, low-SES parents.

One notable finding from the current study is the discrepancy between mother and clinician-report measures. Parent-report data, taken alone, suggests children were generally performing within normal limits on communication (via CDI) and general development (via ABAS-2). Conversely, clinician-report data in isolation indicates some potential areas of concern, in particular, low scores demonstrated by the younger group on the PLS-5, and the low MLU-ms observed from the language samples. Several reasons could be considered for this discrepancy. Firstly, parent-report measures capture a child's development across a range of times and contexts, potentially allowing for a more in-depth description of a child's skills. Clinician-report data gathered for the current study occurred solely within the early childcare centre context, which may have provided a constrained view of the child's skills. Secondly, mothers in the current study may have an inaccurate view of their child's skills, or may have consciously or subconsciously inflated their child's abilities. This concept, referred to by Arriaga et al. (1998) as the parental misjudgement hypothesis, is discussed from the opposing perspective, where low-income parents underestimate their child's verbal abilities. In contrast, middle-income parents may overestimate their child's abilities due to their

perception that advanced language and development is socially desirable. Ryan-Krause, Meadows-Oliver, Sadler and Swartz (2009) compared teenage mothers' (n=45) subjective understanding of their child's development (via the Ages and Stages Questionnaire) with an objective developmental measure (the Bayley Scale of Infant Development). While the group mean scores on the parent report all fell within the normal range, the objective measure suggested almost 20% of children presented with developmental delays. The agreement of findings between the two measures varied as well. For example, eight mothers (18%) suspected a delay when there was none. The one remaining mother who suspected a delay was inaccurate at determining where this delay existed. These findings suggest teenage mothers may not be as accurate at identifying their own children's development as more objective, clinician-administered measures.

While it is not possible to determine from the current study which data (parent- or clinician-report) is more accurate in describing children's skills, it suggests caution must be observed when describing a child's development from only one perspective, or, with a population of teenage mothers. It is likely that neither perspective in isolation provides a complete picture of the child's skills, which further emphasises the limitations of the existing body of evidence on children of teenage mothers.

The New Zealand Ministry of Education's Specialist Service Standards for Speech-Language Therapists indicate that assessment should be "ecological and collaborative", "undertaken across key settings and ensure a range of sources of information is used", and include "observations and information from parents" (Ministry of Education, 2013, pg. 11). Holistic assessment, while considered 'gold-standard' by the Ministry of Education, may also result in conflicting information between parent and clinician reports, such as the case with the current study. Therefore, other areas must be acknowledged when establishing the need for intervention. One aspect to consider is the risk and protective factors at play. These are

particularly relevant within the population of children of teenage parents, who are known to be at greater risk of adverse outcomes in language and development. Risk factors are those that may increase the likelihood of adverse outcomes, and are progressively significant as they increase in number. Conversely, protective factors are those that may help to reduce the likelihood of adverse outcomes and offset risk.

Studies exploring the risk and protective factors contributing to the developmental outcomes of children of teenage mothers have identified several elements of significance. Risk factors include low maternal education level, maternal age (younger than 17 years), low maternal self-esteem, and absence of spouse or father in the home (Dubow & Luster, 1990). Protective factors include homes with high levels of cognitive stimulation, children with more advanced language development, presence of familial support networks, and positive parenting experiences (Dubow & Luster, 1990; Rhule, McMahon, Spieker & Munson, 2006). Another study examining factors relating to successful outcomes in children of teenage mothers considered those most successful were read to more frequently and had mothers who completed more years of schooling (Luster et al., 2000).

Effective interventions for at-risk populations need to consider ways to increase the presence of protective factors, which will in turn mitigate risks and lead to better outcomes for those involved. Results of the current study, and evidence presented on their mothers and the home environment in preceding chapters, suggest these children are experiencing a number of risk factors. The presence of these risk factors may increase the chance of a mild-moderate delay in language development, turning into something more pervasive and ingrained.

5.4.1 Limitations

This study would have benefitted from a larger sample size with a control group, to allow for comparison both with other children of teenage mothers who were not enrolled in an educational facility, but also with children of older mothers. Due to the age range and distribution of the children, appropriate emergent literacy assessments were not able to be completed. Increasing the sample size would also allow for separation of children into age brackets, and appropriate literacy assessments to be included with the older children. This would provide valuable information on the literacy skills of the group, but also allow for detailed examination of the impact of a parent-focused literacy intervention on children's own skills.

5.4.2 Conclusion

Comprehensive assessment has indicated children of teenage mothers would benefit from environments richer in language experiences, in order to mitigate the risk factors present in the population. Therefore, attention should now turn to interventions that aim to increase the protective factors and reduce the risk factors for children in this study. Two factors worthy of consideration include increasing the frequency of shared reading and the enhancement of children's language development. With the cohort of mothers in this thesis already engaged in education, a further alleviation of risk (low levels of maternal education) is currently in process. The home language environment has long been recognised as a factor influencing a child's language development. Children of teenage mothers are known to be at greater risk of coming from homes with less rich language experiences, and, the results from the current study present a need for improved language outcomes in the current group. One facet of the home language environment recognised as important for children's development is the early literacy experiences to which they are exposed.

Despite considerable research focused on evaluating the success of interventions targeting the home literacy environment of at-risk families, the impact of these programmes for teenage mothers and their children has not been previously explored. As discussed in Chapter 1, parent-facilitated book reading is viewed as a particularly effective means for providing children with enriched interactions to support their development of emergent literacy and language skills (Bus, 2001; Bus et al., 1995; Lonigan & Whitehurst, 1998). However, results from other literature suggest that low-SES and at-risk families (which may include teenage mothers) are less responsive to current intervention models (Mol et al., 2008). Research into the effectiveness of targeted emergent literacy interventions specifically for teenage mothers is necessary in order to develop a solid evidence base to guide practice. An effective intervention will need to consider the lower levels of language and literacy present in the population of parents (as demonstrated by assessment results in Chapter 3), while maintaining an engaging and appropriate means targeting of important emergent literacy knowledge and skills.

Chapter 6

A Parent-Focused Emergent Literacy Intervention for Teenage Mothers

6.1 Introduction

Children's emergent literacy skills are a powerful indicator of their later academic success and develop largely as a result of their early literacy experiences they have (e.g. Burgess, Hecht & Lonigan, 2002; van Steensel, 2006; Bus et al., 1995). Chapter 1 presented literature suggesting that children of teenage mothers are at greater risk for a range of adverse outcomes, including language and cognitive delay, behavioural difficulties, and may come from homes with less rich home literacy environments (Burgess, 2005; Fergusson & Woodward, 1999; Keown et al., 2001). The study presented in Chapter 5 showed that these children may show some early markers of language difficulties in their early childhood years. Their mothers have also been identified as having lower levels of language and literacy skills (as presented in Chapter 3), adding a further element of risk to these children's profiles. Taken together, these aspects provide motivation to target the children's home and early literacy experiences, which may help to reduce the impact of potential adverse outcomes.

As explored in Chapter 1, one way of supporting a child's early language and literacy development is through parent-targeted interventions that support the development of children's emergent literacy skills. A large body of literature has shown a variety of emergent literacy interventions have been shown to be effective, particularly when employed with predominantly middle-class and white populations (Mol et al., 2008; Reese et al., 2010; Sénéchal & Young, 2008). However, evidence suggests that such interventions are not as

successful for families from low-SES backgrounds and/or more ethnically diverse populations (Manz et al., 2010). One group that has been given limited attention in the body of literature on parent-focused interventions for emergent literacy is that of teenage mothers. Teenage mothers are more likely to come from low-SES families and have lower levels of education than older mothers, which may impact on their ability to fully engage with an intervention proven to be effective with other populations. Additionally, their potentially disengaged relationship with education may mean effective interventions need to consider a range of mediums and methods of implementation in order to address their unique learning needs. With evidence suggesting existing interventions may be inappropriate for other populations with similar characteristics to teenage mothers and limited emergent literacy interventions with this population existing in the literature, exploratory intervention-based research is required to investigate this important area further.

Although there is consensus that parent-child book reading is a valuable means of supporting children's early literacy development, there are few studies that have examined the impact of interventions that target print and language skills concurrently (Reese et al., 2010). With children's later success at reading linked to a number of precursor skills, single-focus interventions (e.g., only print focused) may omit important elements that support a child's balanced literacy development. Further research is required to ascertain whether interventions that target multiple emergent literacy skills in one programme are effective at targeting how parents focus on print and language-based reading behaviours concurrently.

The study presented in this chapter attempts to address these gaps in the literature by examining the effectiveness of a parent-focused multi-component emergent literacy intervention, which targets print and language skills, for teenage mothers. The intervention was designed to provide an introduction to a range of key concepts and skills known to support the development of emergent literacy skills in children through shared book reading.

The following research questions were explored:

1. Do the reading behaviours of teenage mothers change in response to a multiple-component emergent literacy intervention?
2. What impact does attendance to an emergent literacy intervention have on the reported reading behaviours and frequency of shared reading for teenage mothers?

6.2 Method

6.2.1 Study Design

This research adopted a pre-test/post-test research design to measure the effectiveness of a multi-component emergent literacy intervention for teenage parents. A comparison group was employed to establish that the reading behaviours during shared reading of the research group were commensurate with those of their peers prior to participating in the intervention.

6.2.2 Context

All participants were students enrolled in one of two Teen Parent Units (TPUs) in a large metropolitan city of New Zealand. The context of the TPUs is described in more detail in Chapter 1.

At the time of the intervention, all mothers attended the units voluntarily, and enrolment to either of the units was not specifically associated with receiving financial support via a government benefit. The units were non-residential, with mothers living in a variety of different arrangements including independently, with partners, or with family members. Information on specific living situations of each participant was not gathered as part of this study.

Childcare centres were a component of both TPUs. Mothers were not obliged to enrol their children at these centres although all participants in the current study chose to do so. Children attended the childcare centres full-time during school hours, which equated to 30 hours per week. Both childcare centres operated under the national early childhood curriculum (Te Whariki; Ministry of Education, 1996). Differences in the childcare centres were not explored as part of the current study. However, no explicit emergent literacy programme targeting mothers or children was reported to be in place in either of the centres.

6.2.3 Participants

6.2.3.1 Research Cohort

Following ethical approval by the University of Canterbury ERHEC, forty-nine young mothers were invited to participate in the intervention (19 from school A and 30 from school B), with a total of 47 (18 from school A, and 29 from school B) agreeing to be involved. Mothers who joined the unit throughout the period of the intervention were also able to participate in the programme but were not included in the research. To examine any differences between participants at school A and school B, a Mann-Whitney U test was conducted to compare mothers on their age, their children's age, and the number of sessions they attended (see Table 6.1). No significant difference was observed for any measure, and therefore students were considered as one cohort for all following analyses.

Table 6.1: Comparison Between Schools

Measure	School A (n=8)		School B (n=19)		U	z	p
	Mean	SD	Mean	SD			
Parent Age	19;3	0;10	19;7	1;3	65	-.585	.559
Child Age	1;10	1;1	1;6	0;10	65	.585	.559
Attendance	4.4	1.7	4.3	1.8	70	-.325	.745

Note. Age is reported in years;months.

Attendance is reported as number of sessions attended. Complete data sets were collected for 27 mother/child dyads (15 boys, 12 girls). Reasons varied as to why 20 participants were not included in the final data set. Ten mothers left the units after agreeing to participate in the intervention and before its initiation. High roll turnovers are a common issue in Teen Parent Units. A further 10 mothers completed the intervention but were not available for final assessment. Four of these mothers were on maternity leave when the final data collection point occurred (over a two-week period), and six were unavailable for final data collection due to sickness, absence, work experience commitments or appointments. High rates of attrition are a challenge reported in other interventions targeting teenage parents (Letourneau et al., 2004).

The majority of mothers in the research cohort had one child (n=24), with one having two children, and one having three children. The literacy skills of 21 mothers were assessed on one occasion via the WRMT-3 Passage Comprehension subtest (Woodcock, 2011). Data was not available on the remaining six parents due to their enrolment in the unit after the completion of the literacy data collection phase. Results suggest a range of literacy skills were present within the cohort (standard score mean=85.5, SD=13.6, range=60 – 110).

6.2.3.2 Comparison Cohort

A comparison cohort (n = 10) was established from students who entered the TPU following the end of the intervention period. These mothers did not participate in the intervention and were assessed on one occasion one year after the intervention took place. All mothers in the comparison cohort had one child.

A number of reasons precluded the randomisation or matching of mothers across the two cohorts. These reasons included the heterogeneous nature of the participants (age, child's age, ethnicity, educational background), and small pool of new mothers from which to draw.

Instead, a comparison cohort was utilised to establish if reading behaviours displayed by research participants were commensurate with a similar population of teenage mothers prior to participation in the intervention. A delayed intervention model was not possible due to time allowed by the units for the intervention. It was not considered ethical to exclude willing participants from the intervention programme in order to establish a randomised assignment to the intervention. Participant characteristics and comparisons are presented in Table 6.2.

Table 6.3 presents the age distribution of mothers and children from both cohorts.

Table 6.2: Characteristics of Participant Cohorts

	<i>Research Cohort</i>		<i>Comparison Cohort</i>		t	df	p
	(n=27)		(n=10)				
	Mean (SD)	Range	Mean (SD)	Range			
Mother Age	19;6 (1;1)	17;6 – 22;5	18;3 (1;3)	14;8 – 20;4	.478	35	.001*
Child Age	1;8 (0;11)	0;3 – 4;6	1;7 (1;2)	0;6 – 4;5	-.089	35	.930
Ethnicity	66% NZ Euro		56% NZ Euro				
	26% Maori/Pasifika		31% Maori/Pasifika				
	8% Other		13% Other				

* $p < 0.05$.

Table 6.3: Age Distribution of Participants

Participant	Age group				
	14 years	15 years	16 years	17 years	18+ years
Research Mother	n=0	n=0	n=0	n=4	n=23
Comparison Mother	n=1	n=0	n=0	n=3	n=6
Age	<1 year	1 year	2 years	3 years	4years
Research Child	n=9	n=9	n=7	n=1	n=1
Comparison Child	n=5	n=2	n=1	n=0	n=2

6.2.4 Assessment Procedure

The research cohort completed a 4.5-minute shared book reading video with their child prior to intervention commencing, and once in the two weeks after completing the intervention programme. The comparison cohort completed their shared book reading video on one occasion.

