

# **The Effects of a Reading Intervention on Psychosocial Outcomes for Students with Literacy Learning Difficulties**

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## **Abstract**

Research shows that there is a relationship between academic outcomes and psychosocial outcomes. The current research aimed to understand the impact that developing literacy abilities in Year 7 and 8 students would have on psychosocial outcomes of self-esteem, self-efficacy and resilience. To complete this, students with literacy learning difficulties took part in an intensive reading intervention with a focus on morphology, phonology, comprehension, vocabulary and fluency. The research comprised of 20 Year 7 and 8 students who were divided into two different intervention groups based on baseline behavioural difficulties. Results and analysis indicated that all the students showed an increase in their literacy abilities. There were also significant changes found in some psychosocial outcomes, particularly academic self-efficacy. Pearson correlations revealed that there was a relationship between improved literacy abilities and psychosocial outcomes including global self-esteem, academic self-efficacy and resilience. This research showed that when literacy skills were improved in students, there was a positive impact on at least some areas of psychosocial development. The improvements in psychosocial outcomes and literacy abilities were similar for both intervention groups despite differences in levels of behavioural problems. This research indicates that psychosocial development is malleable and there is an opportunity for students in Year 7 and 8 with literacy learning difficulties to improve in their abilities through intervention.

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## **1 Introduction and Literature review**

Development of literacy abilities is important for children as competence in literacy allows for better participation on the social, cultural and political world in New Zealand and the wider world. The New Zealand Education Curriculum has a focus on the development of literacy skills in all children in New Zealand (Ministry of Education, 2015). Literacy abilities refer to the development of reading and writing ability. Humans are not born with the innate ability to read; rather it is a learned skill that develops over time (Farrall, 2012; Fox & Alexander, 2011; Wolf & Stoodley, 2008). Some children find developing literacy skills like reading easy to learn, whereas other children find learning to read much harder (Gough & Tunmer, 1986). This lack of ability may lead to a poorer sense of self and therefore the child's overall wellbeing may be impacted by their limited reading abilities. Children who find learning to read difficult require additional assistance to learn to read.

Psychosocial factors are influences that affect a person psychologically and socially (Suzuki & Takei, 2013). The term psychosocial factors encompass many different domains including social factors, mood status and cognitive behavioural responses (Suzuki & Takei, 2013). Social factors include influences such as socioeconomic status, social status, work environment, employment, religion or relationships with others (Upton, 2013). Mood status includes factors such as anxiety, depression, distress or positive affect (Suzuki & Takei, 2013). Cognitive behavioural responses include factors such as locus of control, self-efficacy, self-esteem and resilience (Suzuki & Takei, 2013). Psychosocial factors can influence many different areas of an individual's life and increasing the positive inputs such as increasing cognitive behavioural responses, generally leads to more positive outcomes for the individual.

Research has identified a relationship between literacy abilities and cognitive behavioural psychosocial outcomes. The following section will review the literature on the psychosocial factors of self-esteem, self-efficacy and resilience as well as the development of

literacy abilities. Research regarding the effectiveness of interventions for literacy abilities and the related changes in psychosocial outcomes will also be explored. Following this, the current research questions will be presented.

The current research aimed to understand the impact that increasing literacy abilities in Year 7 and 8 students would have on psychosocial outcomes. In this research, the cognitive behavioural psychosocial variables that will be investigated are self-esteem, self-efficacy and resilience. The following literature review will discuss the development of psychosocial factors of self-esteem, self-efficacy and resilience, as well as the development of literacy abilities. Interventions that aim to increase literacy abilities while also investigating psychosocial outcomes will also be discussed.

## **1.1 Psychosocial Development**

One important aspect of psychosocial development is the concept of ones' 'self'. The 'self' is not one singular category but it is the sum of many different manifestations of self-views such as self-concept, self-worth, self-image, self-esteem and self-efficacy (Chapman & Tunmer, 2003).

It is first important to understand the development of the 'self' as a construct. The concept of an individual's 'self' is complex and multifaceted in its development (Harter, 2006). The development of the 'self' is based primarily on cognitive changes but is heavily influenced by social experiences. Harter (2006) states that the self is first and foremost a cognitive construct that undergoes normative developmental changes over time, such as developing the ability to understand that oneself is separate to those around them and that subsequently, one has different feelings and experiences. Those living and interacting with an individual also influences how an individual's concept of their 'self' is developed, for example, if they are worthy of being loved and accepted.

The development of one's perception of their 'self' is thought of as a continuous cognitive phenomenon as it changes slowly over time. The development of one's 'self' was once thought of as a discontinuous construct due to the disparity seen at different developmental periods, however, after re-analysis, several smaller stages were identified leading to the construct being classed as a continuous cognitive phenomenon (Harter, 2006). Harter (2006) proposed that there are two main cognitive characteristics and abilities required for one to evaluate their 'self' which is considered a bottom-up process. The first is differentiation which refers to the ability to create self-evaluations over several domains and understand that these evaluations may differ based on the situation (Harter, 2006). An individual also needs to have the ability to differentiate between their 'ideal self' and their 'real self', which requires the cognitive capability to hold two ideas in one's mind at the same time and make comparisons between them (Harter, 2006). This skill is typically developed in middle to late childhood. The second main cognitive characteristic is integration, which is an individual's ability to amalgamate generalizations about one's 'self' from several domains and understand themselves in terms of labels, such as skills in a specific domain (Harter, 2006). Integration also allows for an individual to create and evaluate their overall 'self', based on judgements collected from various social and personal domains that will contribute to their overall self-esteem (Harter, 2006).

Interactions with the social world around an individual are important in developing self-concept, which can be thought of as the composite view of oneself (Heatherton, Wyland, & Lopez, 2003). It has been suggested that the world around an individual will function as a 'social mirror' allowing the individual to observe themselves through the actions of others (Harter, 2006). This begins in early childhood with parents giving a child the initial social information of their worthiness of love, protection and safety. This information is often carried throughout an individual's lifetime with additional information added to one's self-concept

through ongoing social interactions. The opinions of others are more important and influential for young children and adolescents (Harter, 2006). Harter (2006) stated that adults have a stronger and more stable sense of 'self' and therefore opinions from others tend to have less of an effect than opinions received by a young person, who is still collecting information from those around them to develop their sense of 'self' (Harter, 2006). This means that a young person is more susceptible to both positive and negative interactions influencing their overall view of their 'self'. Social interactions happen in many settings and the results of these interactions are seen in three main ways; imitation of the behaviours completed by significant others, adjustments to one's behaviours to gain approval from those around them and adopting the perceived opinions others have of them (Harter, 2006). Examples of this are seen in children's realistic play, such as pretending to change a baby doll as a parent would change a real baby or pretending to be their favourite sportsman. These social interactions become internalized as children move through middle childhood to late childhood and the influence of others becomes important in developing their self-concept (Harter, 2006). These influences become a major contributor to one's global and specific self-esteem.

Self-concept and self-esteem are terms that have often been used interchangeably during research on the self. Understanding the differences and similarities between the two concepts is important when considering and understanding previous research. Self-concept refers to a composite view of oneself; that is the knowledge about the self as individual and includes information such as one's name, race, beliefs, values and appearance descriptions such as height and weight (Byrne, 1984; Heatherton et al., 2003). Self-concept could be thought of as an overarching term for all things one knows about the self and therefore can include thoughts, feelings and behaviours related to the self. In this research self-esteem and self-efficacy can be thought of as subcategories of self-concept as they relate and contribute to the composite view of oneself.

### ***1.1.1 Self-Esteem***

The conceptualisation of global self-esteem as a construct has developed and changed over time. The concept of global self-esteem was initially used to explain behavioural changes seen within different contexts (Byrne, 1984), however, over time researchers began to believe that global self-esteem was more than just a predictor of behaviour. Instead, they theorised that global self-esteem is a result of evaluations one makes of the discourse between their ideal and their actual self, which develops through interactions with significant others in life (Riddick, 2010). If the perception of one's actual 'self' aligns closely to that of the ideal self, it is thought that a person will have higher self-esteem and if there is a large difference between the actual and ideal self a person will have lower self-esteem. Many researchers had different ideas and definitions about what self-esteem was and how to define self-esteem (Byrne, 1984; Heatherton et al., 2003; Rosenberg et al., 1995). This disagreement between researchers led to two different terms developing, global self-esteem and specific self-esteem.

Different definitions of global self-esteem have been being proposed by various researchers. Rosenberg et al. (1995) defined global self-esteem as "an individual's positive or negative attitude toward the self as a totality" (p. 141). Coopersmith (1967) (as cited in Heatherton et al., 2003) described self-esteem as "a personal judgement of the worthiness that is expressed in the attitudes the individual holds towards himself" (p. 220). Heatherton et al. (2003) went onto contrast self-esteem from self-concept as "the emotional response people experience as they contemplate and evaluate different things about themselves" (p. 220). The important underlying concept that appears through various definitions of self-esteem is the concept that self-esteem is a personal judgement concerning attitudes or feelings about oneself. Therefore, in this research global self-esteem is defined as an individual's judgement about their worthiness, expressed through attitudes they hold towards themselves either positive or negative (Heatherton et al., 2003; Rosenberg et al., 1995). High self-esteem refers to having

more positive feelings about one's worthiness, whereas low self-esteem refers to having more negative feelings about one's worthiness. It is also important to identify the differences in global self-esteem and specific self-esteem which Marsh and Craven (1997) identified as being thoughts about specific components of self-esteem, such as judgements and attitudes academically, socially and emotionally.