All shared reading episodes took place within the early childhood centre environment of the TPU. Mothers were excused from class activities or used their lunch break to complete the reading video with their child in a quiet corner or a separate room in the centre. Videos were later analysed using a Reading Behaviour Checklist, which is presented in Appendix 2 and discussed in further detail in section 6.2.5.1. All filming was completed by the primary researcher and all scoring occurred off-line at a later date by a trained and independent coder who was blinded to the cohort (research/comparison) and intervention time point (pre- or post-intervention). To do so, all videos were named with an unidentifiable code, with no information available to the coder as to when the video was taken, and the coder was not informed of the design of the study (in that it included a research and comparison cohort and was an intervention study).

All video coding was completed on both research and comparison videos during the same timeframe. If during the film clip, the coder determined a child was off-task for longer than 30 seconds the time was stopped, and restarted again once the task recommenced. During filming, the primary researcher did not intervene to restart the reading task. If a child was clearly not interested in completing the task, it was abandoned and attempted again at a later time.

Before filming, mothers were encouraged to choose a range of books from the preschool library, or bring familiar books from home if they preferred. Mothers were

instructed to read to their child “just as you do at home”. Books were not pre-selected by the researcher due to the wide range of ages and interests of the children in the study, and the reading skills of some mothers involved. The primary researcher filmed the reading exchange on an iPad with additional voice recorder to ensure adequate audio. The film clip and audio were later spliced together and scored for presence and frequency of parental reading behaviours, based on the reading behaviour checklist. Following pre-test, the research cohort participated in a seven-week multi-component emergent literacy intervention. The Reading Behaviour Survey was completed during the first session of the intervention and at one year post the final intervention session.

6.2.5 Measures

6.2.5.1 Reading Behaviour Checklist

6.2.5.1.1 Development of Coding Schema

Development of the coding schema was completed by the researcher and was based upon 15 key behaviours, all of which were targeted within the four content modules (sessions 3-6) of the intervention programme, and determined as important to children’s emergent literacy development (Snow, 2006; Whitehurst & Lonigan, 1998, 2001). Behaviours were defined and examples provided by the primary researcher in response to the intervention content, and then refined after practice coding of 10 video clips. Codes, definitions and examples were discussed with an independent coder, who watched five video clips.

Adjustments and further refinement was made to coding descriptions before formal coding of reading clips began. During the coding process, additional examples were added to the coding system to ensure that a high level of reliability between coders was observed.

According to Bakeman and Gottman (1997) systematic behaviour observation has two

defining characteristics: predetermined codes to measure behaviour, and an investment in coding reliability. Development of the coding schema was based on both of these principles.

6.2.5.1.2 Observation of Maternal Reading Behaviour

Systematic observation of behaviour involves quantifying identified behaviours through the use of a pre-determined coding schema (Bakeman & Gottman, 1997). This study utilised 4.5-minute video clips of mothers reading with their children to track change in the dynamic aspects of interactive behaviour between a mother and a child when reading.

Appendix 2 presents an example of the reading behaviour checklist. Mothers were credited on their use of the target behaviours once per each page of their selected book. For example if a mother named three items on a single page, they were credited once for the behaviour 'points out things in the pictures'. If they repeated this behaviour on the next page, they were credited again. This coding method was selected to remove the variable of opportunity presented by the different books selected.

6.2.5.2 Reading Behaviour Survey

A selection of questions were taken from the Home Literacy Survey (see Chapter 2). Questions selected related to the self-rated reading behaviours of the research and comparison cohort that would be expected to change in response to the intervention. Five questions were chosen for this purpose, which are presented in Table 6.4. Answers were based on a four-point Likert scale ranging from *never/rarely* to *everyday* for question 1, and *not currently* to *often* during story for questions 2-5. The research cohort completed the survey on two occasions: once immediately prior to beginning intervention, and again at one year post-intervention. This was to allow time for the behaviours to integrate into the mothers' reading repertoire, and aimed to remove the social expectation to respond to the survey in a certain way while the researcher was still involved with the school. The follow-up nature of the post-

intervention survey lead to difficulties contacting all original participants from the research cohort, thus n=17 for these analyses. Pre-intervention filming was completed before the survey data was gathered in order to avoid priming mothers to certain reading behaviours before completing their shared reading video. The comparison cohort completed the survey immediately after completing their shared reading video (n=9 for this analysis).

Table 6.4: Reading Behaviour Questions

-
1. How often do you read to your child?
 2. Do you attempt to teach your child the names and/or sounds of letters when reading?
 3. Do you attempt to teach your child about books? For example, talking about the title, author, pictures, and/or words?
 4. Do you attempt to teach your child about the pictures in books? For example, naming things on the page and/or asking them to name things on the page?
 5. Do you ask your child questions about the book you are reading together? For example, what is the name of something in the picture, what do they think will happen next, can they find you the cat/digger/tree?
-

6.2.6 Intervention

The intervention, entitled ‘Growing Great Readers’, was a seven-week modularised programme (see Table 6.5), completed in the classroom setting. The intervention was duplicated in both TPU settings and all sessions were conducted by the primary researcher. All interventions sessions were conducted during classroom time. Each week the 1.5 hour session had a different skill focus (referred to as a module), but the overall structure of the sessions was consistent (see Table 6.6 for description of session composition). The first two sessions focused on increasing the mothers’ knowledge of the language and literacy development of their children, and how to choose an appropriate book for their child’s age and interests. Sessions 3-6 (content sessions) directly targeted increasing the mothers’ skills when reading with their children in four key areas. The final session was a summary session,

where the key points from the intervention were discussed and clarified, and mothers shared their challenges and positive experiences of implementing the strategies with their children. Some themes were consistently reiterated throughout the programme. These included the importance of making the reading experience positive for the child such as through choosing an appropriate time and book and ensuring it was a fun and engaging experience; considering making reading part of a routine (such as bedtime); ensuring the child was ready and willing to be involved in reading; and that reading could occur in multiple, short sessions throughout the day if that was considered to be more appropriate for the child and family. Discussion was also included on managing behaviour during shared reading. This was primarily through group-based problem solving and discussion of what other mothers in the group did to help manage their child's behaviour (such as choosing the best time and place to read, letting the child choose the book, and ending the interaction if the child was not interested at the time).

The intervention also attempted to draw on literature from existing studies with low-SES and teenage mothers. For example, the intervention was conducted in a school context to ensure easy access for mothers; the literacy culture of the family was included as a component of the programme; the mothers' own level of literacy was considered and thus the materials and method of teaching were collaborative, interactive and at an appropriate level to the mothers' skills; and resources (children's books) were provided to mothers as an incentive for participation, and to ensure access to books was not a limiting factor in mothers engaging in shared reading interactions with their children.

During the initial design phase of the intervention it was anticipated children would join in the last part of each session to provide mothers an opportunity to practice the behaviours targeted. After discussing this with the childcare centre staff, this was deemed unfeasible due to the varied ages of the children and their nap schedules. Further, it was not considered appropriate to remove a child from an enjoyable activity they were engaged in

within the centre. Instead, mothers were encouraged to choose a time they felt most appropriate to share a book (an element discussed during the first session), in order to facilitate a successful and positive interaction. Initially reading logs were included as a component of the intervention but difficulties with having them returned the following session meant they were excluded from analysis. In addition, role play was included as a component of the sessions to provide further opportunities to practice the reading behaviours.

Table 6.5: Growing Great Readers Intervention Modules Overview

Week	Session Focus	Key Points
1	The Importance of Language and Literacy	<ul style="list-style-type: none"> Overview of programme. Language and literacy development of children birth – five years. Importance of literacy for children’s development.
2	Choosing a Good Book	<ul style="list-style-type: none"> Choosing an appropriate book for your child’s age and interests.
3	Fun with Words (Vocabulary)	<ul style="list-style-type: none"> Point things out Expand on what your child says Comment on the pictures Ask them to find things Say it again and again
4	Fun with Letters and Sounds (Letter and Sound Awareness)	<ul style="list-style-type: none"> Say the letter name Say the letter sound Say the position of sound in a word (usually first or last) Relate it to a known word Say it again and again
5	Talking About Books (Questioning)	<ul style="list-style-type: none"> Expand on what your child says Ask closed questions Ask open-ended questions Comment on the pictures Say it again and again

6	Learning About Books (Book and Print Concepts)	What is print vs picture Directionality (tracking print) Title/author/illustrator Features (signs, speech bubbles, capitals etc) Say it again and again
7	Putting It All Together	Recap of previous sessions Problem-solving

As discussed earlier, interventions targeting multiple components of emergent literacy are less common in the literature and thus this was an exploratory examination of the effectiveness of such an intervention. An overview of the modules and their foci can be seen in Table 6.5. Involvement in the intervention was optional, although mothers received a pack of five children's books during the final session. The provision of children's books is a common element of early literacy interventions (Baker et al., 1998; Jordan et al., 2000; Neuman, 1996; Taverne & Sheridan, 1995).

Mothers were encouraged and supported to take away five key points per week for immediate implementation. Extended family or partners were not included as a component of this intervention programme. However, all sessions included the making of a visual aide of the session's key points (a paper hand or foot) that the mothers decorated themselves, which they were encouraged to take home and share with their family. Mothers were also encouraged to place the visual aide in a location (such as by their child's bed) to remind them of the techniques. Anecdotal reports indicated this visual aide provided an impetus for discussion with other caregivers on the importance of shared reading with young children. All intervention sessions were audio recorded for intervention fidelity purposes.

Table 6.6: Description of Session Composition

Activity	Description
Introduction	Introducing the key ideas/overview of the day's session
Review	A review of the key points covered from last session
Structured teaching	Explicit teaching of five key points of the session
Group activity	Group-based activity that further addresses and reiterates the five key points of the session. Includes activities such as brainstorming, bingo, analysis and discussion of key points, quiz
Interactive modelling and/or role play using a story book	Consisting of moderator reading book OR participant reading book OR participant or moderator 'acting' as the child during a book reading. Interactive discussion during or after reading to focus on reader's use of key points, discussion of 'child's' behaviour, and/or discussion of presence and frequency of behaviours demonstrated by reader
Viewing of DVD clip	Playing of a DVD clip relating to the week's topic
Making of visual aide	An opportunity within the session to make/decorate a visual aide of the key points from the session to take home as a reminder

6.2.6.1 Materials

Materials required for this study were: a) audiovisual equipment, b) children's books for the reading sessions and the intervention programme, and c) an instructional DVD created specifically for the intervention programme. The books used for the assessment and intervention were a wide range of children's books sourced from the preschool's own book

collection and the public library, as appropriate for the age and interests of the children. The instructional DVD consisted of seven modules ranging on average eight minutes in length. A module was screened each session, and directly supported the goals and key points from the intervention sessions. The DVD structure consisted of an introduction by the primary researcher; an oral description of the techniques followed by a series of vignettes that modelled the target behaviour; and finally a summary of the techniques covered in the segment. The DVD was designed to supplement the direct teaching from the primary researcher in the intervention programme, and provide an opportunity for the students to see real parents modelling the behaviours they were being taught.

6.2.7 Reliability

Following coding of all reading videos by an independent rater, inter-rater reliability for the reading behaviour videos was completed for 20% of the total samples by the primary researcher, to determine the reliability of scoring procedures used to assess parent performance on pre-test and post-test. A total of two coders were used for all reliability measures. The primary researcher watched 20% of the reading behaviour videos and scored as per her perception, using the reading behaviour checklist.

Due to the continuous nature of the rating scale, inter-rater reliability was calculated using the Pearson r correlation coefficient. Reliability was high, with a strong positive correlation of $r = .95$, $n = 135$, and $p < 0.01$. Any discrepancies between the independent rater and the primary researcher were resolved prior to analysis.

6.2.8 Intervention Fidelity

Assessment of procedural fidelity was conducted on four sessions (50% of content sessions) randomly selected from the intervention's content modules (sessions 3-6) to

determine adherence to the intervention protocol. A trained, independent reviewer listened to audio recordings of the sessions and recorded the presence of session components described in Table 6.6. In addition, incidences of behaviour management techniques required were also recorded.

Analysis of the sampled sessions showed 100% adhered to the intervention fidelity protocol for introduction, structured teaching, group activity, interactive modelling/role play, viewing of DVD and making of visual aide. Adherence to fidelity protocol for review of key points was observed in 75% (3 out of 4) of sessions. All sampled sessions required a range of behaviour management strategies to keep students on task. Behaviour management strategies were typical of those seen in a secondary school classroom and included keeping participants on task, reminding them to keep their cell phones away, managing time of the group activities, and generally providing a positive environment. Strategies were most frequently used during activity transitions, during group-based activities, or when participants would return from a break.

6.3 Results

6.3.1 Parent-Child Shared Reading Behaviours

Preliminary analysis compared the reading behaviours of the research and comparison groups to establish whether the research cohort's reading behaviours were typical of the teenage mother population prior to completing the intervention. An independent samples t-test was completed, which indicated no significant difference between the groups in reading behaviours at pre-assessment on any of the four areas assessed throughout the study (vocabulary ($t(35)=1.135, p=.264$); questioning ($t(35)=-.679, p=.501$); book/print features (t

(35)=-.829, $p=.413$); no t could be completed for letter/sound as the standard deviations of both groups were 0).

After establishing the research cohort was representative of teenage mothers as a wider group, further analysis examined the changes observed in the shared reading behaviours of the research cohort following intervention. Table 6.7 presents a comparison between the pre- and post-test frequency of parental reading behaviours for the research cohort by content module. An increase in frequency was observed for all module means from pre- to post-test. Statistical analysis was conducted to determine if gains made from pre- to post-test were statistically significant. A paired-samples t -test indicated that statistically significant improvement was observed for three of the four modules: vocabulary, questioning, and book/print features, with small to medium effect sizes. No statistical change was observed for the module targeting letter/sound behaviours; a medium effect size was observed.

Table 6.7: Research Cohort Pre- and Post-test Performance by Module

Module	Pre-test		Post-test		t	df	p	d
	Mean	SD	Mean	SD				
Vocabulary	9.33	6.29	13.15	6.14	-2.927	26	.007*	0.61
Letter/Sound	0.00	0.00	.67	2.42	-1.433	26	.164	0.39
Questions	.93	1.82	2.89	4.14	-2.505	26	.019*	0.61
Book/Print	.82	2.20	2.07	3.73	-2.097	26	.046*	0.41

* $p < 0.05$.

6.3.2 Reading Behaviour Survey

Preliminary analysis of survey results was also completed to determine if self-reported reading behaviours of the research group were commensurate with a group of peers, prior to completing the intervention. A Mann-Whitney U test was conducted to compare differences in reported reading behaviours. Results indicated no significant difference

between the research cohort and comparison group for reading behaviours relating to letter/sound ($z=-.241, p=.809$), book/print ($z=-.595, p=.552$), vocabulary ($z=1.862, p=.063$) or questioning ($z=-.263, p=.792$) behaviours. Research cohort participants did report reading with their children more frequently than the comparison cohort ($z=-2.154, p=.031$).

Following preliminary analysis, survey results for the research cohort were compared from pre-intervention, to one year post-intervention, to examine change in mothers' self-reported reading behaviours on five questions (see Table 6.8). A Wilcoxon Signed Rank test was conducted and a statistically significant increase was observed in parent reports of the use of strategies relating to questioning ($z = -2.519, p = .012, r = .43$) and book/print features ($z = -2.032, p = .042, r = .35$) with medium effects sizes. The question relating to letter/sound-focused behaviours during shared reading neared significance ($z=1.897, p=.058, r=.33$). No significant difference was observed in reported reading behaviours relating to vocabulary ($z=.000, p=1.0, r= 0$) or frequency of reading with their child ($z=-.378, p=.705, r=.06$).

Table 6.8: Research Cohort Reading Behaviour Survey Responses

Question	Pre-test		Post-test		z	p	r
	Mean	SD	Mean	SD			
Frequency	3.65	.61	3.71	.47	-.378	.705	.06
Letter/Sound	3.18	1.01	3.71	.47	1.897	.058	.33
Book/print	2.59	1.28	3.35	.86	2.032	.042*	.35
Vocabulary	3.71	.59	3.71	.59	.000	1.0	0
Questions	2.41	1.23	3.53	.62	-2.519	.012*	.43

* $p < 0.05$.

6.4 Discussion

This study examined the effect of a seven-week parent-focused, multi-component emergent literacy intervention for 27 teenage mothers. Implemented within the classroom context of two TPUs, it included multi-modal sessions targeting four key areas of emergent

literacy development (vocabulary, letter/sound referencing, questioning, and book/print concepts).

6.4.1 Parent-Child Shared Reading Behaviours

Research participants displayed significantly more frequent and diverse reading behaviours during shared reading interactions with their children. In particular, significant increases in the frequency of vocabulary, questioning and book/print-focused behaviours during shared reading interactions were observed.

The most significant gains in the research cohort were in reading behaviours that targeted vocabulary development. Vocabulary has been shown to consistently predict reading comprehension success throughout the early years of reading development. Hemphill and Tivnan (2008) tracked the reading comprehension skills of a large, ethnically diverse, low-SES group of children, in relation to their print-related (such as phonemic awareness, letter knowledge, word attack) and vocabulary skills over three years. In the first grade, letter/sound focused skills were the strongest predictors of reading comprehension skills. However, this effect diminished over time, with early vocabulary knowledge acting as the strongest predictor of reading comprehension skills by the end of the second and third grades. This suggests that the influence of early vocabulary experiences (such as those enhanced by quality shared reading experiences) is increasingly important as children progress through their early school years.

Of interest in the current study is the lack of any significant change in the use of letter/sound referencing by mothers. Pre-test results indicated this is not a behaviour that comes naturally to teenage mothers with both the research and comparison cohort showing no use of any letter/sound awareness strategies prior to intervention. Any change in behaviour within the research cohort at post-test was negligible, and isolated to two participants, both

mothers of babies who had demonstrated no use of letter/sound referencing at pre-intervention. No tracked differences were observed between the letter/sound focused session (e.g. fidelity, attendance, behaviour management required) and the other sessions, to explain why this difference occurred.

A number of reasons may explain why mothers' reading behaviours focused on letter/sound awareness did not change following the intervention. Firstly, use of any reference to letters and sounds during shared reading at pre-test was not noted for any participant, indicating that this is not an area that teenage mothers intuitively focus on during shared reading interactions with their children. This finding is also supported by other literature that indicates adults do not naturally prioritise reference to letters and sounds during shared reading (Edwards, 2014). However, other research suggests that families of higher SES are more likely than lower SES families to talk about letters within the home environment (Treiman et al., 2015). In contrast, the mothers showed some limited use of the other three targeted components at pre-intervention. The programme was able to then increase and enhance the use of behaviours already existing in some teenage mothers' shared reading repertoires.

Secondly, the age of the children may have impacted on the mothers' use of letter/sound referencing techniques. The mean age of the participants' children in the current study was 1 year 8 months, comparable to the 18-month-old children in Bus and Ijzendoorn (1988), whose mothers placed more emphasis on narrative-based behaviours, such as interpreting the content of the book represented by the pictures. Participants in the current study may have assumed a focus on letters and sounds was not necessary or appropriate for children so young, and consequently placed more of their attention on the other reading behaviours (such as those that support oral language development) included in the

programme. A larger sample size with more even distribution of children into age groups would allow for future research to determine the impact of age on mothers' preferences.

Thirdly, there is also research to suggest the type of book can affect how much attention parents play to letters, with letter books initiating a greater focus than narrative-type books (Bus & Ijzendoorn, 1988). As the books were self-selected for the current study, the impact of the type of book on parental reading behaviours was not able to be explored. Future studies may wish to use a more constrained book selection in order to explore this variable in more detail.

Finally, there may be something inherently different about the nature of letters and sounds, which would benefit from a different intervention approach than the current study. A meta-analysis of alphabet knowledge instructions demonstrated outcomes for this area of emergent literacy intervention tend to focus on child measures of skill and knowledge acquisition (Piasta & Wagner, 2010), with little known about the specific alphabet focus of parents. Of the 63 studies included, only four utilised parent-implemented interventions (three of which were unpublished Doctoral dissertations), and were shown to consistently be the least effective means of promoting alphabet knowledge in children. The one published study that utilised a parent-implemented intervention was focused on children with Down syndrome, and did not measure parent use of the strategies. Consequently, outcome comparisons are difficult.

Despite the lack of focus placed on letter/sound knowledge by mothers in the current study, Justice and Ezell (2002) assert the importance of including a print focus when reading with preschool children, due to the preschool years being a time when critical knowledge of written language is acquired. It is thus important that future interventions for teenage mothers place a heavier weighting of intervention time on supporting the development of letter/sound

referencing behaviour in this group. Further investigation is also required to determine whether the behaviour of letter/sound awareness itself is not as salient to teenage mothers, even following intervention, or whether there is another component of the intervention (such as its multi-component nature) that impacted on the mothers' ability to assimilate the learning in this area.

A review of parent interventions for preschool children's emergent literacy posited the potential effectiveness of an emergent literacy intervention that targeted multiple emergent literacy skills, and whether parents would become less effective teachers when loaded with multiple tasks (Reese et al., 2010). The results from the current study indicate that, at least in part, teenage mothers are able to learn and apply a range of emergent literacy strategies (such as vocabulary, questioning and book/print-focused skills) when reading with their young children, but further exploration around the impact this style of intervention has on letter/sound-based reading behaviours is required.

6.4.2 Reading Behaviour Survey

Findings from the Reading Behaviour Survey were at times in contrast to the findings demonstrated by direct observation of the mothers' reading behaviours. For example, while vocabulary was the area shown to change the most in response to intervention, no significant difference was observed in the mothers' own reports of using this strategy. On the other hand, mothers' report of strategies that targeted letter/sound awareness neared significance, despite showing no change from pre- to post-intervention at observation.

As the research group completed the survey at one year following completion of the intervention, consideration must be given to whether mothers have either a) not maintained their positive change in reading behaviours, or b) have shifted their focus during reading in response to their child's age. Follow-up observational data was not collected as part of this

study, so an examination of the sustainability or change in maternal reading behaviours was not possible. Alternatively, the survey questions may not be designed to capture the mother's own interpretations of the behaviours they are using during shared reading interactions with their child. Future surveys may also wish to include a question exploring the mothers' own perception of their reading abilities, as self-belief has been shown to influence the quality of the home literacy environment provided and the strategies mothers use when reading with their children (Bingham, 2007; DeBaryshe, 1995).

Parent report is a common form of information gathering on reading behaviours, particularly with regards to the home literacy environment (Bracken & Fischel, 2008; Burgess et al., 2002; Bus et al., 1995). The use of a parent survey of reading behaviours is useful in its ability to gather information on a broad range of reading behaviours that may occur over a long period of time within the home environment (for example how frequently a child is read to during the week, or how often a child initiates reading independently). However, when attempting to gather information on a parent's use of particular reading strategies, it may be a less accurate format. As demonstrated by the marriage of observed behaviour and survey results in the current study, the findings can be conflicting. It may be proposed that how a parent is actually behaving during shared reading is more important than their interpretation of using certain behaviours; however, the findings of the current study suggest caution when relying solely on parent report as a way to measure some emergent literacy-centric behaviours (such as those that may be demonstrated during a shared reading interaction).

Previous research has examined the quality of interactions in a range of mother-child dyads, but has typically focused on a specific emergent literacy strategy (e.g. print referencing or dialogic reading). In comparison, this study examined the quality of interactions across a range of emergent literacy strategies, and tracked changes in response to

intervention. Previous research also tends to favour child language and emergent literacy skills as outcome measures when examining the effectiveness of an intervention (Aram & Levin, 2001; Saint-Laurent & Giasson, 2005). Less attention has been given to the parents' own behaviours displayed when reading with their children. Justice and Ezell (2000) examined changes in parents' use of print referencing behaviours following a home-based parent intervention for middle-class parents. Observations of shared reading exchanges tracked parents' rates of use of five print referencing behaviours (three verbal, two non-verbal) from pre- to post-assessment. Results indicated the experimental group outperformed the control group on four out of five measures (comments, requests, questions and tracking print). No significant effect was noted for pointing to print. When comparing pre- to post-assessment within the experimental group, significant change was noted for all five key measures. Similar results were observed using the same assessment protocol, but with a group of Communication Disorders students who were trained via a video-tape to increase their use of references to print (Ezell & Justice, 2000).

6.4.3 Limitations

Some limitations to the current study should be noted. Firstly, the sample size was relatively small, and the age range of the children was broad. While children's outcomes were not directly measured, the age of children could have an effect on how parents read with them, and what they choose to focus on in the book. Including a measure of the children's own language and literacy skills would also allow greater understanding of the impact of the intervention beyond the way books were shared between mother and child. Future research could consider the implementation of more constrained participant parameters, to mitigate these limitations. In addition, the use of a randomised sample with control group would have added greater methodological rigour to the study.

Secondly, in contrast to other studies, no prescribed or provided books were used when assessing the parents reading behaviours. This may have impacted on the findings as different books can lend themselves to different types of reading behaviours. As a number of parents indicated they were not comfortable reading unfamiliar books, or their children would only participate if certain books were read, it was decided to allow parents to bring books from home or choose known books from the early childcare centre library. Replication of this study could consider the implementation of a set of standard books in addition to a constrained age range, and perhaps allow parents time to familiarise themselves and their children with the text prior to assessment.

Finally, as the model of this intervention was composed of a number of different components, it is difficult to determine which, if any, had the greatest impact on the teaching of the module components. For example, Huebner and Meltzoff (2005) found that lower-education parents showed greater change in their reading style following intervention when engaged in face-to-face teaching models. The current study included didactic teaching strategies, role-modelling both in-person and via video, as well as a number of interactive activities to further support learning and create an engaging and dynamic intervention for teenage parents. Additional research on this programme in the future may wish to explore a comparison of the teaching activities, in order to provide a better understanding of which specific activities are most effective for teaching teenage parents. Or, conversely, does the programme perform best when a combination of strategies are included. Future research may also wish to consider measuring children's own emergent literacy skills, in order to greater understand the impact of the intervention programme on parameters beyond the way the mothers read with their children. This would need to occur within stricter age parameters than utilised in the current study, in order to provide comparable measures.

6.4.4 Conclusion

The present study adds to the small pool of literature on the effectiveness of emergent literacy interventions targeting parental reading behaviours. Further, the intervention targeted teenage mothers, a group already identified as being at higher risk of having children with emergent literacy and language delay, and less likely to respond to other successful intervention models.

The current study focused on behavioural aspects of shared reading interactions; however, a range of other positive aspects may be occurring during these interactions that are not captured by the observational checklist. Chapter 7 presents an in-depth investigation of the quality and quantity of language used during a sample of these shared reading interactions and explored whether these language features changed following attendance to the current study's intervention.

Chapter 7

Teenage Mothers' use of Extratextual Talk during Shared Reading with their Preschoolers

7.1 Introduction

Oral language is an important component of children's early literacy development and has been shown to be influenced by parental language input. Despite its important role, studies into the effectiveness of emergent literacy interventions have not tended to focus in depth on language use and how it might change in response to intervention. Chapter 6 described the implementation of an emergent literacy intervention with a group of teenage mothers. Results explored the change in the behavioural aspects of the parent-child interaction and demonstrated positive changes were made to the way teenage mothers read with their young children. Substantial evidence exists to support the important role shared book reading has for children's language and literacy development (Bus, 2001; Bus et al., 1995). Intervention studies such as those presented in Chapter 6 and discussed in Chapter 1 have shown it is possible to effect change in the way parents interact with their children at a behavioural level during shared reading. However, as discussed in Chapter 1, existing literature has given limited attention to changes in language use following intervention. In order to do this, analysis must occur beyond that of observable reading behaviours of parents and delve deeper in the linguistic and discourse features of shared reading interactions.

Language quality and language quantity are two ways of exploring the linguistic features present during shared reading interactions. Chapter 1 described the role both quality and quantity of language input can have on children's early language development. Existing

studies demonstrate both features are important for children's development at different ages. For example, Rowe (2012) demonstrated that the quantity of language exposure has more of an impact in the second year of life, as a child is developing their vocabulary, and quality becomes more important in the third year of life, as children are cognitively and developmentally ready for more complex language exposure. As discussed in Chapter 1, shared reading is viewed as a particularly effective means for providing children with enriched interactions to support their development of emergent literacy and language skills (Bus, 2001; Bus et al., 1995; Lonigan & Whitehurst, 1998). While a growing body of literature has investigated the behaviours and foci parents demonstrate when reading with their young children, less attention has been given to the quality and quantity of language parents use during shared reading and how this may change in response to an emergent literacy intervention. Exploration of language quality and quantity can be completed through an examination of extratextual talk (talk which is additional to the text of the book) used by parents and children in the shared reading interaction. Extratextual talk is important to observe as it provides information on the language parents produce beyond the story text, and therefore is a more accurate representation of their autonomous, spontaneous language use. Analysis of talk produced by parents independent of the story text may also provide insight into the quality of language interactions that occur beyond shared reading, such as during free-play, mealtimes and in day-to-day conversations.