Specific self-esteem in this research is defined as how one evaluates themselves in a particular area of life. Global self-esteem can be thought of as a composite construct of self-esteem with specific self-esteem branching from it (Marsh & Shavelson, 1985). Heatherton et al. (2003) proposed a model for specific self-esteem in which self-esteem is split into three dimensions, performance self-esteem, social self-esteem and physical self-esteem. Performance self-esteem is thought to be one's competency to perform tasks and includes factors such as intellectual abilities, self-regulation abilities, confidence, academic performance, and agency (Heatherton et al., 2003). Social self-esteem is how the individual believes others perceive them and their ability to respond to others in a socially acceptable manner. Physical self-esteem refers to how an individual evaluates their body including aspects such as athletic ability, body image and ethnicity (Heatherton et al., 2003).

Another model of specific self-esteem and the most commonly used model is the Marsh/Shavelson multidimensional hierarchal model of specific self-esteem (Marsh & Shavelson, 1985). The Marsh/Shavelson model (1985) separates global self-esteem into two categories, academic self-esteem and non-academic self-esteem. These subcategories are split into more specific categories with academic self-esteem containing the categories mathematics and English and non-academic self-esteem containing the categories of social self-esteem, physical self-esteem and emotional self-esteem. This model of self-esteem is widely accepted and used in many instruments to measure specific self-esteem (Marsh & Craven, 1997). It should be noted that Marsh and Craven (1997) use the term 'specific self-concept' within their

research. However, Marsh and Craven (1997) also state that in their research the term ‘self-esteem’ refers to global self-esteem and ‘specific self-concept’ refers to the specific components of global self-esteem. Therefore, this model is considered relevant to specific self-esteem, despite the use of the term ‘self-concept’ in the original research.

### ***1.1.2 Academic Self-Esteem***

Academic self-esteem is included in both models of specific self-esteem described above. Academic self-esteem comes from evaluations that a student or learner makes from their experiences of success in academic activities (Chapman & Tunmer, 2003). Therefore academic self-esteem in this research is defined as the perceptions that students have as a result of their accomplishments within a learning task and environment (Chapman & Tunmer, 2003). Success or lack of success in the classroom environment has a strong influence on academic self-esteem and much of this evaluation is based around feedback from significant others including teachers and peers.

A relationship between self-esteem and academic performance is seen in students, with high-achievers displaying higher levels of self-esteem, and low-achievers displaying lower levels of self-esteem (Alves-Martins et al., 2002). However, the exact relationship between academic achievement, global self-esteem and academic self-esteem is unclear, as high self-esteem alone does not produce high academic achievement (Humphrey, Charlton, & Newton, 2004). Therefore, it is important to consider the nature of the relationship between self-esteem, academic self-esteem and academic achievement. It has been found that there is a closer relationship between global self-esteem and academic self-esteem than with global self-esteem and academic achievement (Trautwein et al., 2006). It has also been found that the relationship between academic achievement outcomes is more closely related to academic self-esteem than global self-esteem (Trautwein et al., 2006). The strength of the influence one factor has on the others and the directionality of the relationship is an aspect that has been debated among

researchers. The effects of self-esteem on academic self-esteem and academic achievement have been called *top-down* influences (Trautwein et al., 2006), as global self-esteem is considered the apex of the hierarchical model. Alternatively, the effects of academic achievement on academic self-esteem and global self-esteem have been called *bottom-up* effects (Trautwein et al., 2006), as academic self-esteem is at the bottom of the hierarchical structure. Longitudinal research by Trautwein et al. (2006) found that high global self-esteem was not a strong predictor of later academic achievement, however, domain-specific self-esteem, such as academic self-esteem, did have some effect on later academic achievement. It has been suggested that there is, in fact, a positive reciprocal relationship between academic achievement and academic self-esteem, and therefore they tend to have a mutually positive or negative effect on one another (Trautwein et al., 2006).

The learning environment is an important factor influencing a student's academic self-esteem (Casserly, 2013; Trautwein et al., 2006). Factors within the learning environment are influential on the success or lack of success for students, such as the emphasis that teachers place on effort and attempting work in the classroom, the importance of learning, the sense of competition placed on students to be the best in the class and general achievement (Trautwein et al., 2006). For example, when teachers focused on the individual student's progress rather than comparing a student's success to the rest of the class, the student tended to have higher academic self-esteem (Trautwein et al., 2006). The student's assessment of their success is based on the frame of reference they are supplied by their classroom, school, peers or parents (Casserly, 2013). Therefore, the type of classroom that a learner is placed in may influence the way in which they assess their academic self-esteem. Casserly (2013) completed research in Ireland in which she examined socio-emotional outcomes of children with dyslexia before and after specialist teaching. During these teaching sessions, the students were separated from their mainstream classroom and were placed in groups with children at the same level. It was found

that the student's academic self-esteem increased which the parents believed was due to positive encouragement and praise they received in class, the teacher's belief in the child's ability and that the children were associating with students at the same level, which led to fewer negative social comparisons. These factors also increased the children's confidence and they were more likely to ask for help when required and give academic work a try leading to more success academically (Casserly, 2013).

Another important influence to consider in relation to academic self-esteem, global self-esteem and academic achievement is the influence of the "self-esteem protection model" (Humphrey et al., 2004; Robinson & Tayler, 1991). This model suggests that people may attribute less value and importance to skills that they are less successful at in order to protect their global self-esteem. For example, students that are low academic achievers may devalue the importance of academic achievement to their overall self-esteem judgement (Humphrey et al., 2004). This means that they may adopt an 'anti-institutional' culture in which value is attached to the failure frequently experienced in academic work and in turn disregarding academic achievement as a goal (Humphrey et al., 2004). Therefore, when they experience low academic achievement, their global self-esteem is protected. Humphrey et al. (2004) found that low-achieving children perceived social acceptance, athletic competence and physical appearance more important than high-achieving children who also considered academic competence and good behavioural conduct as important. Humphrey et al. (2004) reported these changes were seen in students around the age of 11, as they are better able to evaluate and reattribute importance to other areas of their lives. These findings suggest that low-achieving children may not attribute as much importance to their academic self-esteem as high-achieving students, and therefore having low academic self-esteem may not have a large influence on their global self-esteem.

### ***1.1.3 Changes in Self-Esteem over the Lifespan***

Research has shown that there are trends in levels of self-esteem across the lifespan (Erol & Orth, 2011; Orth & Robins, 2014; Robins et al., 2002). Young children tend to have relatively high self-esteem. It is thought that this may happen as the child has an artificially inflated sense of self with limited influence from their peers (Robins et al., 2002). However, as children get older their self-judgements become reliant on more realistic information from those around them leading to a decline in self-esteem in pre-adolescence and adolescence (Robins et al., 2002). There have been mixed findings related to the claim that self-esteem declines in adolescence, however, this may be attributed to gender differences during this age period, specifically the tendency for boys to rate themselves higher self-esteem than girls (Robins et al., 2002). It is thought that a decline in self-esteem in adolescence may occur due to many life changes occurring during this time. Researchers have attributed this decline to factors such as changes due to puberty, a strengthened capacity for abstract thought about one's ideal and actual self, the ability to make assessments about one's future and changes in schooling (Robins & Trzesniewski, 2005). Self-esteem appears to slowly increase once out of adolescence and into adulthood with some research finding that it peaks around the late 60s (Robins & Trzesniewski, 2005). Self-esteem appears to decline in old age, which is thought to be highly related to the individual's health, wellbeing, socioeconomic status after retirement, social support and bereavement, as well as, factors related to the time period (Robins et al., 2002). In this research, the age of the participants means that their levels of self-esteem were likely to be declining due to major life changes such as changes in schooling and oncoming adolescence.

### ***1.1.4 Self-Efficacy***

Self-efficacy was developed from the field of behavioural psychology and the concept that there was a connection between perceptions of personal competence, human behaviour

and psychological wellbeing (Maddux & Kleiman, 2018). Many researchers investigated the interaction between these factors, notably Bandura (1977), who presented the notion of perceived competence as self-efficacy and identified it as a key component in social cognition theory (Maddux & Kleiman, 2018; Zimmerman, 2000).

Bandura (1977) defined self-efficacy as personal judgements of one's capabilities to organize and execute courses of action to attain designated goals. Bandura was interested in understanding the context of self-efficacy beliefs and found that the level, generality and strength of self-efficacy beliefs changes. The level of self-efficacy refers difficulty of the task, the generality is the degree to which self-efficacy beliefs could be generalised to other similar tasks, and the strength refers to the amount of certainty that one can perform a task (Zimmerman, 2000). Self-efficacy judgements can have an impact on the choices an individual makes such as what activities they will do, how much effort will be put into a task and how long they will sustain effort when dealing with highly emotional situations (Bandura, 1977). Self-efficacy is "the level of belief that one can coordinate and orchestrate skills and abilities in changing and challenging situations" (Maddux & Kleiman, 2018, p.89). It is important to consider self-efficacy not as a personality trait but rather as a set of beliefs about oneself and one's ability to complete the tasks required to obtain the desired goal (Maddux & Kleiman, 2018). Self-efficacy should be thought of as multidimensional or domain-specific across different areas of functioning (Bandura, 1977). This means that an individual can have relatively high self-efficacy in one area and relatively low self-efficacy in another area, such as academic achievement, social abilities or physical abilities. Contextual factors and an individual's cognitive appraisal of the difficulty of a task may also influence the level of one's self-efficacy, as similar tasks may elicit different responses in alternate settings (Bandura, 1977). For example, someone may be highly efficacious giving a speech to a small group on a

topic they know well, however, may have a different response when asked to give a speech to a large crowd on an unfamiliar topic.