Extratextual talk has been shown to differ depending on a variety of factors. For example, narrative-type books initiate fewer questions, less frequent and shorter extratextual utterances, and include more focus on reading the entirety of the book text, than non-narrative books (Anderson, Anderson, Lynch, Shapiro, & Eun Kim, 2011; Price, Kleeck, & Huberty, 2009). Extratextual talk has also been shown to vary as a result of the socioeconomic status of the parent. Parents from lower SES backgrounds using talk with less lexical richness, and

fewer incidences of labelling during shared reading than those from higher SES backgrounds (Mol & Neuman, 2014). Additionally, variance in the way parents interact with their children in a range of contexts has been observed between SES groups. Such variance has proven to be especially significant for children's language development (Hart & Risley, 1995). It is likely that parents who are providing rich and responsive shared reading interactions are also providing these higher quality language experiences during other interactions with their children. Thus, intervening with at-risk populations (such as teenage mothers) to enhance the way they share books with their children may provide an impetus for improved language interactions on a daily basis.

A further way of analysing the quality of the parent-child interaction during shared reading is through completion of a discourse analysis. As preschool children expand their communication skills, they develop an awareness of how to participate in conversations and the skills associated with discourse. Discourse skills include a range of rules that allow a conversation to flow. These include independent initiation of a topic; turn-taking; repairing conversation breakdowns; and maintenance of a topic rather than abrupt changes (Kaderavek, 2015). Analysis of an interaction at the discourse level allows for an exploration of the child's developing pragmatic skills. One way of exploring this level of interaction is by using a conversational coding system proposed by Fey (1986). This system codes conversations at the discourse level and classifies statements used by each conversational partner to the degree to which they initiate, maintain or extend a topic, or extend a topic tangentially. This coding system provides insight into the child's engagement with the interaction and the parent's use of strategies to foster this engagement. It also provides insight into the child's development of early discourse skills. Children's level of engagement during shared reading, such as a child who participates in discussions around the book, is one important aspect to consider, as

reading styles that engage and motivate children to be active participators show positive impacts on children's language and emergent literacy skills (Mol et al., 2008).

Language input in the early years is important for children's development and there are noted differences experienced by children from low-SES families. Consequently, it is relevant to describe the language children of teenage mothers are exposed to and how this may change in response to intervention. This is particularly important given the known profile of risk factors this group experience, as outlined in previous chapters. Chapter 1 outlined aspects of language quality and quantity and how these can impact on children's development. The current study explored these important aspects of quality and quantity of language using an analysis of the extratextual talk occurring during shared reading interactions. This analysis was completed before and after teenage mothers' attendance of the emergent literacy intervention described in Chapter 6. Analysis occurred through microanalytic coding of all extratextual talk and an investigation of mother and child's contribution to the interaction at the discourse level.

Following attendance of the seven-week emergent literacy intervention, it was hypothesised that teenage mothers would increase the quality and quantity of extratextual talk used during shared reading interactions with their children, and consequently that children would become more active and engaged participants in the interaction.

The following research questions were explored:

1. Does the quality and quantity of extratextual talk during a shared reading interaction between teenage mothers and their children change following participation in an emergent literacy intervention?

2. Does the contribution by mother and child at a discourse level change following an emergent literacy intervention?

7.2 Method

7.2.1 Research Design

This study employed a pre-test/post-test group research design to explore the impact of an emergent literacy intervention on teenage mothers' quality and quantity of extratextual talk during shared reading interactions with their young children.

7.2.2 Participants

The participants were 14 mother/child dyads, who previously participated in the emergent literacy intervention outlined in Chapter 6. Mothers in this study ranged in age from 17;8 to 22;5 ($M=19;9$, $SD=1;3$). The children (nine boys, five girls) were aged 1;7 to 3;10 ($M=2;1$, $SD=0;8$). Participants were primarily NZ/European in ethnicity (71%) with the remainder identifying as NZ Maori. All mothers were enrolled as full-time high school students and all children attended the early childcare centres attached to the TPUs for at least 20 hours per week.

Following ethical approval by the University of Canterbury ERHEC, the language and literacy abilities of the mothers and children, and the non-verbal intelligence skills of the mothers were assessed as a component of the larger group studies in Chapters 3 and 5, via a range of measures. Relevant measures are repeated in this chapter, to provide an understanding of this groups' language and literacy skills. Assessment of the mothers consisted of the Test of Non-Verbal Intelligence (TONI-4; Brown et al., 2010); the Peabody Picture Vocabulary Test (PPVT-4; Dunn & Dunn, 2007); the *Passage Comprehension* subtest of the Woodcock-Johnson Reading Mastery Test (WRMT-3; Woodcock, 2011); and the

Receptive Language Core Language Score and *Expressive Language Word Classes* subtest from the Clinical Evaluation of Language Fundamentals (CELF-4; Semel et al., 2006). Children were assessed via the Preschool Language Scales (PLS-5; Zimmerman et al., 2011). One child and one mother did not complete the assessment due to time limitations, thus 13 data sets are presented for this measure. Table 7.1 presents the mean, standard deviations and ranges of standard scores for all assessment measures. The findings indicate a wide range of language and literacy abilities within the group. The average scores of all measures are within or just below typical performance limits.

Table 7.1: Mother and Child Language and Literacy Measures

	Mean (SD)	Range
Mothers (n=13)		
TONI-4	92.49 (7.77)	85 – 115
PPVT-4	83.00 (9.65)	72 – 101
WRMT-3 Passage Comprehension	84.15 (13.54)	60 – 106
CELF-4 Rec. Lang. Core Lang. Score	80.92 (13.75)	55 – 102
CELF-4 Ex. Lang. Word Classes Subtest	86.15 (16.85)	60 – 105
Children (n=13)		
PLS-5 Total Language Score	92.31 (7.13)	80 – 101

Note. TONI-4, Test of Non-Verbal Intelligence Fourth Edition (Brown et al., 2010). PPVT-4, Peabody Picture Vocabulary Test Fourth Edition (Dunn & Dunn, 2007). WRMT-3, Woodcock-Johnson Reading Mastery Test Fourth Edition (Woodcock, 2011), CELF-4, Clinical Evaluation of Language Fundamentals Fourth Edition (Semel et al., 2006). PLS-5, Preschool Language Scales 5th Ed. Australian and New Zealand Language Adapted Edition (Zimmerman et al., 2011).

7.2.3 Procedures

7.2.3.1 Filming and Transcription

All participant dyads were filmed sharing a book for 4.5 minutes prior to the beginning of the intervention and again during the two weeks following the end of intervention. Film clips were gathered during pre- and post-test phases of the intervention described in Chapter 6. Mothers or children selected their own books from the preschool libraries or brought their own books from home. They were instructed by the primary researcher to “read with your child just as you do at home”.

Filming was completed on an iPad and additional audio was captured on an audio recorder for later splicing with the film clip if required. All shared reading interactions were transcribed according to SALT protocols (Systematic Analysis of Language Transcription; Miller, Andriacchi, et al., 2012) by the primary researcher. Transcription included verbatim coding of all mother and child utterances, book text, and behaviours demonstrated by the participants (for example, ‘child turns page and points to picture’). As the focus of this study was extratextual speech, all book text read verbatim by the mothers was excluded from analysis. In addition, speech unrelated to the story (for example, when a child was distracted by something external to the book) was also excluded from systematic extratextual analysis.

Following initial transcription, 50% (n=14) of transcripts were checked by an independent coder trained in SALT coding protocols, who was blinded to the time point (pre- or post-intervention) allocation. The coder checked for accuracy of transcription and coding of descriptive language features. Any discrepancies were resolved before analysis occurred.

7.2.4 Measures and Analysis

Analysis of language quality and quantity for mothers and children occurred using a number of different methods, which will be described next. All analysis occurred only on the extratextual talk of the shared reading interaction. Any book text and unrelated utterances were excluded from analysis. In addition, discourse-level analysis of the mother's and child's contributions to the shared reading interaction was completed.

7.2.4.1 Language Quantity

Language quantity analysis of shared reading transcripts was analysed using SALT-NZ language analysis software (Miller, Gillon, et al., 2012). Quantity analysis explored the mean length of utterance in morphemes (MLU-m), number of total utterances, and number of total words (NTW) used by mother and child. Results were calculated via the Standard Measures report function from the SALT language analysis software and are presented as means and standard deviations.

7.2.4.2 Language Quality

Language quality analysis was completed using four different measures. Number of different words was calculated via SALT for both mothers and children, using the same method for language quality measures. In addition, number of rare/sophisticated words and context of talk was analysed for mothers, and word classes were analysed for children.

7.2.4.2.1 Rare/Sophisticated Words

Use of rare/sophisticated words by mothers was formulated following a method similar to that described by Weizman and Snow (2001). The Dale-Chall word list (Chall & Dale, 1995) was the basis for identifying all common or high-frequency words used during incidences of extratextual talk. This list comprises of the 3000 words teachers judge most

fourth graders to know. Prior to its use, some modifications were made to the list to make it appropriate for the New Zealand context. Firstly, the list was hand-searched for any spelling differences (i.e. color/colour), and then several additions and replacements were made to words that were judged to be semantically similar to other items in the list (i.e. airplane was changed to aeroplane). These modifications are presented in Appendix 3.

Following modification, the reading transcripts were searched using Adobe Acrobat XI's 'Find and Highlight Words' action. This highlighted all words in the transcripts contained within the modified Dale-Chall word list. Then, transcripts were hand-searched to ensure no words had been overlooked. As per Weizman and Snow (2001) further words were removed from analysis following the initial search. These were as follows: all linguistic forms of a base word contained on the original list; names and other forms of address (i.e. nana, mumma); affirmations and other non-specific responses (i.e. yup, hmm, okay, wow); sound effects and animal noises (i.e. woof, oink, beep beep); and informal contractions (i.e. gonna, wanna). All remaining words were considered rare/sophisticated for the purposes of this analysis.

7.2.4.2.2 *Word Classes*

Children's use of six different words classes (nouns, personal pronouns, verbs, adverbs, adjectives and prepositions) were explored using SALT language analysis software. Frequency of occurrence of each word class was generated via the Grammatical Categories report function.

7.2.4.2.3 *Context of Talk*

A context of talk continuum (Curenton et al., 2008) was modified to examine the type of talk demonstrated by mothers during shared reading interactions. The modified continuum consisted of seven codes, exploring language considered contextualised to decontextualised

in nature. As per Curençon et al.'s (2008) coding matrix, contextualised talk (coded as 'Description' or 'Conveying Meaning') was talk that focused on information present in the immediate story context, such as descriptive labelling or observations of events happening currently in the picture. Intermediate talk (coded as 'Bridging/Recalling', 'Psychological States' or 'Reflection/Evaluation') required active reflection on information not available in the immediate context of the story, but was linked to the immediate context in some way. Decontextualised talk (coded as 'Prediction/Explanation' or 'Print/Story Conventions') required extrapolation from the story to events that have happened or will happen, or talk about abstract concepts not tangibly perceived in the present context.

Three additional codes were added to the coding matrix to measure affirmations, imitations and clarifications. These codes were not included in the analysis. Each conversational turn was coded individually and all book text, uncodeable/ambiguous and transactional statements were excluded from analysis. A conversational turn was defined as all verbalising relevant to a given topic by one speaker before the topic was changed by the current speaker or a new speaker contributed something about the same or a different topic. Each utterance characterising a new occurrence of a code was coded as such, except for repetitions of the same occurrence of the same code within a conversational turn. Book text spoken by the same speaker was not considered a change in conversational turn. Table 7.2 provides a description of the codes and examples. An example of the coding strategy on a transcript excerpt can be found in Appendix 4.

Results are presented as group means and standard deviations for frequency of each type of talk observed during the 4.5-minute transcript. So for example, at pre-intervention, parents made on average of 12.71 descriptive statements per 4.5-minute shared reading interaction.

Table 7.2: Type of Talk Coding Description

Code	Description	Examples
Description (D)	Questions and comments relating to concrete information that is perceptually salient in the picture (e.g. objects, events or characters) or descriptions of objects or events in the story.	What are they doing? Can you feel the shiny wheel? It's a bus.
Conveying meaning (CM)	Talk about the meaning of the words by highlighting what a word or concept means or clarifying the pronunciation of a word. Includes reference to concepts such as colour, quantity, animal sounds, etc.	It's a big one, isn't it? How many are there? There's blue sheep.
Bridging/recalling information (BR)	Connects to everyday, real-life events requiring the remembrance of objects, events or characters that were previously mentioned or talk about similarities and differences.	You're gentle with babies, aye. You do that in the bath.
Psychological states (P)	Addresses a characters thoughts, feelings, motivations or psychological states.	Kitty's sad. He looks angry.
Reflection/evaluation (RE)	Addresses morals (or repercussions for immoral behaviours), judgements about behaviour, and opinions.	That's no good. James is saying sorry.
Prediction/explanation (PE)	Questions and comments relating to events that might happen next or have happened in the past.	It might go in the water. She's been making sandwiches. What happened to the lion?

Print/story conventions (PS)	Comments that instruct the child how to handle the book, highlight features of the book/reading conventions (such as reading the title, author or illustrator, embedded text), or point out features of the print, book or narrative.	Let's turn the page. That says 'stop'. That's the author.
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Other Codes – not included in analysis

Transactional (T)	Used to maintain the flow of the interaction but unrelated to the story content.	What book do you want to read?
Uncodeable (U)	Do not make sense and/or cannot be classified.	C: Oh.
Affirming response (AR)	Non-specific response from child or parent	Hmm. Okay. Good boy.
Imitation behaviour (IB)	Imitation by parent or child of preceding utterance; no added meaning given.	C: Dog. P: Dog/Yes, it's a dog
Clarification (C)	Clarifying question or statement.	Huh? What?

7.2.4.3 Discourse Analysis

A modified version of Fey's (1986) system for coding conversational acts was utilised for analysis at the discourse level. This explored the proportion of different types of statements made by mothers and children during the shared reading interaction. Transcripts were coded for individual incidences of initiation, maintenance, extension and extension-tangential statements, as per Fey's protocol. An additional code was added to the coding protocol, to recognise incidences of re-initiation of the same topic. Table 7.3 provides a description of the codes used.

Results are presented as a proportion of each of the five utterance types using the following equation: number of (type) utterances/total utterances (parent or child) x 100/1.

Table 7.3: Discourse Analysis Coding

Code	Description
Initiate Topic	Utterances that either do not follow a prior utterance, or introduce new information that is not related to information from a prior utterance.
Maintain Topic	Utterances that are related to prior utterance and fulfil the speaker's obligations but add no new, unsolicited information.
Extend Topic	Utterances that are related to a prior utterance and that extend the established topic by adding new semantic details or by shading appropriately to some related topic.
Extend topic – Tangential	Utterances that are related tangentially to some aspect of a prior utterance but do not seem to extend the topic in an adequate manner.
Re-initiate Topic	Utterances that attempt to re-initiate a previously ignored topic.

7.2.5 Intervention

The intervention (described in detail in Chapter 6) was a seven-week programme, designed to target a range of emergent literacy skills parents could use when engaging in shared reading interactions with their children. The intervention took place within the classroom environment of the TPUs. Each session was 1.5 hours long and targeted a different topic related to shared reading and literacy development. The first two sessions focused on increasing the parents' knowledge of the language and literacy development of their children, and how to choose an appropriate book for their child's age and interests. The following four sessions directly targeted increasing the parents' skills in four key areas (vocabulary, letter/sound awareness, book conversations, and book and print awareness). The final session provided a summary, where the key points from the intervention were discussed and clarified

and parents shared their challenges and positive experiences of implementing the strategies with their children. Due to the range of language and literacy abilities identified in the group of parents, the intervention was designed to be largely interactive, with the extensive inclusion of modelling, role-play and practical group activities. The language comprehension complexity of the intervention was kept intentionally low, in order to make the content accessible to the range of abilities within the group of parents.

7.2.6 Reliability

Following extratextual coding, 20% (n=7) of transcripts were checked by an independent coder, blinded to the time point allocation, and trained in the coding protocol. Inter-rater reliability was calculated using the Pearson r correlation coefficient. Reliability was high, with a strong positive correlation of $r=.99$, $n=140$, $p< 0.01$. Any discrepancies between the rater and the primary researcher were resolved prior to analysis.

7.3 Results

7.3.1 Quantity of Talk

Analysis of the quantity of extratextual talk was completed using non-parametric Wilcoxon Signed Rank tests, to compare quantity of language used during a shared reading interaction before and after participation in the emergent literacy intervention. Results, as presented in Table 7.4, indicate a statistically significant increase in total extratextual utterances and total number of words spoken by mothers and children. No significant change was noted for either mother's or children's MLU-m, with children's mean MLU-m decreasing slightly. Medium effect sizes were observed for all significant measures.

Due to the observed decrease in children's MLU-m, a closer examination was completed of the individual participants' change from pre- to post-intervention. Table 7.5

presents the children's MLU-m and how these related to age-expected measures as per Brown's stages (1973). This individual analysis indicates six out of 14 children increased their MLU-m from pre- to post-intervention. Of this six, four children increased their MLU-m but remained outside of the range expected for their age, and one child increased their MLU-m to bring them within the expected performance for their age. The remaining child increased their MLU-m but was already performing beyond the range expected for his age at pre-intervention.

Four children were performing within age range at pre-intervention, but reduced their MLU-m at post-intervention to below age expectations. One child decreased their MLU-m slightly, but remained within age expectations. Two children decreased their MLU-m at post-intervention, and were below age expectations at the pre-intervention time point as well.

The remaining child decreased their MLU-m considerably from 8 to 2.29, from pre- to post-intervention. A closer examination of this child's pre-intervention transcript indicates their MLU-m was calculated on a single extratextual utterance ("why does he not have sock/s on"), which explains the considerable difference in MLU-ms.

Table 7.4: Mother and Child Quantity Language Measures

Speaker	Measure	Pre-intervention		Post-intervention		<i>z</i>	<i>p</i>	<i>r</i>
		Mean	SD	Mean	SD			
Mother	MLU-m	2.88	0.89	2.97	0.58	-.565	.572	0.11
	Total utterances	44.29	22.77	57.71	21.59	-2.261	.024*	0.43
	No. Total words	118.21	64.51	170.86	69.19	-2.272	.023*	0.43
Child	MLU-m	2.26	1.71	1.77	0.51	-.408	.683	0.08
	Total utterances	17.93	12.87	25.93	14.98	-2.293	.022*	0.43
	No. Total words	28.64	19	40.79	22.47	-2.273	.023*	0.43

* $p < 0.05$.

Table 7.5: Child Post-Intervention MLU-m – Comparison with Brown (1973)

Child	Gender	Age	MLU-m Pre	MLU-m Post	MLU-m Mean	MLU-m Range	Within expected range at post?
XB	m	19	2	1.76	1.75	1.5-2	Y
BC	f	19	1.25	1.09	1.75	1.5-2	N
JJ	m	19	1.75	1.43	1.75	1.5-2	N
CS	m	19	1.57	1.25	1.75	1.5-2	N
RG	m	20	3	1.40	1.75	1.5-2	N
KB	f	20	1.26	1.61	1.75	1.5-2	Y
HC	m	25	2.24	2.64	1.75	1.5-2	Y
MM	m	26	1.93	1.38	1.75	1.5-2	N
KS	m	27	1.48	1.55	1.75	1.5-2	Y
MS	f	28	1.42	1.74	2.25	2-2.5	N
PC	f	30	1.86	2.16	2.25	2-2.5	Y
NO	m	31	1.91	1.72	2.25	2-2.5	N
LM	m	39	2	2.76	2.75	2.5-3	Y
MN	f	46	8	2.29	4	3-4.5	N

Note: MLU-m = mean length utterance in morphemes. Age in months.

7.3.2 Quality of Talk

Analysis of the number of different words was completed using a non-parametric Wilcoxon Signed Rank test, to compare change from pre- to post-intervention. Table 7.6 presents these results and indicates there was a statistically significant increase in the amount

of different words used by both mothers and children. A closer examination of this change was completed for mothers using an analysis of rare/sophisticated words, and for children, using an analysis of word classes.

Table 7.7 describes the change in mothers' use of rare/sophisticated words from pre- to post-intervention. The results indicate an increase in the total number of rare/sophisticated words used by mothers from 27 at pre-intervention to 42 at post-intervention. There was also an increase in the number of individual mothers using rare/sophisticated words, with 100% of the cohort using at least one rare word during their extratextual utterances at post-intervention. Of the total words produced by mothers at pre- and post-intervention, 1.63% and 1.76% of them were rare/sophisticated, respectively. Appendix 5 provides a list of the rare/sophisticated words used during pre- and post-intervention reading interactions.

Children's quality of language was investigated closer using an analysis of the types of word classes they used during pre- and post-intervention reading interactions. Six word classes were selected: nouns, personal pronouns, verbs, adverbs, adjectives and prepositions. The results in Table 7.8 demonstrate the mean frequency of use of all six of these word classes increased from pre- to post-intervention. Over half of the group increased their use of nouns, pronouns, and verbs, and over a third of the group increased their use of adverbs, adjectives and prepositions. Nouns were the most frequently used word class, followed by verbs.

Table 7.6: Mother and Child Quality Language Measures

Speaker	Measure	Pre-intervention		Post-intervention		<i>z</i>	<i>p</i>	<i>r</i>
		Mean	SD	Mean	SD			
Mother	No. Different words	49.93	0.16	75.79	5.72	-2.731	.006**	0.52
Child	No. Different words	15.00	8.46	24.71	12.62	-2.671	.008**	0.50

**p* = < 0.05. ** *p* = < 0.01

Table 7.7: Mothers' Use of Rare/Sophisticated Words

Time	Total number of unique rare/sophisticated words used	Group Mean	Group SD	Group Range	# mothers using rare/sophisticated words	% total words that were rare/sophisticated
Pre	27	2.07	1.69	0-5	n=11 (78.5%)	1.63%
Post	42	3.36	2.56	1-10	n=14 (100%)	1.76%

Table 7.8: Children's Use of Word Classes

Word Class	Pre			Post			% positive change
	Mean	SD	Range	Mean	SD	Range	
Nouns	13	9.27	0-28	17.79	10.79	4-41	71%
Pronouns	0.79	1.05	0-3	1.21	1.42	0-4	50%
Verbs	2.14	1.70	0-5	4.5	3.74	0-11	71%
Adverbs	0.57	0.94	0-3	0.93	1.07	0-4	43%
Adjectives	1.14	1.61	0-5	2	2.32	0-8	36%
Prepositions	0.14	0.53	0-2	0.64	0.84	0-2	36%

The final exploration of language quality was completed via an analysis of the type of talk mothers used. Table 7.9 reports the means and standard deviations of types of extratextual talk before and after the intervention. Non-parametric Wilcoxon Signed Rank tests were used to investigate the change in the types of extratextual talk used at pre- versus post-intervention. At both pre- and post-intervention, mothers showed a consistent preference for frequent use of contextualised talk (categorised as ‘description’ and ‘conveying meaning’) during shared reading. Changes in mean scores for all types of talk increased. The exception to this was talk which referenced the psychological states of characters, which decreased. Mothers’ use of descriptive talk and talk pertaining to predictions/explanations increased significantly, $z=-2.555$, $p=0.11$ and $z=-2.003$, $p=.045$, respectively. Small to medium effect sizes were observed for changes in six of the seven types of talk.

When examining the percentage of mothers who increased their use of types of talk, over 50% of the cohort increased their use of descriptive, conveying meaning, bridging/recalling and print/story talk. Over 30% of the cohort increased their use of predication/explanation talk.

7.3.3 Discourse Analysis

The proportion of talk in the five categories was examined for changes in response to intervention using non-parametric Wilcoxon Signed Rank tests (see Table 7.10). Following intervention, children were observed to use significantly fewer initiative statements ($z=-2.040$, $p=.041$). Changes to children’s use of maintenance statements neared significance ($z=-1.915$, $p=.056$), with medium effect sizes. Mothers demonstrated an increase in their use of extending statements post-intervention, and this increase neared significance ($z=-1.915$, $p=.056$), with a medium effect size.

Table 7.9: Mothers' Extratextual Talk

Type of Talk	Pre-intervention		Post-intervention		% participants demonstrating change	<i>z</i>	<i>p</i>	<i>r</i>
	Mean	SD	Mean	SD				
Description	12.71	7.00	18.57	8.46	71% (n = 10)	-2.555	.011*	0.48
Conveying Meaning	3.64	3.27	5.21	4.44	64% (n = 9)	-.975	.330	0.18
Bridging/recalling	0.79	1.58	1.43	1.09	64% (n = 9)	-1.677	.093	0.32
Psychological states	0.36	1.34	0.21	0.43	14% (n = 2)	.000	1.00	0
Reflection/evaluation	0.14	0.53	0.36	1.34	7% (n = 1)	-1.000	.317	0.19
Prediction/explanation	0.29	0.47	1.07	1.54	36% (n = 5)	-2.003	.045*	0.38
Print/story	1.36	2.06	1.79	1.93	57% (n = 8)	-.554	.579	0.10

* $p < 0.05$.

Table 7.10: Mother and Child Proportion of Talk

Speaker	Measure	Pre-intervention		Post-intervention		<i>z</i>	<i>p</i>	<i>r</i>
		Mean	SD	Mean	SD			
Mother	Initiation	45.6	20.6	40.7	8.3	-.910	.363	0.17
	Maintain	46.3	14.1	44.0	10.0	-.345	.730	0.06
	Extend	7.7	12.7	14.0	8.3	-1.915	.056	0.36
	Extend - Tangential	0.0	0.0	0.1	0.4	-1.342	.180	0.25
	Re-initiation	0.4	0.9	1.0	1.8	-1.214	.225	0.22
Child	Initiation	44.7	21.7	28.5	14.0	-2.040	.041*	0.38
	Maintain	53.4	20.9	68.3	13.8	-1.915	.056	0.36
	Extend	0.9	1.9	1.8	2.9	-.845	.398	0.16
	Extend - Tangential	0.2	0.8	0.6	1.2	-.730	.465	0.14
	Re-initiation	0.8	2.9	0.9	1.8	-.365	.715	0.07

* $p < 0.05$.

7.4 Discussion

The primary aim of this study was to investigate the change in the quality and quantity of extratextual talk used by teenage mothers following participation in a parent-focused emergent literacy intervention. Analysis examined the quantity and quality of language used and explored the mother's and child's contributions to the shared reading interaction via discourse analysis. In line with the hypothesis for the first research question, a trend for mean increases in quality and quantity of talk from pre- to post-intervention was noted. With regards to research question two, there were selective changes observed in the mother's and child's contribution to the interaction via the discourse analysis completed.

The first research question was interested in the change in quantity and quality of talk used by mothers and children. These areas will be addressed consecutively.

7.4.1 Quantity of Talk

A significant increase was observed in quantity of talk with regards to both number of total utterances and number of total words (word tokens). This indicates mothers and children produced more statements beyond the text in the book during shared reading interactions. This may be because mothers had increased confidence in moving beyond the text of the book when reading with their children due to a greater understanding of the developmental value of enriched shared reading interactions. It may also reflect their increased use of emergent literacy strategies targeted in the intervention, such as describing the picture, asking questions, and referencing features of the book, which were captured from these measures of quantity. Nevertheless, the children in this study received a greater input of language quantity following intervention, which may have positive impacts on their language development. Frequent and varied exposure to words is essential for lexical acquisition (Huttenlocher et al.,

1991), which later impacts on receptive and expressive language competency. Hart and Risley's (1995) results demonstrated the particularly important role parental input into children's vocabulary development can have, and how this can be even more important for children from low-SES backgrounds. This increase in quantity of conversation beyond the text of the book may also suggest the mothers developed a more positive belief of the importance of shared reading (DeBaryshe, 1995).

No significant change was observed in the mother's MLU-m, and while not statistically significant, the children's MLU-m decreased slightly. A closer examination indicated that the children's decrease in MLU-m was not demonstrated by all participants, and MLU-m following intervention was varied. For example, almost half of the children (n=6) were observed to increase their MLU-m during the reading interaction.