Individuals gain information that changes their self-efficacy beliefs from four main sources, mastery experiences, vicarious experiences, verbal persuasion and physiological reactions (Bandura, 1977). Experiencing previous success in a task is one of the most reliable sources of information related to self-efficacy beliefs (Bong & Skaalvik, 2003). Repeated mastery experiences with a task raise self-efficacious beliefs for that task, and repeated failures lower them. Once a strong sense of self-efficacy has been developed, small failures are not as influential on self-efficacy beliefs as they were when the individual had a lower sense of self-efficacy. Vicarious experiences can influence self-efficacy beliefs (Bandura, 1977). Observing others performing a task without adverse consequences can, in turn, strengthen one's efficacy beliefs for their success in the same task (Bong & Skaalvik, 2003). This effect is strengthened when the individual recognises similarities between themselves and the model. Vicarious experiences have been seen to influence self-efficacy beliefs, although this effect is not as strong as mastery experiences. Verbal persuasion can be used to change self-efficacy beliefs and is more influential when the information is from a significant other or someone who is viewed as knowledgeable (Bong & Skaalvik, 2003). Self-efficacy beliefs developed through verbal persuasion are variable and disconfirming experiences easily replace such self-efficacy beliefs (Bandura, 1977). Physiological reactions to situations such as changes to one's heartbeat, sweating, pain and mood changes can also lead to reappraisals of self-efficacy beliefs (Bandura, 1977; Bong & Skaalvik, 2003). If an individual has a distressing response to a task, they are more likely to interpret these as signs of incapability (Zimmerman, 2000). Maddux and Kleiman (2018) suggested that imagined experiences also contribute to changes in self-efficacy beliefs. Imagined experiences influence self-efficacy beliefs when one imagines their behaviours in a hypothetical situation. This could be through imagining a past or expected

situation or brought on through verbal persuasion. Although there are many influences to strengthen or weaken self-efficacy beliefs, the strongest influence will likely come from mastery experiences, as the lived experiences will be more influential than imagined experiences. Information gathered from these sources does not automatically have an influence or cause a change in self-efficacy beliefs, the individual must first cognitively assess the information for its reliability (Schunk, 1989).

Self-efficacy differs from similar constructs such as outcome expectancies, self-esteem and perceived control (Zimmerman, 2000). Outcome expectancies are the results that one expects to gain after completing a task, which is thought to increase motivation to complete a task, particularly if it is an outcome the individual values. Bandura, however, believed that self-efficacy beliefs were more influential on motivation than outcome expectancies, as the outcome one expects is based on the personal judgement of one's ability to perform in a certain situation which impacts the effort that one will put into a task (Zimmerman, 2000). In a study completed by Shell, Murphy, and Bruning (1989), it was found that self-efficacy beliefs better predicted future academic outcomes in reading and writing than outcome expectancies. As discussed above, self-esteem is related to the judgements an individual makes about themselves, whereas self-efficacy is a judgement of an individual's ability to do a task. It is, therefore, possible for an individual to have high self-efficacy beliefs related to a task that has little impact on their global or specific self-esteem, and vice versa (Bandura, 1977). Lastly, perceived control emerged from research on locus of control and is the concept that outcomes are based on either internal or external forces (Zimmerman, 2000). If one feels that outcomes are internally controlled by their behaviour, they are more likely to make changes, whereas if they believe that outcomes are externally controlled, they are less likely to exert effort to make changes. Research in an educational setting showed that a student's feelings of perceived control did not predict future academic outcomes, whereas self-efficacy beliefs did (Zimmerman, 2000).

Research reflects the multidimensionality of self-efficacy with specific research into domains such as academic, social or emotional self-efficacy, as well as efficacy beliefs related to specific academic domains such as reading, writing, mathematics or science. Academic self-efficacy refers to “an individual’s convictions that they can successfully perform given academic tasks at designated levels” (Ferla, Valcke, & Cai, 2009, p.499). Students with high self-efficacy benefit academically in many ways. Students who have high academic self-efficacy are more likely to be motivated to learn, engage in more challenging tasks, have greater levels of participation in learning, more persistence and fewer extreme emotional responses when difficulties arise (Bong & Skaalvik, 2003; Pajares, 1996; Zimmerman, 2000). Self-efficacy is found to influence academic achievement both directly and indirectly. Self-efficacy influences academic achievement directly in terms of learning abilities and academic outcomes. There is also indirect effect such as raising students grade goals leading to further academic success (Pajares, 1996). Students belief about their ability to achieve academic tasks can also assist them emotionally, with high self-efficacy beliefs lowering levels of stress and anxiety (Zimmerman, 2000). Self-regulatory processes are also seen to improve in highly self-efficacious students showing increased goal-setting, self-monitoring, self-evaluation and more persistence when faced with difficult problems. Interestingly, Pajares (1996) reports that the perceived importance of academic achievement was related to self-efficacy but was not a significant predictor of academic improvement.

### ***1.1.5 Resilience***

Resilience is related to the way in which an individual will respond to stressors in their lives. Researchers noticed that some children living in difficult situations were able to thrive, whereas others did not (Bonnano, 2004; Fletcher & Sarkar, 2013; Masten et al., 1999; Wright & Masten, 2005). Investigating individual characteristics of these children found that those who thrived had relatively high self-esteem, good planning skills, had an easy temperament

and lived in supportive environments both inside and outside the home (Fletcher & Sarkar, 2013). These factors appeared to be influential on the ability of the child to adapt in an acceptable way to stressors.

Psychological resilience refers to resilience within people and definitions tend to include two factors; adversity and positive adaptation (Fletcher & Sarkar, 2013; Masten et al., 1999; Wright & Masten, 2005). Adversity can refer to any hardship or suffering linked to difficulty, misfortune and trauma (Fletcher & Sarkar, 2013). For many people this can be small day-to-day adversity such as changes to routines; however, it can also include major events such as bereavement or natural disasters (Fletcher & Sarkar, 2013). The level of adversity required in order for resilience to be built has been queried however, the construct of resilience being built from adversity is generally agreed upon. Although adversity tends to refer to negative experiences in one's life, it is also important to consider resilience that is built out of typically positive experiences, as positive events may build resilience though small amounts of adversity. For example, a newly married couple may face adversity and changes while developing their new life together, which may build resilience (Fletcher & Sarkar, 2013). The second important part of resilience is positive adaptation. Positive adaptation is observed or reported competence in meeting appropriate goals based on an individual's developmental stage (Wright & Masten, 2005). The indicator of this appropriate behaviour is based on the circumstance in which one is measuring resilience, for example, academic success in a school setting.

Research on resilience can be thought of as taking place in three waves. The first wave of resilience research was identifying individual resilience and the factors that have an impact on resilience (Fletcher & Sarkar, 2013; Wright & Masten, 2005). As described above, for resilience to be developed one must first face adversity. Adversity research has been based on gaining an understanding of risk factors and protective factors. The term 'risk factors' is used

to identify aspects of an individual's life that may lead to undesirable outcomes, for example, poverty, trauma, loss, low education, parental mental illness or parental divorce. Risk factors will often occur in clusters as exposure to one risk factor makes an individual more vulnerable to more risk factors (Wright & Masten, 2005). These risk factors are thought to be linked to adversity in an individual's life. Protective factors are aspects of a person's life that may lower the adversity associated with risk factors, leading to better outcomes for the individual. Some examples of protective factors include temperament, extraversion, self-esteem, self-efficacy, IQ, family support and societal supports (Fletcher & Sarkar, 2013). Protective factors can help reduce the number of negative events and individual faces, help an individual avoid antisocial behavioural pathways and recover from antisocial behavioural pathways quicker (Martin & Marsh, 2006).

The second wave of resilience research led to a better understanding of the processes that may lead to resilience. Studies attempted to understand why some protective effects lead to higher levels of resilience in some people but not others. During this wave of research, Bronfenbrenner's (1977) ecological theory was used to consider the multiple influences on an individual. Bronfenbrenner's (1977) ecological theory considers the child as the centre of four concentric circles that contain factors that have an influence on the child in some way either directly or from a distance. These factors range from people or environments with which the child directly interacts, such as parents or teachers, to more distal factors such as policies related to schooling or healthcare. Researchers were interested in how factors within the different levels of influence would affect an individual's resilience (Wright & Masten, 2005). Considering a child within an ecological framework allowed for analysis of risk and protective factors to be considered at all levels including personal traits, family, schooling, living environment, communities, culture and policies.