7.4.2 Quality of Talk

Quality of talk also increased following intervention. In particular, mothers and children used a significantly greater number of different words (word types). Others have found strong correlations between word types and word tokens (Huttenlocher et al., 2010), so given the increase observed in the total number of words, this finding is to be expected. An increase in word types during parent/child interactions has shown to be related, with the more different words a parent uses, the more different words the child will also use (Huttenlocher et al., 2010). This shared increase in word types was observed in the current study. Children's exposure to a greater number of different words is a significant predictor of language development (Huttenlocher et al., 2010; Rowe, 2012). This is perhaps even more important given the current sample of children presenting with increased risk for later language difficulties. Huttenlocher et al. (2010) also observed that parental language input can mediate the effect of SES on children's language. The mothers in this study were from low-SES

backgrounds, thus, increasing language input during shared reading may be a protective factor in supporting their children's development.

The current study also chose to examine in more depth whether the increase in word types and tokens equated to a richer use of language by mothers and children. Mothers' language richness was examined via use of rare/sophisticated words, and children's via use of word classes. Results demonstrated that following intervention, mothers were using a greater number of rare/sophisticated words during shared reading interactions. In a low-SES sample of 53 mothers, Weizman and Snow (2001) found that rare/sophisticated word input across five contexts was greatest during mealtimes, with 1.38% of total words produced in this context being rare/sophisticated. During the storybook context, only 0.25% of the words heard by children were considered rare/sophisticated. When including rare/sophisticated words drawn from the book text, as the current study did, this percentage increased to 1.49%. Despite this seemingly low percentage of rare/sophisticated word exposure, Weizman and Snow's (2001) findings demonstrated that there is a powerful relationship between early exposure to sophisticated vocabulary in the preschool years and vocabulary performance in second grade. This increase in exposure to rare/sophisticated words is promising for this population of children, who are more likely to experience delays in their language development and come from home environments with a tendency to be less rich in language input (Lacroix et al., 2002; McDonald Culp et al., 1996).

Children's use of word classes also increased following intervention. Results demonstrated the group more frequently used all six word classes. This suggests that alongside more frequent naming, children were also contributing more to the interaction in a more descriptive manner through their increased use of word classes such as adjectives and verbs. Increased word class knowledge and use is suggestive of vocabulary growth and

provides children with greater opportunities to make semantic combinations (Kaderavek, 2015).

Some patterns emerged with regards to use of individual types of talk. For example, mothers consistently showed a preference for talk of a more contextualised nature (such as talk that describes and conveys meaning) at pre- and post-intervention. This finding is consistent with other reports of mothers' preference for descriptive-style talk (e.g. Haden et al., 1996). Growth in the amount of decontextualised talk, specifically 'prediction/explanation', was also observed. Exposure to greater amounts of decontextualised talk provides children with a more cognitively challenging and richer language experience during shared reading, which are factors associated with positive impacts on language abilities (Britto et al., 2006; Haden et al., 1996; Rowe, 2013). While presenting with some statistically significant increases, the overall shift in means in all types of talk was small. Some reasons for this relatively small increase despite the considerable increases demonstrated by other language measures can be hypothesised. Mothers may not have had sufficient knowledge or confidence to utilise decontextualised talk during shared reading, as has been shown in other studies of decontextualised talk in low-SES and teenage mothers (Britto et al., 2006; Morgan & Goldstein, 2004). Decontextualised talk was not a specific focus of the intervention, suggesting that for mothers to use this type of talk frequently during shared reading, a more specific intervention focus may be required. Further, use of decontextualised talk has also been associated with the mother's literacy skills (Britto et al., 2006; Curenton et al., 2008). The mothers in this study presented with a wide range of literacy skills, which may have been another factor limiting their use of this advanced type of talk.

Nevertheless, the increase in both quantity (number of words and utterances) and quality (number of different words and use of rare/sophisticated words) of talk indicate

mothers exposed their children to more frequent and higher quality language during shared reading interactions following attendance to the emergent literacy intervention. This information is notable as language quality and quantity during shared reading as an intervention outcome has not previously been given much attention in the literature. These results suggest this is an important angle to examine as it may provide information on changes occurring at a level not previously captured by behavioural observations. These findings have important implications for improving the language and literacy environment children of teenage mothers are exposed to and potentially helping to mitigate the increased risk for delayed development they may otherwise experience.

7.4.3 Discourse Analysis

The second research question explored the change in mother's and child's contributions to the shared reading interaction at the discourse level. Discourse analysis of the interactions revealed a selection of positive changes. Mothers were observed to use more extension comments, which added new semantic details to an already established topic. In contrast, maintenance comments (i.e. comments which fulfil the speaker's obligations but add no new information) decreased slightly.

Post-intervention, children were observed to be more willing and engaged participants in the interaction, evidenced by a near significant increase in their use of maintenance comments. This required the children to attend to their reading partners' statements and consider the information presented when formulating their own responses. Following intervention, children spent more time during the interaction engaged in maintenance and extension comments, than initiations, re-initiations, or tangential comments. Further, this shift in the proportion of conversational maintenance acts (maintain and extend comments) indicates children were becoming more involved in the shared reading experience

and contributing to an extended conversation around a topic, rather than initiating something new. According to Fey (1986), relatively large proportions of maintenance and extension comments in an interaction indicate a child's willingness to participate and attend to their reading partner's conversational acts. This is also suggestive of a child's development of more advanced discourse skills; a child demonstrating high levels of initiations of new topics or tangential responses is less aware of and engaged in the exchange with their parent. This shift in children's participation during reading could be in response to the mother's growing awareness of how to create an engaging and enjoyable shared reading experience that is developmentally appropriate for the child. It may also be due to the mother's increased use of language requiring more input from the child, as evidenced by the greater amount of talk requiring predictions and explanations.

7.4.4 Limitations

This study would have benefited from a greater sample size and the utilisation of a randomised sample with control group. This would have added greater strength to the methodological design and allowed a more thorough analysis of the quality and quantity of talk used by teenage mothers who have attended the emergent literacy intervention.

7.4.5 Conclusion

As discussed previously, language input in the home is a significant predictor of children's language development (Hart & Risley, 1995; Huttenlocher et al., 2010; Rowe, 2012). In addition, frequent, high-quality shared book reading is known to provide an optimal environment for children to gain essential pre-literacy and language skills for school entry (Dickinson, Griffith, Golinkoff & Hirsh-Pasek, 2012). The promising results of the current intervention suggest meaningful changes in the language used during shared reading interactions can be made when targeting emergent literacy skills. Of particular note is the

occurrence of this in a population whose children are at risk of having language and literacy delays. Further, these changes in language use may not have been captured if the intervention outcomes focus solely on behavioural improvement. Future interventions may wish to include microanalytic language analysis in order to better understand this important shift in language use.

Chapter 8

Discussion

8.1 Introduction

The research reported in this thesis investigated the language and literacy development of New Zealand teenage mothers and their young children. The home literacy environment experienced by children was described, the language and literacy skills of mothers and language and development of children were reported, and specific interventions to facilitate literacy and language development were explored. Specifically, four broad aims were addressed in this thesis:

1. Describe the home literacy environments provided by teenage mothers.
2. Describe the language and literacy skills of teenage mothers, and the language and development of their children.
3. Evaluate the effectiveness of an intervention designed to improve the literacy skills of teenage mothers.
4. Explore the impact of an emergent literacy intervention for teenage mothers on their behaviour and language use during shared reading interactions with their young children.

In order to address these research aims, a series of six studies was conducted. The following section briefly describes the research methodology of each study. As comprehensive discussions were included in each data chapter, the following sections revisit the main discussion points with regards to the research questions.

8.2 Research Methodology

8.2.1 Study One – The Home Literacy Environments Provided by Teenage Mothers

This study, described in Chapter 2, employed an online survey to explore the home literacy environments provided by 41 teenage mothers who attended a Teen Parent Unit (TPU) in New Zealand. The survey was modelled on and adapted from the Developing Literacy Questionnaire from van Bysterveldt and colleagues (van Bysterveldt et al., 2008). It included 22 questions covering four broad themes associated with home literacy environments. These were Reading and Screen Behaviours; Reading Enjoyment and Challenges; Skills for School; and Parent Role. The findings provided qualitative and quantitative information on the home literacy environments provided by teenage mothers in New Zealand.

8.2.2 Study Two – Language and Literacy Skills of Teenage Mothers

This descriptive study, reported in Chapter 3, investigated the language and literacy skills of 41 teenage mothers enrolled in two TPUs in New Zealand. A comprehensive assessment battery was administered by a qualified Speech-Language Pathologist that assessed non-verbal reasoning, language, vocabulary, and literacy skills. The data provided descriptive information on the language and literacy skills of this group, and enabled identification of a low-achieving group who were selected to participate in a targeted literacy intervention.

8.2.3 Study Three – A Multi-Component Literacy Intervention for Teenage Mothers

This experimental study, described in Chapter 4, utilised a pre-/post-test research design with a comparison group to investigate the impact of a multi-component literacy intervention on teenage mothers' literacy skills. Participants were identified from the

comprehensive assessment battery described in Study Two, and 10 eligible mothers participated in the literacy intervention. The intervention was multi-component in nature and aimed to target a broad range of literacy skills identified as insufficient by the comprehensive assessment battery. The key intervention targets were vocabulary, morphological awareness, spelling, oral reading fluency and reading comprehension. Results of the research cohort on a range of standardised and researcher-developed assessments were compared to a comparison cohort of 13 mothers who did not complete the intervention.

8.2.4 Study Four – Language and Development of Children of Teenage Mothers

This descriptive study, presented in Chapter 5, explored the language, literacy and development progression of 36 children of teenage mothers. A comprehensive assessment battery was administered by a qualified Speech-Language Pathologist and assessed language and development on two standardised measures. Further information on the language development of children was gathered via parent-report measures of vocabulary development and analysis of play-based language samples. The data provided descriptive information on the language and developmental progression of this group.

8.2.5 Study Five – A Parent-Focused Emergent Literacy Intervention for Teenage Mothers

This experimental study, described in Chapter 6, employed a pre-/post-test research design with comparison group to investigate the impact of an emergent literacy intervention on the reading behaviours of 27 teenage mothers. The intervention targeted four key areas of emergent literacy (vocabulary, letter/sound awareness, book/print concepts and questioning) during a seven-week long intervention. The research cohort were compared to a comparison group (n=10) to ensure reading behaviours displayed by the research participants were commensurate to a similar population of teenage mothers. The results tracked changes in

behaviour displayed during shared reading videos with their young children. In addition a short survey was utilised to track changes in mothers' perceived use of reading strategies before and one year after completing the intervention.

8.2.6 Study Six – Teenage Mothers' Use of Extratextual Talk During Shared Reading

This descriptive study, presented in Chapter 7, explored the change in the linguistic and interactive features of 14 mothers and children's shared reading interactions following attendance of the emergent literacy intervention described in Study Five. Changes in language quantity and quality were explored, in addition to a discourse-level analysis of the mother's and children's contributions to the shared reading interaction.

8.3 The Home Literacy Environments Provided by Teenage Mothers

The first question the experiments addressed was to describe the home literacy environments provided by New Zealand teenage mothers. Evidence was provided by Study One, presented in Chapter 2. Considered from the perspective of Bronfenbrenner's ecological systems model (1992), this study explored the individual (mother and child) at the centre of the model, and the experiences provided to the child in the form of the home literacy environment.

Analysis of the survey data provides some interesting insights into the priorities of teenage mothers with regards to their children's reading achievement and how these translate into home practices. The data suggested teenage mothers read with their children as frequently as other families from low-SES backgrounds (Bracken & Fischel, 2008). The findings also suggested that the teenage mothers were aware that shared reading is an important experience for children. However, there were some areas where teenage mothers would benefit from enhancing their knowledge of reading development. For example,

mothers reported to place much less emphasis on their own reading with regards to time spent participating in the activity and amount of resources (captured by book ownership). They also reported infrequent use of the library. These behaviours may inadvertently portray to their children that reading is not a valued task, worthy of prioritisation. Further, their children may lack models of how reading is an essential component of many aspects of life, beyond the sharing of children's stories as an activity. Research into maternal beliefs on reading suggests that the mother's own perceptions and attitudes towards reading play an important role in their children's later language and literacy development (Bingham, 2007; Cottone, 2012; Curenton & Justice, 2008). It is important to consider how a person's intrinsic values and beliefs may influence their external behaviour and what flow-on effect this can have on their children. This is especially relevant given the intergenerational nature of literacy transmission and the risk profile displayed by teenage mothers.

Mother's knowledge regarding developmentally appropriate behaviours for young children during shared reading interactions is another area worthy of consideration. Respondents' comments regarding what they found difficult about reading with their children indicated they may not have an understanding of how young children participate in reading interactions and what they may be gaining from such experiences. Previous studies on teenage mothers have shown that they have limited knowledge of basic child development (Ryan-Krause et al., 2009), and this is further supported by the statements made by mothers in the survey. Mothers who lack knowledge of developmental norms for children may be less able or willing to provide their children with quality shared reading experiences. For example, one mother reported that her child always wanted to turn the page before it was read. This is very typical behaviour of a young child who is developing an awareness of books. However, this mother may interpret this as disinterest or find the behaviour frustrating, and consequently decide to not persist with shared reading as an activity. Lack of

understanding with regards to child development can have flow-on effects into parent-child interactions, which may lead to a reduction in activities important for children's development, such as shared reading.

Taken together the survey data suggests that with regards to shared reading, teenage mothers are a motivated and aware population who recognise the importance of the activity for their children. However, they appear to lack some fundamental knowledge of child development, and other aspects that may influence their child's literacy development. This includes things such as the importance of a rich home literacy environment, the role of intrinsic values and beliefs, and how their own behaviour can influence future outcomes. These findings suggest support may need to occur at the microsystem level (Bronfenbrenner, 1992), to effect change at the individual level of the home literacy environment.

8.4 Language and Literacy Skills of Teenage Mothers and their Children

The second question the research addressed was to describe the language and literacy skills of teenage mothers and the language and developmental progression of their children. Evidence for this was provided by Studies Two and Four, presented in Chapters 3 and 5.

8.4.1 Parent Skills

Analysis of the data collected in Study Two provided evidence that New Zealand teenage mothers enrolled in an educational facility present with a range of language and literacy skills. No one profile of literacy difficulty was able to accurately describe the group's skills. This data was unique to existing studies in that its primary aim was to collect detailed information on the language and literacy skills of teenage mothers. Some other studies have included one-off measures of one specific literacy skill (Bennett et al., 2013; Burgess, 2005; Oxford & Spieker, 2006) or report educational attainment data, such as years of schooling

completed or highest qualification (Fergusson & Woodward, 2000; Gibb et al., 2014). This study presented the first attempt to build a detailed profile of the language and literacy skills of this group.

The assessment results demonstrated a wide range of abilities across all language and literacy measures. There were participants who performed well below average to above average for their age across all measures. While background and circumstances may indicate teenage mothers are at-risk of underachieving in education, this range of abilities clearly indicates this is not the case for all. However, a considerably greater proportion of participants fell below average ranges than what would be anticipated by normal population distribution (16%) across measures. For example, 60% of the group were below average on their vocabulary measure, almost half (49%) demonstrated difficulties with receptive language, and between 41 and 61% of participants were below average on measures on word reading, and both word level and passage level comprehension.

It is important to consider reasons as to why this considerable range of skills exists within this relatively small group of mothers, and what this may mean for the population as a whole. While beyond the scope of the current study, an accumulation of existing literature suggests teenage mothers come into parenthood from a variety of backgrounds and present as a heterogeneous group in many ways. Some consistent risk factors are clearly identified, such as low maternal education level, low SES, coming from a single parent family and high levels of parental change (Woodward, Fergusson et al., 2001). However, this does not necessarily suggest that all teenage mothers have experienced this history. A more comprehensive and holistic examination of the population may provide greater insight into the characteristics of teenage mothers and enable understanding of the reasons behind their lack of language and literacy skills.

The results showed the cohort had a relative strength in non-verbal reasoning. Only 7% of mothers (n=3) were considered below average in their performance, which is much less than an expected population normal distribution. This data suggests that these mothers are not inherently challenged or learning disabled in general. Instead, they present with a very specific profile of language and literacy difficulties. While it is difficult to ascertain when or why these difficulties arose, results such as these provide clear guidelines for where to intervene. One question to consider is whether these difficulties arose from an interruption to education due to early pregnancy, or whether they were the cause of a cascade of risk-taking behaviours which led to early pregnancy. It is likely, given the heterogeneous nature of the population, that both causes were present among individuals within the group.

8.4.2 Child Skills

The data collected in Study Four suggests children of these teenage mothers present with a similar profile of variability with regards to their language and development. Similar to their mothers, a wide range of skills was observed, particularly in the area of language. Developmental profiles and vocabulary development measured via parent report presented a much more constrained range of skills.

With regards to language development (measured via a clinician-completed assessment), children's skills were assessed to fall from well below average to above average in both receptive and expressive language. In addition, an interesting discrepancy arose between the younger and older cohort. The younger cohort presented with a much greater range of skills and lower overall means. Comparatively, the older cohort's group means were within average range on all measures and did not present with such great variation in their range of scores. Other studies describing the language development of children of teenage

mothers via standardised assessment have found similar variability (Luster & Vandenbelt, 1999; Oxford & Spieker, 2006).

A different profile arose with regards to the children's general development (measured via parent-report). Results of this assessment suggested as a group, children performed within or above average range for all four subtests. Ranges were also skewed to the upper end of the scale, positioning more children above or well above average. No notable differences were observed between age groups (younger versus older). While language and general development are not necessarily correlated with each other, even the domain including questions on communication (Conceptual) was incongruent to the results demonstrated by the clinician-administered language assessment. Mothers also completed a measure of their children's vocabulary development via the CDI. Results were similar to those measuring general development, with the majority of the sample performing above or well above average compared to normative data.

There is some suggestion in the literature that parents with low education tend to underrate their children's abilities on standardised measures (Arriaga et al., 1998). While it is difficult to determine which assessment more accurately captures the skills of the children, mothers who completed the developmental profile and vocabulary measure may have overinflated their children's abilities, or, were less adept at accurately recognising or describing their children's skills. Ryan-Krause et al. (2009) determined that teenage mothers varied in their abilities to assess their child's development and suggested a need for greater education on child development within this population.

Another aspect to consider with regards to children of teenage mothers is their long-term outcomes. Existing evidence suggests children of teenage mothers have lower language abilities, greater incidences of behavioural challenges and cognitive delays, increasing their

risk of learning problems and educational underachievement (Fergusson & Woodward, 1999; Keown et al., 2001). However, does this necessarily lead to ongoing negative outcomes, or, do children of teenage mothers just have different trajectories than children of older parents? Evidence is conflicting with regards to this question. Francesconi (2007) found that being born to a teenage mother was usually associated with worse outcomes for children (e.g. lower familial income, lower chance of higher education attainment, increased chance of teenage childbearing). Levine et al. (2000) and Shaw et al. (2006) also found negative correlations between teenage childbearing and children's academic outcomes. However, controlling for socioeconomic and demographic characteristics explained almost all of these associations. One exception to this was reading ability (Shaw et al., 2006), which was not able to be explained by background or demographic characteristics.

The findings from these two studies provide detailed information on the language and literacy abilities of teenage mothers and their children, and enable the development of effective interventions to target identified needs.

8.5 The Effectiveness of a Multi-Component Literacy Intervention for Teenage Mothers

Study Three in this thesis examined the effectiveness of an intervention to improve the literacy skills of a low-performing group of mothers identified in Study Two. Targeting the mothers at the microsystem level (Bronfenbrenner, 1992), the immediate effects of the intervention were examined to determine whether the skills of teenage mothers struggling with literacy were able to be improved through implementation of a multi-component, multi-media intervention, based in the classroom. Evidence for this was provided by Study Three, presented in Chapter 4.

The findings demonstrated that limited impact was made on mothers' literacy skills following this intervention. This was observed both within the group (from pre- to post-intervention), but also when compared to a comparison group. One notable feature of the intervention programme was its multi-component design, meaning a variety of literacy skills were targeted both within and between sessions. Multi-component interventions have previously been shown to be effective with adolescents (Edmonds et al., 2009), but this was not the case with this study. It is worthy to note that previously reported multi-component literacy interventions only included two components. This study's intervention targeted up to five different aspects of literacy, spread over a number of sessions. Taken together with the variable attendance rates of the research cohort, some participants potentially received a very watered-down and irregular intervention, which may have influenced the degree of change observed within the group. The exception to this was the measure of morphological awareness. This was an area given more consistent attention within the intervention and also differed from other areas targeted in that it focused on instruction of a strategy (deciphering the meaning of a word based on its constituents), rather than pure skill acquisition (such as teaching a specific vocabulary term). It could be hypothesised that there was not enough of a focus on strategy instruction required to impact change in this group. The exception to this was morphology, which showed positive change in response to a strategy-focused approach. The intervention utilised a large number of activities to target underlying skills, but gave the participants limited opportunity to understand why and how these were being taught. Greater integration of why particular skills are important and how they will contribute to greater reading success may have been necessary with this older group. In addition, morphologic awareness was measured by a researcher-designed probe that did not rely on session attendance to correctly answer specific items. This measure may have been more sensitive at capturing change, over the standardised measures as suggested by Edmonds et al. (2009).

Student motivation and engagement has also been reported as an important characteristic of effective interventions with adolescent readers (Kamil et al., 2008). The current intervention was anecdotally enjoyable and engaging for participants, but was not able to effect change within the group on most literacy measures. The use of films as the literacy medium was clearly enjoyable for the group, and could be considered less threatening than a traditional book, especially for those participants with a history of underachievement in this area. Much of the extant work on adolescent literacy focuses on learners improving their ability to better engage with and achieve at an academic level. Teenage mothers may require more support to shift their perceptions of self as a literacy consumer while also targeting their ability to achieve academically. The development of a positive literacy identity is perhaps even more important for teenage mothers, who are simultaneously raising a vulnerable literacy learner. Maternal reading beliefs have been linked to children's language and literacy development, and the quality and frequency of shared reading interactions (DeBaryshe, 1995). Future interventions may wish to continue to use film as an engaging, familiar and non-threatening medium to approach literacy learning, but also provide a greater focus on using strategic instruction within its context.

8.6 The Effectiveness of a Parent-Focused Emergent Literacy Intervention for Teenage Mothers

The final questions addressed the effectiveness of an emergent literacy intervention in changing mother's behaviour and language during shared reading interactions with their children. This intervention was also targeted at the microsystem level, through the utilisation of the school environment as the context for the intervention to occur, Any changes were expected to occur at the individual level, and through the interaction between the individual

and their microsystem (referred to as the mesosystem) (Bronfenbrenner, 1992). Evidence for this was provided by Studies Five and Six, reported in Chapters 6 and 7.

The intervention results suggested it was effective at changing both the behaviour and language use of teenage mothers when they read with their young children. Most notably, mothers more frequently demonstrated behaviour that supported their child's vocabulary, book/print concepts and language development (through use of questioning). In addition, meaningful changes were observed in both the quality and quantity of language mothers used. These changes are particularly promising for children's language and literacy development, and even more so given the at-risk nature of the research cohort.

The findings from the current study are similar to other parent-focused emergent literacy interventions, which have also demonstrated behavioural change. In particular, existing interventions have been shown to be effective at changing the way parents read to their children - change which is typically isolated to the area focused on in the intervention (Reese et al., 2010). This thesis was unique in that it first demonstrated this positive effect in behaviour with a group of teenage mothers, and then examined in detail the language quality and quantity that changed in response to an emergent literacy intervention. Language input is an important aspect predicting children's language development and varies considerably between different SES groups (Hart & Risley, 1995; Hoff, 2003; Huttenlocher et al., 2010). Demonstrating that meaningful and significant changes can be made in the language used by teenage parents during shared reading interactions with their young children has potential positive implications for an enriched home language environment in general.

It is important to consider what aspects of the current intervention that may have led to its success. Gaining a thorough insight into the language and literacy needs of the target population enabled the development of an intervention that catered to their learning needs.

Specifically, the intervention included a number of different modules, utilised multiple teaching strategies within one session (e.g. modelling, role-playing, didactic teaching, use of video, and a creative activity) and was developmentally appropriate for the group. This created a fun, interactive and non-threatening context for learning to occur, which led to greater motivation and engagement with the content. Further, knowing the language abilities of the group were variable, the language load was purposely kept low, in order to make the content accessible to the entire group. The intervention also used a collaborative approach to learning, where mothers were given the opportunity to share their own experiences and problem-solve through each other's challenges. The facilitator led the sessions and guided the content, but didactic teaching was only a small component of the overall session, so as to recognise the mothers' existing knowledge of their own children. This created respect within the group and towards the facilitator, which further enhanced engagement with the intervention. Whilst maintaining the characteristics (e.g. teaching strategies and programme design) shown to be effective in the current programme, future interventions may wish to include additional emergent literacy areas such as environmental print (Neumann, Hood, & Ford, 2013) and early writing practices (Aram, 2001). Inclusion of these additional areas would need to be considered in light of the findings that not all components of this intervention were successful at changing behaviours of mothers, and an overload of targets may weaken the positive result. Prudent selection of intervention targets appropriate to the age of the children in the participant group would ensure the most relevant focus for the intervention programme.

Measurement design was also likely to play a part in the successful outcomes demonstrated by the intervention, particularly with regards to behaviour. Outcome measures were based on change at the behavioural level that were directly related to the teaching points within the intervention. Assessment was also conducted within the naturalistic context of

shared reading with the mother's own child, using books familiar or comfortable to them. This researcher-designed assessment measure demonstrated strong inter-rater reliability, while sensitively and accurately capturing the nature of the interaction and how it changed in response to intervention. Analysis of language use from transcriptions provided an even more in-depth analysis of change, in a manner that has not previously been completed.

The effectiveness of this intervention and its respective components may provide guidelines for an effective intervention model with other at-risk groups displaying similar profiles to teenage mothers. These components include ensured easy access to the intervention for the mothers; considering mothers' own levels of literacy when designing the intervention to ensure the level of information was appropriate to the capabilities of the group; using a collaborative and interactive approach to learning for optimum engagement; and providing resources such as children's books, in order to support the use of the targeted skills.

8.7 Summary of Findings

This thesis investigated the home literacy environments, language and literacy development of teenage mothers and their young children. It also explored the effectiveness of two interventions to facilitate language and literacy development. The findings can be summarised as follows:

1. Teenage mothers provided commensurate home literacy experiences with regards to frequency of reading, but required further support to provide a home literacy environment that is maximally facilitative of early literacy development.
2. Teenage mothers presented with wide variability in their language and literacy skills, and their children with a wide range of language and developmental

capabilities. Despite the considerable variability evident, profiles of risk were consistent and suggested further support for both groups is warranted.

3. A multi-component film-based approach to literacy intervention with struggling teenage mothers demonstrated potential for its engaging and motivating nature. This intervention approach did not significantly enhance the mothers' language and literacy skills (passage comprehension, oral reading fluency, vocabulary and spelling), with the exception of morphological awareness. Further investigation is required to determine the design of an effective intervention that is able to effect change to teenage mothers' language and literacy skills.
4. Strategic instruction over skill-focused instruction was more appropriate and effective at supporting literacy development in teenage mothers who struggle with reading.
5. A multi-modal approach to emergent literacy intervention for teenage mothers was effective at changing the way they read with their young children at the behavioural level. This included the increased use of reading behaviours that referenced vocabulary, utilised questioning, and drew children's attention to book and print concepts. Further investigation is required to determine effective interventions for teenage mothers that target letter/sound-focused behaviours (such as focusing on letter names and sounds and their position within a word).
6. An emergent literacy intervention was also effective at changing the quality and quantity of language teenage mothers' use during shared reading interactions with their young children. These changes included more overall words and utterances and greater use of different words produced by both mothers and

children; mothers' use of rare/sophisticated words; and children's use of word classes.

8.8 Implications for Practice

The findings of this thesis have important implications for practice. Firstly, it is necessary to capture the complete picture of an individual's skills before developing interventions. Both mothers and children within the current study presented with substantial variability in their language and literacy skills. Mothers' profiles suggested they had appropriate non-verbal reasoning but presented with deficits in their language and literacy development. Even within this relatively small cohort, considerable variability existed. This suggests that reporting a single standardised score or using school achievement data is inadequate at capturing their specific needs and consequently developing an intervention to best address them. Children's profiles demonstrated similar variability in skills. Utilising a range of assessment measures within this group is necessary in order to accurately capture development, as well as consider the contribution of additional risk factors (such as maternal education, SES and home environment).