The stability of resilience was also considered during this research wave. Resilience, at one time, had been thought of as a personality trait, which is considered potentially damaging as it leads to the idea that someone either has resilience or does not have resilience (Fletcher & Sarkar, 2013; Wright & Masten, 2005). Alternatively, resilience should be thought of as a malleable process that may fluctuate throughout one's life (Fletcher & Sarkar, 2013). An individual may show a resilient response to one situation however circumstances may change in the individual's life which may lead to changes in resilient behaviour.

The third wave of resilience research was investigating ways to intervene and foster resilience (Wright & Masten, 2005). This was completed in the form of intervention studies designed to reduce risk or exposure to adversity, providing more resources to families and schools, and supporting the development and growth of protective factors (Wright & Masten, 2005). When considering influences on a child at different levels, alternative intervention opportunities may arise to reduce risk factors and promote protective factors. Some internal influences have been identified in more resilient children such as social competence, problem-solving skills, autonomy and a sense of purpose (Waxman, Gray, & Padron, 2003). By considering ways to assist children in building these skills internally they may have the opportunity to gain more resilient qualities.

Previous definitions suggest that one cannot be resilient if there has been limited exposure to adversities in which they have had to overcome. However, Martin and Marsh (2008) disagreed with this notion concerning academic resiliency. They proposed that all students face day-to-day adversity such as school failures, setbacks and stress, which they are required to overcome. Although these adversities are not as significant as major life adversities, there is still an opportunity to build resilience skills in relation to academics within the education system. Furthermore, fostering academic resilience within the education system may lead to further academic success in students at risk of academic failure (Waxman et al., 2003).

Academic resilience can be defined as a “student’s ability to deal effectively with academic setbacks, stress, failures and study pressure” (Martin & Marsh, 2006, p. 277). Academic resilience focuses on behaviours that are considered successful within the education system, which is generally assessed through academic achievement.

Within the education system, all students will experience some setbacks, failures and stress as they are an essential part of learning (Martin, 2002). Students with high academic resilience see setbacks and failures as a chance to learn and develop their understanding and abilities, leading to further learning opportunities. Alternatively, children with low academic resilience see setbacks and failures as major problems and can struggle to move past them. This can lead to fewer learning opportunities and behaviours related to learned helplessness which in turn may lead to them falling behind in their learning and progress (Martin, 2002). The ability to respond more positively to setbacks within an educational setting is beneficial to the development and growth of learning within students. Students that show higher levels of academic resilience often have protective factors that facilitate academic resilience, such as motivation and goal orientation towards learning tasks; they make positive use of their time such as on-task classroom behaviour and completion of homework, have supportive families and have effective learning environments (Waxman et al., 2003).

Enhancing academic resilience requires enhancing a student’s protective factors and reducing risk factors as much as possible (Martin, 2002). Martin (2002) proposed a model in which student’s academic resilience can be viewed in terms of ‘boosters’ and ‘guzzlers’. Boosters are considered as factors that enhance a student’s academic resilience, which could be considered protective factors. These include factors, such as positive self-beliefs, focus on learning tasks, understanding the value of schooling, persistence, planning, monitoring and study management (Martin, 2002). Guzzlers are considered as factors that reduce a student’s motivation towards learning and in turn their resilience, these could be considered risk factors.

These factors include self-sabotaging behaviours, failure avoidance, feelings of low control and anxiety (Martin, 2002). Students who have lots of booster qualities and few guzzler qualities are seen as more resilient to academic setbacks. Alternatively, students who have lots of guzzler qualities and few booster qualities are likely to have lower academic resilience (Martin, 2002).

## **1.2 Literacy Development**

Literacy skills are important to successfully functioning in our current society. Literacy skills include reading and writing skills. Through reading one is able to understand the world around us and it becomes an important part of living. Learning to read is often thought of as a process that takes place early in schooling, however learning to read should be thought of an ongoing life-long process as one is always developing their reading skills (Fox & Alexander, 2011). Much of the basic learning skills are formed in early schooling years, such as the ability to decode, and these skills remain important as one grows into adulthood, such as reading new words based on changes in interest or needs.

Literacy skills encompass more than just the ability to read words. Fox and Alexander (2011) defined reading as the “communicative behaviour of deriving meaning from the presented text” (p. 7). This definition allows for the understanding that there are two important factors related to reading, the meaning to the text and the actual alphabetic text. These two important features of reading are consistently identified throughout research on literacy development (Goodman & Goodman, 2014; Indrisano & Chall, 1995). Given this meaning, Fox and Alexander (2011) went on to state that “learning to read is becoming able to participate in the behaviour of reading in ways that support one’s purpose and satisfy one’s needs.” (p.7). These definitions of reading are broad and encompass reading at all stages of life (Fox & Alexander, 2011). For beginner readers, the purpose of their reading may be to understand the

alphabetic structure or create rhymes related to their picture books. For those in primary school and high school, reading may be used for enjoyment, to gain knowledge for a school project or to understand how to better play their video games. For university students, reading may be completed to learn and challenge thought patterns, allowing the reader to think critically. As an adult, reading may serve practical purposes, such as understanding legal documents or contracts, as well as reading for pleasure both in the form of books or social media.

There have been many researchers that have contributed to models regarding the way in which one learns to read which has been referred to as the ‘literacy wars’ (Farrall, 2012; Stanovich & Stanovich, 1995). These are the top-down model of reading or the bottom-up model of reading. The top-down model of reading can be thought of as a “whole language” approach to reading. In this model, reading is thought to develop from whole units of language to parts of units of language (Rassool, 2009). This means that the context around the word is considered more important than the smaller units of the words. There is more of an emphasis on the meaning behind the reading and using contextual cues to support reading rather than the units or individual words (Goodman & Goodman, 2014). Alternatively, the bottom-up model of reading can be thought of as learning to read from a part-to-whole approach, in which smaller units of words are learnt and meaning is then created. This model is centred on readers understanding how the alphabetic system works which includes understanding strings of letter patterns, phonics and phonological awareness (Rassool, 2009). There is a focus in this model on teaching decoding abilities and phonics in order to construct the meaning of the word.

An important influence in the field of reading was the National Reading Panel report (2000) which emphasized the importance of learning to read in three areas including: alphabets such as, phonemic awareness and phonics, as well as, fluency and comprehension (Fox & Alexander, 2011). This report has been criticised for its lack of consideration of early language development and the strong biases to the panel’s philosophical viewpoints (Denston,

2017). However, this report likely shaped the direction of the literacy research field (Fox & Alexander, 2011).

### ***1.2.1 Theories of Literacy Development***

Indrisano and Chall (1995) report that conceptualisations about the development of reading began during the scientific study of education in the 1930s. Since then many different theorists have proposed different conceptualisations of reading development with various stages or phases of reading development (Farrall, 2012; Fox & Alexander, 2011; Indrisano & Chall, 1995). Three influential theories were Chall's six stages of reading (Chall, 1976), the simple view of reading (Gough & Tunmer, 1986) and Ehri's phases of reading development (Ehri, 2005).

Chall (1976) presented a model in which the development of literacy or reading abilities can be seen in six stages, which she has aligned to Piaget's stages of cognitive development. Chall (1976) identifies six stages in reading ranging from stage 0- pre-reading to stage 5, in which readers can gain and create new knowledge from their reading. The stages are hierarchical in structure and each stage is considered qualitatively different from other stages as they require different abilities to be demonstrated by the reader (Farrall, 2012). Stage 0 is the pre-reading stage, which is from birth to the point when a student starts school (in the USA, where Chall was writing, this would be about the age of 6). During this stage, children gain vocabulary skills, play with language patterns and rhythm, gain a sense of simple alphabetic identification, begin to write their name and pretend to read books (Farrall, 2012; Indrisano & Chall, 1995). Stages 1-2 are considered the learning to read stages and include initial reading or decoding (stage 1) and fluency, confirmation and ungluing from print (stage 2). These stages are generally seen to develop within the early years of primary school. During stage 1 children tend to decode words letter by letter (Farrall, 2012). During stage 2 students show more fluency in their reading and do not need to use decoding skills to read high-frequency words. Generally,

readers at this stage are presented with text with familiar words in order to self-confirm reading success. Stages 3-5 are thought of as stages in which children “read to learn” as the texts that are being read generally go beyond that of their current knowledge and incorporate increasingly unknown information (Indrisano & Chall, 1995). Stage 3 is the first step in which students use reading to gain learning information. This usually involves text that is generally written from one perspective and is not overly technical, though the child will also begin to experience words that are not typically used in conversation (Farrall, 2012). Stage 4 reading involves texts with multiple points of view so that students are required to compare and contrast these views (Farrall, 2012). Stage 5 is considered “constructive” in that the reader makes decisions about what they will read and the depth in which they will read. Readers at this level also use what they read to make judgements to formulate opinions and draw unique conclusions (Farrall, 2012). Chall (1976) believed that when there was not mastery of one stage, the next could not be achieved leading to deficits seen within the child’s reading abilities.