Secondly, research has suggested a range of potential approaches to target the literacy skills of struggling adolescent readers and findings from this thesis add to this existing body of information. The findings supported the notion that engagement and motivation are important considerations for effective interventions. However, a more in-depth understanding is required of what can create change within teenage mothers' own skills. Starting with a thorough understanding of their existing strengths and weaknesses is necessary, but careful consideration of intervention targets is paramount. The importance of strategy over skill-based tasks is suggested, as is the use of sensitive measures of change, to best capture the intervention's effectiveness. When working with older adolescent readers, interventions not

only need to be age appropriate, but also take into careful consideration how they will fit into and complement the current curriculum and educational context. It may be appropriate to consider the inclusion of curriculum-based measures alongside standardised and/or researcher-designed assessments, in order to best capture change in response to interventions.

Thirdly, this thesis adds to the existing body of knowledge that emergent literacy interventions are effective at enacting change in the way parents read with their children. The current study was able to provide information on what may be most effective when working with at-risk populations such as teenage mothers. Those working with teenage mothers would benefit from considering the application of successful components of the emergent literacy intervention, such as its multi-modal approach, and its engaging and interactive method of teaching. Further, gathering comprehensive data on the language and literacy abilities of the group prior to beginning the intervention allows for the most effective and individually catered translation of information. Interventionists may also wish to give more attention to language use during shared reading and how this may change in response to an intervention, thus providing even greater detail on the quality of the shared reading interaction and the potential for it to enrich other parent-child interactions beyond the pages of a book.

Finally, the findings from this thesis may inform Government policy in a number of ways, influencing the teenage mothers' macrosystems (Bronfenbrenner, 1992). It would provide detailed information of a nature that is not currently available, on the language and literacy skills of teenage mothers attending Teen Parent Units, and also their young children's language and development. The results indicated low levels of literacy and language in some mothers, and that children are presenting with considerable risk profiles for language and literacy development. Suggestions for how to integrate this knowledge into the school context would include the consideration of comprehensive, one-on-one testing in order to better understand and respond to the challenges faced by these students. TPUs are in a unique

situation where the low student-to-teacher ratio provides the opportunity to explore students' skills in more detail, and develop individualised plans to respond to any identified needs. In addition, the school and early childcare centre could consider taking an intergenerational approach to child development, and consider opportunities to up-skill teenage mothers in areas relevant to their children's development, such as literacy and language development. Again, the context of the TPU provides unique and valuable opportunities to break the intergenerational cycle of disadvantage often experienced by teenage mothers and their children.

8.9 Future Directions

Findings of this thesis lend themselves to a number of future directions, in order to better understand the population, but also the effectiveness of the interventions. Increasing sample size, and where appropriate utilising a control group would add considerable methodological rigour to the study designs. This would allow for greater understanding of the characteristics of the population and how they may differ from peers, but also provide greater support for the effectiveness of the interventions. Of most interest would be comparing outcomes of teenage mothers enrolled in education with both non-parenting peers and teenage mothers not engaged with the education system. Gathering comprehensive information on the participants' demographics and background would also allow for a more accurate understanding of factors that may be influencing an individual's response to intervention.

The current study did not attempt to include either classroom or early childhood teachers within its intervention model. Research has demonstrated that implementing literacy interventions that target both the home environment (through parents) and early childcare centres (through teachers) leads to the most efficacious outcomes for children when

compared to interventions that are solely conducted in the preschool setting (Whitehurst et al., 1994). Given the intergenerational nature of literacy transmission it is unsurprising that parents are shown to play a vital role in children's outcomes. Creating a holistic and cohesive approach to intervention that integrates parent-targeted education as well as an enrichment of the preschool reading environment is therefore worthy of consideration for future interventions. Further, grandparents and fathers/partners were not able to be included in the research design due to the variable living circumstances of the participants and feasibility of a school-based intervention approach. While difficult within the teenage mother population, ideally future research would consider the inclusion of grandparents and fathers/partners to the intervention to add further strength to the intergenerational nature of the intervention.

With regards to changes in the mothers' language and behaviour, it would be most insightful to examine these changes across a range of contexts. Existing literature suggests that parent's language use varies between contexts (Weizman & Snow, 2001). Determining if the meaningful change in language use infiltrated other mother-child interactions would add further strength to the effectiveness of the intervention, and in particular whether it influences the broader language environment to which the child is exposed. Including a comprehensive assessment of the children's literacy skills would also enable greater exploration of the impact of the intervention across the generations.

Study Six employed a one-year follow-up survey to determine if mothers' reported use of reading behaviours persisted beyond the intervention. Long-term follow-up utilising parent-report in addition to behavioural observation would allow for greater and more accurate investigation into the sustainability of the intervention. Further, re-assessment of the children would provide information on whether any changes in maternal reading behaviour or language use was able to influence the trajectory of children's previously recorded language development.

The intergenerational nature of literacy transmission is well-established in the literature (e.g. Bus et al., 1995). The findings presented in this thesis add to the growing body of evidence indicating that mothers, even those considered at risk based on their own literacy profiles, are responsive to interventions designed to enrich the early literacy experiences of their children. Future development of such interventions may hold the key to changing the trajectory of teenage mothers and their children, and provide the best possible opportunities for success and engagement within our highly literate society.

Appendix 1

Home Literacy Survey

Home Literacy Survey

How old is your child/children? (please circle as many as required)

Birth to 6 months

6 months to 1 year

1 year to 2 years

2 years to 3 years

3 years to 4 years

4 years and above

Reading Books

1) How often do you read for enjoyment? (please circle one)

Never/rarely Sometimes Every week Every day

2) How often do you read to your child? (please circle one)

Never/rarely Sometimes Every week Every day

3) Approximately how old was your child when you began reading with or to them?

4) How many books do you own (approximately)? (please circle one)

0-10 10-25 25-50 50-75 75-100 over 100

5) How many books does your child own (approximately)? (please circle one)

0-10 10-25 25-50 50-75 75-100 over 100

6) How often do you use the public library for books for your child? (please circle one)

Never/rarely Sometimes About once a month About once a week

3 to 5 hours per day

More than 5 hours per day

What is the show they watch most often?

13) Do you have a computer/laptop/tablet at home? (please circle one)

Yes no

If so, does your child use it? (please circle one)

Yes no Not applicable

How many hours per day do they use it? (please circle one)

Less than 1 hour per day

1 to 3 hours per day

3 to 5 hours per day

More than 5 hours per day

What computer programmes/apps do they enjoy?

School and General Literacy

14) What do you think are the most important skill/s that your child will learn when he/she goes to school? (For example: maths, social skills, writing, etc.)

Please list them in order of importance

15) What do you see as your role when it comes to helping your children learn to read?

Appendix 2

Parent-Child Reading Behaviour Checklist

Parent-Child Reading Behaviour Checklist

Name (parent): _____

Name (child): _____

Video code: _____

Mark the box each time the parent displays the following behaviours during a shared book interaction. Credit behaviours once per page only.

Behaviour	Example	Frequency per page	Score
Points things out in the pictures (This will mostly relate to nouns)	<i>there's a cat</i> <i>look at the trees</i> <i>look at all the cars</i>		
Expands on what their child has said (Rephrases it in an adult form but does not add new information)	<i>C: big cat</i> <i>P: yes, it is a big cat</i>		
Extends what their child has said (Adds additional information to something the child has said)	<i>C: dog</i> <i>P: it's a hairy dog</i>		
Makes a comment on the picture or story	<i>it looks very cold, he's stuck, he's not very friendly, those are red trains</i>		
Helps child interact with vocabulary items in the picture	<i>show me the, where's the, find the, can you see the, what's that, who's that</i>		
<i>Vocabulary Module Total</i>			
Makes reference to letter names on the page	<i>that's an m, there's the letter 'g'</i>		
Makes reference to letter sounds on the page	<i>it makes an /mm/ sound</i>		
Makes reference to the position of the sound in a word	<i>it's the first/last sound in ...</i>		
Links the letter to a word	<i>m like mum, what other words start with m?</i>		
<i>Letter/Sound Module Total</i>			
Asks closed or yes/no questions	<i>Can you do that?</i> <i>Is that a/are they...?</i>		

	<i>Has he got a...? What noise does a x make? How many x are there? What colour is the x?</i>		
Asks open-ended questions	<i>Where's he going? What's happening on this page? What animals can you see? What happened? What's he going to do? What can you see?</i>		
<i>Questions Module Total</i>			
Makes reference to features of the book such as title, author, illustrator	<i>that's the name of the story, that's the author</i>		
Makes reference to print versus pictures OR references print verbally or non-verbally (e.g. points to words when they start reading, but does not track)	<i>here are the words, let's look at the picture</i>		
Makes reference to print features (e.g. full stops, exclamation marks, capital letters, environmental print, speech bubbles, embedded text)	May be a non-verbal reference e.g. pointing and reading, but might also include labelling e.g. <i>that's a question mark</i>		
Makes reference to directionality and/or points/tracks to the words as they read	<i>we read this way/we start here OR points to words as they read</i>		
<i>Book/Print Features Module Total</i>			
<i>Grand Total</i>			

Notes

- Do not code tag questions as a question e.g. “*it's colourful, isn't it?*”. Ignore the tag and code the statement accordingly (e.g. this would be a comment on the picture).
- Do not code comments about the tangible book e.g. “*mummy turn the page*”, “*oh no the page is ripped*”.
- Do not code questions/comments/discussion external to the book e.g. “*can you please sit down*”, “*bring the book to mummy*”, “*let me fix your hairtie*”.
- Do not code language that is a direct production of the book text e.g. “*out of the gate and off for a walk went Hairy Maclary*”.
- If a disruption to reading occurred that lasted longer than 30 seconds, stop coding at point when disruption started, and start again when book reading recommences.

Appendix 3

Modifications to Dale-Chall Word List

	Original	Change/Addition
Spelling changes (12)	color	colour
	colored	coloured
	defense	defence
	favor	favour
	favorite	favourite
	harbor	harbour
	honor	honour
	neighbor	neighbour
	neighborhood	neighbourhood
	plow	plough
	theater	theatre
	woolen	woollen
Replacements (8)	airplane	aeroplane
	America	New Zealand
	American	New Zealander
	cab	taxi
	cookie	biscuit
	cookies	biscuits
	garbage	rubbish
	gasoline	petrol
Additions (2)	bathroom	toilet
	sweater	jersey

Appendix 4

Example of Type of Talk Coding

Note: book text and non-verbal behaviours are indicated by = at start of utterance.

=P Piggity wiggity jiggity jig.

P That's the author. [print/story]

=P points to title

P Oh the name of the book. [print/story cont.]

=P opens book

=P Piggity wiggity jiggy jig was a long sort of name for a short sort of pig.

=P turns page

=P His home was a muddlesome cuddlesome place, that had plenty of playthings but not so much space.

P Look. [description]

P Can you see the pigs? [description cont.]

=P points to picture

P Where's the pigs? [description cont.]

=C points to picture

C Right there.

P There's one pig. [conveying meaning]

P Can you find another one? [conveying meaning cont.]

=C points to picture

C Right there.

P He's got a baby. [description]

C Baby.

P It's a piglet. [conveying meaning]

C Piglet.

=P turns page

Appendix 5

Rare/Sophisticated Words Used by Mothers

Pre-Intervention		Post-Intervention	
Bulldozer	Transporter	Actually	Mixer
Bumpy	Trumpet	Anymore	Monster
Chimpanzee	Tummy	Bumpy	Motorbike
Crane	Walrus	Controller	Pantry
Cuddle	Weird	Crane/s	Parcels
Dolphin	Zebra	Crocodiles	Piglet
Dragonfly		Crumbled	Reflection
Fireman		Cupcake	Skinny
Gorilla		Digger/s	Sniffing
Motorbike		Dinosaurs	Squashy
Parrots		Gondola	Squirted
Polar		Growl	Squishing
Rhino		Gumboots	Stomping
Scary		Hedgehog	Swish
Seahorse/s		Helicopter	Tangled
Smelly		Juggler	Teddy
Sneaking		Kangaroo	Tractor
Sock		Lair	Trailer
Squishy		Lipstick	Triangle
Super		Lorries	Whack
Tractor		Lumpy	Yucky

Appendix 6
Ethics Approval Letter

HUMAN ETHICS COMMITTEE

Secretary, Lynda Griffioen
Email: human-ethics@canterbury.ac.nz

Ref: 2012/23/ERHEC

25 July 2012

Amy Collings
School of Literacies & Arts in Education
UNIVERSITY OF CANTERBURY

Dear Amy

Thank you for providing the revised documents in support of your application to the Educational Research Human Ethics Committee. I am very pleased to inform you that your research proposal “Early intervention literacy engagement - literacy intervention for teenage parents and their young children” has been granted ethical approval.

This approval is subject to the following:

- In all relevant forms, please include that anonymity of data cannot be provided, because the participants are known to the researcher however anonymity is assured in the reporting of the findings (through the use of pseudonyms).
- Please reinstate the information letter and consent form for the teachers. You explained that after further discussion with your supervisors, it was decided that teacher consent for students to participate is not necessary as the upper management of the school will be providing consent for the students to participate, and any classroom teachers will not be directly involved with the study. Although permission may be given by the Principal and BOT for research to be conducted in the school and the teachers are not directly involved as participants/subjects, they (the teachers) are nonetheless impacted by the process of the research. Students are being asked to return their consent forms to the teacher, and the implication is that the intervention and research will take place in class time and within the school programme. This means that the teachers have a key role to play in the research project, even though they are not subjects of the research. Therefore teachers need to be given information about the study and their anticipated role in this (in liaising with the researcher and providing an opportunity in their teaching programme for the research to take place). They also have a right not to be “spoken for” by the Principal who may “volunteer” the teachers to participate in a support and liaison capacity.

“Please note that Ethical Approval and/or Clearance relates only to the ethical elements of the relationship between the researcher, research participants and other stakeholders. The granting of approval or clearance by the Ethical Clearance Committee should not be interpreted as comment on the methodology, legality, value or any other matters relating to this research.”

Please note that should circumstances relevant to this current application change you are required to reapply for ethical approval.

If you have any questions regarding this approval, please let me know.

We wish you well for your research.

Yours sincerely

A handwritten signature in black ink, appearing to read 'N Surtees', written in a cursive style.

Nicola Surtees

Chair

Educational Research Human Ethics Committee

“Please note that Ethical Approval and/or Clearance relates only to the ethical elements of the relationship between the researcher, research participants and other stakeholders. The granting of approval or clearance by the Ethical Clearance Committee should not be interpreted as comment on the methodology, legality, value or any other matters relating to this research.”

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