Gough and Tunmer (1986) presented a ‘simple view of reading’. This simple view proposes that reading comprehension is comprised of two components, decoding and linguistic (language) comprehension (Fox & Alexander, 2011; Stuart, Stainthorp, & Snowling, 2009). Decoding is considered more than simply the ability to sound out a word but rather gaining skills in reading isolated words quickly, accurately and silently (Gough & Tunmer, 1986). Linguistic (language) comprehension, refers to the ability to understand information and sentences in regards to the words present (Gough & Tunmer, 1986). The combination of these is considered to lead to reading ( $RC = D \times LC$ ) and the absence of one or both skills will lead to deficits in reading ability. Using this framework, it is clear that neither comprehension alone, nor decoding ability alone, can lead to reading ability. A lack of ability in either area will lead to an inability to read effectively. The simple view of reading aimed to encompass factors from

the debate about the value of learning to read through single word or whole language techniques as it encompasses aspects of both views of reading development (Farrall, 2012).

Ehri (2005) proposed a four-phase theory in which children develop reading ability. Ehri's theory is based on the development of 'sight word reading' which refers to words that have been successfully read multiple times and therefore they are stored in one's memory creating links to the spelling, pronunciation and meaning (Ehri, 2005; Farrall, 2012). The process of learning sight words involves creating connections between the patterns of graphemes and phonemes which connect the spelling of words to their pronunciation and meaning, which make the words easier to retrieve when re-exposed to them while reading (Farrall, 2012). Unlike Chall's stages, Ehri proposed that the phases presented are not qualitatively different from one another and children gradually moved from one phase to the next (Ehri, 2005). The first phase is the pre-alphabetic phase, which is when children do not have letter-sound connections to words and rather use environmental or contextual cues in order to make meaning (Ehri, 2005). For example, while reading a child may say the word "look" based on the picture of eyes on the page rather than the printed word 'look'. The next phase is the partial-alphabetic phase. This is seen when children begin to learn the names of the letters in the alphabet and attempt to recognise words based on this knowledge (Farrall, 2012). Generally, children will remember the first and last letters of words and recognise words using this information, neglecting the letters in the middle of the word. Although children within this phase have some alphabetic knowledge, their knowledge about vowels is still developing (Ehri, 2005). The full-alphabetic phase is reached when children can use their knowledge of the alphabet and spelling to link phonemes in pronunciations (Ehri, 2005). This can be completed as children know the major grapheme-phoneme correspondences and have the ability to match these together when exposed to new words (Ehri, 2005). Systematic instruction regarding phonemic awareness and phonics is required at this phase (Farrall, 2012).

The final phase is the consolidate-alphabetic phase. During this phase, more sight words can be added into memory and phoneme-grapheme connections become grouped into larger sections (Ehri, 2005). Children can expand their knowledge of letter sequences into sections such as affixes or root words. This chunking of letter sequences allows for quicker sight word reading (Farrall, 2012).

Language skills are important when considering literacy abilities (Farrall, 2012; Fox & Alexander, 2011; Indrisano & Chall, 1995). Language use and comprehension will develop in children long before the ability to read is developed which can be seen in the use of language in pre-school aged children, whereas reading abilities tend to develop once children start school at 5-6 years old. This leads to an imbalance seen between understanding and the text that is able to be read. For example, Indrisano and Chall (1995) report that children may have the language comprehension to understand 6,000 words but they can only recognise and read 300-500 words by the end of the first few years at school. Once children begin to approach high school age the imbalance between reading ability and language comprehension tends to even out as students gain the skills required to decode harder words that align with their language comprehension abilities (Indrisano & Chall, 1995).

### ***1.2.2 Children who struggle to read***

As identified above when considering reading using the simple model of reading, Gough and Tunmer (1986) identify three different ways in which students may experience difficulties in reading: difficulties in just decoding, difficulties in just linguistic comprehension or difficulties in both areas. When a student is experiencing difficulties in decoding abilities, but not with their comprehension abilities, they can understand language, however, they are unable to use this knowledge to decode single words. This is the difficulty that is seen in children with dyslexia. There is a lack of reading abilities seen which is a result of decoding difficulties, yet there is relative strength in language and comprehension abilities. The second

way in which a reading difficulty may be seen when there is an ability to decode words correctly but there is an inferior level of linguistic comprehension (Gough & Tunmer, 1986). This has sometimes been referred to as hyperlexia and those with this combination of abilities are thought to be able to say a written word as well as they can speak (Gough & Tunmer, 1986). The final way in which a reading difficulty can be seen has been referred to as “garden-variety poor readers”, in which both decoding and comprehension are difficult. These readers often experience difficulties early in their reading development. However, difficulties can also appear later as the text that students are required to read increases in difficulty without an increase in their ability to decode or comprehend.

Children who exhibit reading difficulties also tend to exhibit difficulties in other areas such as their behaviour. Prochnow, Tunmer, and Chapman (2013) investigated the influence of behaviour on literacy outcomes. It was found that the area of behaviour that tended to have the most impact on literacy outcomes was inattention behaviours. This included inattentiveness, difficulties concentrating, distractibility, boredom and task avoidance behaviours including withdrawal from or failure to complete learning tasks (Prochnow et al., 2013). These are behaviours that may be considered ‘difficult’ in a classroom setting and learning environment. It was found that the students that struggled more with their reading tended to exhibit more inattentive behaviours than those who were better at reading (Prochnow et al., 2013). Additionally, those who showed difficulty in their literacy abilities from a young age tended to exhibit more behavioural difficulties as they got older, which in turn was related to further difficulties in their literacy development (Prochnow et al., 2013).

### ***1.2.3 Interventions in New Zealand***

The current Ministry of Education funded intervention for students who struggle learning to read in New Zealand is Reading Recovery. This is a one-on-one reading intervention programme provided to second-year students who have shown difficulties in

learning to read (Ministry of Education, 2017). Reading recovery was developed by Dame Marie Clay and has two main goals. The first is to assist six-year-old children who have been identified as struggling to learn to read by increasing their reading and writing abilities. Through early intervention, it is hoped that these difficulties will not impact the children's ongoing education. The second goal is to identify students who will need additional ongoing literacy support (Ministry of Education, 2018a). In the 2018 annual reading recovery report, 56% of children successfully completed reading recovery, with 24% of children continuing lessons and 13% of children identified as requiring ongoing literacy support, showing that reading recovery is successful for many students (Ministry of Education, 2018a). However, this intervention programme is only available for students that are within their second year of schooling and there are limited spaces available to take part in the intervention. If difficulties are not identified early there are no government-funded interventions available for older readers who are struggling.

In contrast, Denston (2017) researched a literacy intervention that could be used with older learners than those targeted by Reading Recovery. This research also aimed to understand if the psychosocial development of students who struggled with literacy could be influenced by such a targeted literacy intervention. This research was completed with students in Years 4-6 of New Zealand schools and looked at the psychosocial variables of global self-esteem, academic self-esteem, general self-efficacy as well as emotional, academic and social self-efficacy, reading attitude and resilience. Denston (2017) found that there appeared to be a variable relationship between improvements in literacy abilities and the psychosocial variables included in the research; for example, a relationship between global self-esteem and academic achievement. However, there was evidence of an increase in academic self-esteem, general self-efficacy and emotional self-efficacy following the literacy intervention. In contrast, Denston found a limited change in academic self-efficacy which did not align with previous

research findings which link academic success with changes in academic self-efficacy (Pajares, 1996). Denston (2017) also found that students with lower initial scores on psychosocial measures tended to show more gains in their psychosocial development on the measures of global-self-esteem, academic self-efficacy and resilience. Alternatively, students that had a higher score initially on the same psychosocial measures demonstrated decreases or stability in their scores over time. The intervention used by Denston (and which is the basis of the intervention used in the present research) was found to be effective in increasing literacy abilities for students who showed evidence of struggling with learning to read and write in Years 4-6.

### **1.3 Aims of the current research**

The current research on New Zealand students further extended the age/year levels targeted by a literacy intervention for students with a history of struggling with learning to read and write. It aimed to understand the impact of such a targeted literacy intervention on the abilities of Year 7 and 8 students, and (similar to Denston, 2017) determine if the intervention would also show improvements on psychosocial outcomes, such as self-esteem, self-efficacy and resilience. Students with a literacy learning difficulty took part in an intensive reading intervention. Prior to, and following, the intervention, they completed measures of literacy ability and scales assessing self-esteem, self-efficacy and resilience. A further factor in the study was to determine if behavioural difficulties were also related to literacy outcomes.

Given the research regarding psychosocial outcomes and literacy change following research questions are posed:

1. Does a literacy intervention lead to an increase in literacy and psychosocial outcomes?
2. Is there a relationship between changes in literacy achievement and psychosocial outcomes in children exhibiting literacy learning difficulties in Year 7 and 8?

3. Is there a difference in literacy and psychosocial outcomes when considering children who present with additional behavioural difficulties in a learning environment?

The following hypothesis is made regarding the above research questions:

1. The intervention will lead to increases in literacy skills and psychosocial development.
2. There will be a relationship found between literacy abilities and psychosocial outcomes in children.
3. There will be different outcomes for students presenting with additional behavioural difficulties.

## **2 Method**

### **2.1 Ethical Approval**

Ethical approval was gained from the College of Education, Health and Development at the University of Canterbury in March 2018. The application was a low-risk application because the current research was undertaken within a wider research grant funded by Cure Kids/ A Better Start (EHERC reference: 2018/01/ERHEC-LR, Appendix 1). Information and consent forms were provided for participating students, whānau/aiga and the school principal. Participants and their parents/ caregivers were provided information regarding the group intervention and the individual wellbeing (self-esteem, self-efficacy, and resilience) and literacy development sessions (reading, writing, and spelling). The information sheets used language that was appropriate and understandable to all the students, parents and caregivers. Before commencing the study, each child was asked if they had read and understood the information sheet and consent form. If this was not the case the information sheet and consent form was read to them by the experimenter. All participants were assured of their confidentiality, privacy and their right to withdraw at any time.

### **2.2 Research Design**

This research is a quasi-experimental design with two independent intervention groups that underwent testing pre- and post-intervention. The aim was to support the acquisition of literacy and observe outcomes on literacy and psychosocial outcomes of self-esteem, self-efficacy and resilience. Participants were assigned to one of two intervention Strands, A or B. Strand A took part in the intervention in Term 2 of the school year and Strand B in Term 3. The participants in Strand B demonstrated lower initial reading abilities and presented with more behavioural difficulties according to the classroom teachers. Each Strand of participants was further divided into two groups to allow small-group teaching to be conducted. Participants

were assigned into groups by the school to ensure social harmony within the groups as well as assisting in timetabling. Each group had a maximum of six participants to ensure that they received the intensive support required. Testing was completed at the following time points. Pre-intervention and post-intervention for both Strand A and Strand B intervention groups. Strand A intervention group was tested a third time one Term following the end of the intervention, which was used as a follow-up measure. This intervention design allowed two Strands of participants to undergo the intervention, provided pre- and post-intervention testing for both Strands prior to and immediately after the intervention, and a follow-up assessment for one intervention group one Term after the intervention had finished.

### **2.3 Recruitment and Consent**

The research took place in a state intermediate school within a large city. The school reported a large number of students presenting with low literacy skills. Once the school had accepted the request to take part in the research, the special education needs co-ordinator (SENCO) selected students from Year 7 and Year 8 who would meet the criteria for inclusion. Criteria for inclusion in the study included: students must be experiencing a literacy learning difficulty, as identified by the school. The school identified students reading at 10 years or below as experiencing a literacy learning difficulty – this was based on school-wide assessments used by the school at the time of testing. Given that most students were nearing 12 years old or older, this reading age meant that the students were reading 1.5 years or more below their chronological age. Once the students had been selected, information and consent forms were sent home for both the parents/caregivers and the student to read and sign. The parents and caregivers were asked to assist their child in reading and understanding the information and consent forms before signing.

## 2.4 Participants

Initially, 24 students were identified as fitting the criteria. One child showed an escalation in problem behaviours prior to the start of pre-testing and hence was no longer eligible for the research. Once data collection and the intervention had begun, three other participants withdrew from the research. One student did not attend school regularly leading to an incomplete initial data set at the start of the intervention and was subsequently placed in a different school-based reading programme by the school. One student was withdrawn by the researcher as their scores during the initial data collection did not show evidence of a literacy learning difficulty. One student decided to withdraw themselves. Therefore, the final sample included 20 participants. As presented in table 2.1, 13 participants were Year 7 and seven participants were Year 8. Twelve participants were male and eight were female. Nine participants completed the study as part of Strand A, and eleven participants were placed in Strand B. As discussed above, each Strand was divided into two groups. The number of participants per group is presented in Table 2.2 below.

Table 2.1: *Demographics*

	<b>Male</b>	<b>Female</b>	<b>Total</b>
<b>Year 7</b>	8	5	13
<b>Year 8</b>	4	3	7
<b>Total</b>	12	8	20

Table 2.2: *Intervention participant grouping*

<b>Strand</b>	<b>Group</b>	<b>Number of participants</b>
Strand A	Group 1	4

Strand A	Group 2	5
Strand B	Group 3	5
Strand B	Group 4	6

## 2.5 Setting

The research was conducted in a classroom at the intermediate school and was generally quiet with no other groups of students in the room, minimising distractions and allowing the participants to focus. Occasionally there was another teacher working one-on-one with a student in the same room however, this did not distract the participants. The data collection and intervention took place during class-hours to ensure the participants did not miss out on break times. The classroom teachers were aware that the students would be required to leave class to complete both the data collection and the intervention. The intervention times were arranged to avoid clashes with highly enjoyable lessons for the students such as technology, physical education, and IT classes.

## 2.6 Measures and Materials

### 2.6.1 Psychosocial Measures

Five measures were used to assess psychosocial outcomes. All psychosocial assessments were administered verbally by the tester (the researcher) to ensure that the participant's reading ability did not influence their ability to answer the questions presented. The assessments were administered individually, and participants were assured that there were no 'right' or 'wrong' answers to the items.

#### *Global Self-Esteem Scale*

Rosenberg's self-esteem scale (Rosenberg, 1965) was used to measure global self-esteem. This scale was originally presented as a Guttman scale; however, using a Likert

response format elicits the same results (Gray-Little, Williams, & Hancock, 1997), which was the system used in this research. The ten-item questionnaire asked the participants about their perceptions of their overall feelings about themselves leading to an understanding of their self-esteem. The participant was asked to answer how strongly they agree with each statement using the terms strongly agree, agree, disagree and strongly disagree. These were later coded into a numerical format with 4 representing the highest level of self-esteem and 1 representing the lowest level of self-esteem. Five items on the scale required reverse coding. The total raw score was used for analysis with a minimum score of 10 and a maximum score of 40. The internal reliability of the scale has been reported as high, with a Cronbach's alpha of 0.88 (Gray-Little et al., 1997).

#### *Academic Self-Esteem Scale*

The Scholastic Competence subscale of the Self-Perception Profile for Children (Harter, 2012) was used as a measure for academic self-esteem. This subscale assessed the child's perceived competence regarding their schoolwork. The scale consisted of six questions using a structured alternative format, which Harter (2012) reported was used to reduce socially desirable responses. The participant was given two statements in which they were asked to choose which one was most like them: for example, "some kids do very well at their classwork, BUT other kids don't do very well at their classwork". Once the participant selected the statement that is most like them, they report if the statement was "really true for me" or "sort of true for me". During coding, these responses were given a numerical score ranging from 1 to 4, where 4 represented the highest score and 1 represented the lowest score. Raw scores were collected for analysis, with a minimum score of 6 and a maximum score of 24. Two items on the scale were reverse coded. This subscale has also been reported to show good levels of internal reliability, with Cronbach's alpha ranging between 0.80 and 0.85 (Harter, 2012).

### *Self-Efficacy Scale*

The Self-Efficacy Questionnaire for Children (SEQ-C) (Muris, 2001) was used to measure self-efficacy. This questionnaire was designed to measure overall self-efficacy in children, known as general self-efficacy, as well as three subdomains: social self-efficacy, emotional self-efficacy and academic-self efficacy (Muris, 2001). The questionnaire consisted of 24 questions that were answered using a six-point Likert scale with 1 being “not at all” and 6 being “very well”. In an effort to avoid socially desirable responses associated with numbers, the participants were given a chart that was anchored with a happy face at one end and a sad face at the other. The participant pointed to the box that best represented their responses to the question. The 24 questions were split equally into three categories, each targeting one of the above domains. For each category, the responses were added up for analysis, producing a possible minimum score of 8 and a maximum score of 48 for each scale. A full-scale score comprised the total score from three subscales, giving a minimum score of 24 and a maximum score of 144. Muris (2001) reported satisfactory internal consistency reliability of Cronbach’s alpha 0.88 for the total self-efficacy score, and between 0.85 and 0.88 for the subdomain scores.

### *Resilience*

Resilience was measured using the manageability subscale in the Sense of Coherence-Orientation to Life Questionnaire (Antonovsky, 1993). This subscale was used to measure the participants’ perception of their ability to manage events that may happen within their life. The ten-item questionnaire used a semantic differential format in which the participants were asked to respond to a question/statement on a 7-point scale. Each question was anchored with a semantically different phrase: for example, the statement “There is always a solution to the painful things in life”, was anchored with “I am sure there will be”, or “I doubt there will be” at either end of the 7-point response scale. A visual chart was used to assist the participants in

answering each item. Numerical values were given to the responses which ranged from 1 being the least resilient response to 7 being the most resilient. Six items were reverse coded. Raw scores were collected for analysis, producing a minimum score of 10 and a maximum score of 70. This subscale has a reported internal reliability Cronbach's alpha of 0.80 (Denston, 2017).

### *Strengths and Difficulties Questionnaire*

The Strengths and Difficulties Questionnaire (SDQ) was used to understand the participants' perceptions of four different areas of problem behaviour: hyperactivity, emotional symptoms, conduct problems and peer problems, as well as the presence of prosocial behaviours (Goodman, 1997). The participants were asked to answer, "not true", "somewhat true" or "certainly true" to 25 statements, such as "I am restless, I cannot stay still for long" and "I usually do as I am told". The answers to these statements were scored numerically with 0 being "not true", 1 being "somewhat true" and 2 being "certainly true". Each scale had 5 items. Nine items were reverse coded. To calculate an externalising scale, scores from the hyperactivity and conduct problems scales were combined. To calculate an internalising scale, scores from the emotional problems and peer problems scales were combined. The total difficulties scale is created by combining the scores from the hyperactivity, emotional problems, conduct problems and peer problems scales. The prosocial scale is not included as the absence of prosocial behaviours is considered conceptually different from the presence of other psychological difficulties (Goodman, 1997). The raw scores for each subscale (hyperactivity, conduct problems, emotional problems, peer problems and prosocial) were collected for analysis with a minimum score of 0 and a maximum score of 10. Internalising and externalising scores had a minimum of 0 and a maximum of 20. The total difficulties score had a minimum of 0 and a maximum of 40. Internal reliability has been reported as acceptable with a mean Cronbach's alpha of 0.73 (Goodman, 2001; Muris et al., 2004). The SDQ is considered

an effective measure for perceptions of behaviour and therefore was considered appropriate for this research (Goodman, 2001).

### ***2.6.2 Literacy Measures***

The literacy measures incorporated measured vocabulary, reading fluency, reading accuracy, decoding, reading comprehension, phonological processing and morphological processing. During the assessments, participants were given minimal encouragers for their efforts. However, they were not told if their answers were correct.

#### *Expressive Vocabulary Probe*

An expressive vocabulary measure developed by Denston (2017) was used in the current research. This measure was based on research by Anglin (1993); Carlisle (2003); and Justice, Meier, and Walpole (2005). It required the participants to show their understanding of words by giving a definition of the word and using the word in a sentence. There were three practice and twenty target words. All responses were recorded verbatim for scoring. Scoring consisted of 0 being no knowledge, 1 being incomplete knowledge and 2 being complete knowledge. A correct definition was scored one point and a correct sentence was scored one point, allowing for a total of two points for each target word. The raw scores were collected for analysis with a minimum score of 0 and a maximum score of 40. This measure had good levels of inter-rater reliability for the measure, with all scores gaining over 90% adherence/similarity.

#### *Woodcock Reading Mastery Tests*

Two measures were used from the Woodcock Reading Mastery Tests (Woodcock, 2011). These are the Word Attack test as a measure of decoding skills and the Passage Comprehension-Cloze test. Bradley-Johnson, Morgan, and Nutkins (2004) reported internal consistency reliability using the split-half method for the entire Woodcock Reading Mastery

Tests. A reliability of  $\geq 0.80$  was obtained for all subtests including the Word Attack and Passage Comprehension-Cloze task (Bradley-Johnson et al., 2004).

*a. Woodcock Reading Mastery Test- Word Attack*

The Word Attack test is comprised of 32 items, which increase in complexity. Participants were asked to read aloud non-words. Non-word reading tasks have been argued to be an ideal way to measure word attack abilities as the participants will not recognise such words by sight – they will have to use some sort of decoding process to pronounce them (Bradley-Johnson et al., 2004). The basal level for this assessment was three correct items (these may be non-consecutive) before termination of the assessment. All participants began at item four and continued consecutively until the discontinue rule of four incorrect items was met. If the basal level was not reached before the discontinue rule, the participants were administered items one to three. The participants' verbal responses were coded using the International Phonetic Alphabet (IPA). Two different 32-question sets were used. Set A was used during pre-testing and set B was used during post-testing. Two raw scores were calculated from this test for analysis. The first is the total number of correct words with one point given per correct word. The minimum possible score was 0 and the maximum score was 32. An additional score was calculated to investigate the total number of correct graphemes, which was coded based on the number of graphemes present in the target word. The minimum possible score was 0 and the maximum possible score was 112.

*b. Woodcock Reading Mastery Test- Passage Comprehension-Cloze*

The Passage Comprehension-Cloze test consisted of 47 items to assess a participants' understanding of what they have read (Bradley-Johnson et al., 2004). The participants were presented with an incomplete sentence and asked to fill in the missing word. The first 15 items supplied a picture cue with the sentence. The participants continued with the test items until

four consecutive items were incorrect, at which time the assessment was terminated. The basal level for this test was three correct items (these may be non-consecutive) before termination of assessment. All participants began the assessment at item six and if the basal level was not reached by the termination point of four incorrect answers, the participant completed items one to five. The participants were given approximately 15 seconds to respond after reading the passage before a prompt was given. If there was still no response, the participant was guided onto the next test item. Two sets of questions were used with set A being used for pre-testing and set B being used at post-testing. The number of correct responses was calculated and used for analysis with a minimum possible score of 0 and a maximum possible score of 47.

### *The Burt Word Reading Test*

The Burt Word Reading test- New Zealand revision (Gilmore, Croft, & Reid, 1981) was administered as a measure of single-word reading. The participant was presented a page of 110 test words in blocks of 10 words. Each block of words increased in difficulty. Participants were asked to begin reading across the page from left to right out loud. Every word was discreetly marked by the tester to ensure the participant could not see if they were correct. As stated in the administration guidelines (Thorpe, 1976), self-corrections of words were recognised and if the examiner was unsure of a word they were asked to repeat the word. The test continued until the participant made 10 consecutive errors, after which they were given the opportunity to try any additional words past the termination point. The raw score was calculated by giving one point for every correct word giving a minimum possible score of 0 and a maximum possible score of 110. This test had a high level of reliability with a Cronbach's alpha of .96 (Denston, 2017).

### *Phonological Processing Task*

The phonological processing task was included to measure phonological awareness. This measure was adapted from the Gough-Kastler-Roper Phonemic Awareness Test (Gough, Kastler, & Roper, 1984). The assessment was administered orally and contained six subtests; blending, initial phoneme deletion, final phoneme deletion, phonemic segmentation, initial phoneme substitution, and final phoneme substitution. Each of these subtests included one practice item and seven test items. One-point was given for each correct answer and the raw scores were gathered for analysis with a minimum possible score was 0 and the maximum possible score was 42. Griffith (1991) reported split-half reliability for all seven subtests as greater than 0.70.

### *Morphological Judgement Tasks*

Three different tests were used to test the aspects of morphological awareness. These were a morphological judgement task, a morpho-syntactic task and a morphology word analogy task, information regarding the way in which these were created can be found in Denston (2017).

*a. Morphological Judgement Task.* The morphological judgement task was adapted from Nagy, Berninger, and Abbott (2006). During this task, participants were asked to make a judgement about the morphological relationship between two words. The assessment consisted of two practice items and twenty test items. Participants were presented with pairs of words both verbally and visually and were asked to identify if the second word was derived from (“comes from”) the first one. For example:

Ship: Shipment (Correct response) Yes

War: Warrant (Correct response) No

One-point was given for each correct response. Raw scores were collected for analysis with a minimum possible score of 0 and a maximum possible score of 20. Denston (2017) reported reliability of Cronbach's alpha as 0.59 for this measure.

*b. Morpho-Syntactic Task.* This assessment was adapted from Carlisle (2000). This assessment consisted of three practice items and twenty target items which were presented to the participant both verbally and visually. The participant was presented with a target base word, followed by a sentence in which the participant was required to give the target word in the correct morphological format for the sentence. For example:

Warm: The man chose to buy the jacket for its \_\_\_\_ (Correct response) Warmth

Anger: Seeing that his bike had been stolen made the boy feel \_\_\_\_ (Correct response) Angry

Produce: The cultural festival was a great \_\_\_\_ (Correct response) Production

Story: My favourite books to read are mystery \_\_\_\_ (Correct response) Stories

One-point was administered for the correct answer. Raw scores were collected for analysis with a minimum possible score of 0 and a maximum possible score of 20. Denston (2017) reported a Cronbach's alpha of 0.73.

*c. Morphology Word Analogy Task.* The final measure of morphological awareness was the Morphology Word Analogy Task. The word analogy task was adapted from by Nunes, Bryant, and Bindman (1997) as a measure for grammatical awareness and used an a:b::c:d analogy format that is used in cognitive psychology (Nunes et al., 1997). The assessment consisted of two practice items and twenty test items. During this task, the examiner presented the participant, both verbally and visually, with a pair of words that had a morphological change. The participant was given the first word of a second pair and asked to give the final word of the pair, following the same pattern as the change in the first pair. For example:

Sing: Singer- Read: (Correct response) Reader

Celebrate: Celebration – Educate: (Correct response) Education

Hunger: Hungry- Strength: (Correct response) Strong

Different transformations were used with a combination of inflectional and derivational morpheme changes. One-point was administered for the correct answer. Raw scores were collected for analysis with a minimum possible score of 0 and a maximum possible score of 20.

### **2.6.3 Descriptive Measures**

The following measures were used only during pre-intervention testing in order to describe literacy skills before the intervention.

#### *British Picture Vocabulary Scale: Third Edition (BPVS)*

The British Picture Vocabulary Scale (Dunn & Dunn, 2007) was used as a measure of vocabulary. BPVS was designed to measure receptive vocabulary and verbal ability in persons from 2.5 to 90 years old (Campbell, 1998). The assessment consisted of 2 practice items and 168 test items, split into 14 sets of 12 target words. Participants were verbally presented with a target word and a card with four numbered pictures. The participant was asked to tell the examiner the number of the picture that best represented the target word. The participant started the test at the set that correlated with their age at the time of testing. The basal set was established when no more than one error was made in a set of target words. The test was terminated when eight or more errors were made in a set of target words. The raw score was calculated by giving one-point for every correct item with a minimum possible score of 0 and a maximum possible score of 168. Campbell (1998) reported an internal reliability coefficient of 0.95 and a split-half coefficient of 0.94.

### *Neale Analysis of Reading Ability (NARA)*

The Neale Analysis of Reading Ability (NARA) was used to measure reading performance. The NARA was first published in 1958 and was revised for an Australian population in 1999 (Neale, 1999). It has been argued to be one of the most widely used tests of reading ability among specialists in New Zealand (Neale, McKay, & Childs, 1986). The NARA standardised form 2 was used, which consisted of two practice texts, and six test texts of increasing difficulty. The participant was asked to read the story out loud and answer between 4 and 8 pre-scripted questions to assess the participant's comprehension of the text. All participants began at practice question Y and continued from test 1 until the specified amount of errors have been made, 16 errors from items 1-5 and 20 errors for item 6. The assessment was carried out following the guidelines stated (Neale, 1999). Each reading assessment was timed from the first word read to the final word for each test text to assess the rate of reading. Three raw scores were collected for analysis: reading accuracy, reading comprehension and rate of reading. Neale (1999) reported Kuder-Richardson reliability coefficients for internal consistency of over 0.85 for the three scales.

### *Schonell Spelling Test*

The Schonell Spelling test was used as a measure of spelling ability. The Essential Spelling List by Fred Schonell has been used in schools for over 70 years (Ministry of Education, 2018b). The spelling task consisted of 100 words which increased in difficulty. The examiner presented the participant with a word verbally, used it in a sentence before repeating the word once more; for example, “*net, I caught a fish in my net, net*”. The participant was asked to spell the word after listening to the sentence. Once the participant had spelt ten consecutive words incorrectly the test is terminated. All participants began the test with the

first word of spelling test A. The raw score was calculated giving one-point for every word correctly spelt, giving a minimum possible score of 0 and a maximum possible score of 100.

#### **2.6.4 Intervention**

The intervention used in this research was based on that developed by Denston (2017). The intervention included 20 hours of intervention, carried out over an eight-week period. Students attended a maximum of 5 sessions per week, for 30 minutes each session. The mean attendance for Strand A participants was 34.2 sessions, with a range of 29 (minimum) to 38 (maximum) sessions attended. The mean attendance for Strand B participants was 25.7 sessions, with a range of 15 (minimum) to 33 (maximum). Each intervention session was split into sections.

*Section one.* At the beginning of each session, students were welcomed with a whakatauki (proverb) in te reo Māori that related to learning or working as a group. The groups would then explore the meaning of this proverb and relate it to their reading journey.

*Section two.* The second section involved decoding. During this section, the students were taught how to decode morphologically complex words using a strategy adapted from Moats (2010). This initially involved identifying the vowels and progressed to finding known morphological and orthographic units, ‘bouncing’ under each identified section and then flexing the pronunciation and sounds to create a word that they know. As the students got better at this, more complex words were provided, and the meaning of the words was also explored. This activity often led to section three of the session.

*Section three.* Section three involved explicit skill-based teaching. This included skills like using and understanding morphological units, such as the ‘-ed’ unit for past tense, or an orthographic unit, such as ‘ai’ (long ‘a’ sound in rain). The way in which this pedagogical action was structured and flexible to respond to the student’s needs and the dynamics of the

group. For example, one group was happy to sit and listen and write in their books however, other groups were more engaged when writing on the whiteboard in pairs to learn and practice the skill.

*Section four.* This section of the session was an activity or game to practice the new skill in a fun and engaging way, leading to a better understanding of the focus/ target skill. Activities included matching games, speed-based games, spelling games, and word creation games. Often in this section, there were prizes for the winners of the games; for example, school achievement cards that were provided by the school SENCO.

*Section five.* The fifth section of the session included reading narrative texts. Each week the students would read a novel text, followed a repeated reading process. The process began with the teacher modelling reading aloud one paragraph at a time with the students following along using a tracking card. Then the students read aloud as a group and then sentence by sentence individually to the group. As the programme progressed less modelling was provided, and the students would read some sections to a partner or quietly to themselves. During this section, there was a focus on fluency, comprehension, and decoding of difficult words. This section was sometimes completed earlier in a daily session based on the teacher's assessment of the responses from the students. For example, some of the games were highly stimulating and exciting which made it difficult to calm down and focus on reading, so the "game/ activity section" was left till the end of the session to allow for better focus while reading.

All the materials required for the intervention were provided for both the teacher and the students. This included a workbook for each student, a demonstration book for the teacher, pens, and pencils, whiteboard markers, printed texts, lesson plans for the teacher as well as activity materials such as flashcards, dice, and printed words. The researcher implemented the intervention within the school while holding a current VCA as per university and school policy.

## 2.7 Procedure

Once consent to participate was gained, pre-intervention testing for all participants in Strand A began. This was conducted over five half-hour sessions, with participants being tested individually during school time in Term 1. In week two of Term two, Strand A participants began the intervention, which ran for eight weeks. During week eight of Term two, Strand B participants began their pre-intervention testing which followed the same format as Strand A. At the end of the intervention for Strand A, post-intervention testing was conducted over four 30-minute sessions, on an individual basis with each participant. At the beginning of Term 3, Strand B began its eight-week intervention. Once Strand B had completed their intervention, students completed their post-intervention assessments. Strand A also completed their follow-up assessment. Testing for both Strands took place across four 30-minute sessions with each participant being tested individually during school time at the end of Term three (Strand B) and the beginning of Term four (Strand A and B). Once both interventions had been completed, and all the data had been collected, it was coded and entered into a computer for statistical analysis.

Table 2.3: *Timetable of intervention*

<b>Time Period</b>	<b>Strand A</b>	<b>Strand B</b>
Term 1- Week 8	Consent obtained from participants and caregivers	Consent obtained from participants and caregivers
Week 9	Pre-testing	
Week 10	Pretesting	
Term 2- Week 1	Pre-testing	
Week 2- Week 8	Intervention	
Week 9	Intervention	Pre-testing

Week 10	Post-testing	Pre-testing
Term 3- Week 1	Post-testing	Pre-testing
Week 2- Week 9	Post-testing	Intervention
Week 10		Post-testing
Term 4 – Week 1- Week 4	Follow-up testing	Post testing

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### 3 Results

This chapter details the results of the measures collected during data collection. For Strand A this includes, pre-intervention, post-intervention and follow-up testing. For Strand B this includes, pre-intervention and post-intervention. The details of the statistical analysis will be explained followed by a description of the participants, including the identification of the group differences. The descriptive measures will then be discussed to understand the characteristics of the participants before the intervention. The results from Strand A participants will be analysed followed by the results from Strand B.

#### 3.1 Statistical Analysis

All statistical analyses were carried out using the statistics software SPSS. Paired samples t-tests were completed to understand the changes in psychosocial measures and literacy measures pre-intervention and post-intervention to determine if the changes across the intervention time were statistically significant. Correlations were completed for the gain scores pre-intervention and post-intervention to investigate the association between psychosocial measures and literacy measures. A significance level of 0.05 was used to determine the statistical outcomes of this research.

#### 3.2 Demographic Data

Participants in this study were between the ages of 11 and 13 years at the beginning of the study, with a mean age of 11 years and 8 months. As shown in table 3.1 of the 20 participants, 12 were male and 8 were female.

Table.3.1 *Participant demographics*

Males		Females		Total
Year 7	Year 8	Year 7	Year8	

<b>Strand A</b>	2	2	2	3	9
<b>Strand B</b>	6	2	3	0	11
<b>Total</b>	8	4	5	3	20

Participants in Strand A and B differed in terms of their overall behavioural difficulties. Strand B participants exhibited more problem behaviours in class (as reported by teachers) and exhibited noticeably more challenging behaviours during the intervention sessions. Examples of challenging behaviours in the intervention sessions include extreme reluctance to attend and participate in the group, talking out of turn, unkind comments to other participants, leaving their seat and the classroom, off-topic activities, and failing to follow instructions when given.

### 3.3 Descriptive Measures

The descriptive measures were administered at pre-intervention testing. These measures included the British Picture Vocabulary Scale: Third Edition (BPVS), the Neale Analysis of Reading Ability (NARA) and the Schonell spelling task.

Table 3.2 presents the raw descriptive data from Strand A and B participants. The participants' results on the NARA, BPVS and Schonell spelling task were converted into literacy ages based on the respective conversion tables for each measure. The literacy ages presented suggest that the participants' literacy abilities were below that expected of their age. Strand A participants appeared to present with the most difficulties in their comprehension and rate of reading which were similar to those of a typically developing 7-year old reader. However, it should be noted that the participants had a higher reading accuracy score as they may have spent longer decoding words which may have contributed to the slower rate of reading. The area in which Strand B participants showed the most difficulty was their rate of reading in which their abilities were similar to a typically developing reader of 6-years and 8-

months old. However, as was found for Strand A participants, it should be noted that the participants had a higher reading accuracy score which may have contributed to the slower rate of reading. Strand B participants presented with a significantly higher literacy age scores on the BPVS than the other literacy measures. This means that the participants' vocabulary skills exceed that of their current reading and spelling skills. This can be seen as a strength for Strand B participants as having a large vocabulary may assist in the acquisition of reading and spelling skills due to potential prior exposure to words that are to be read. Based on these descriptive results it is likely that these students are experiencing difficulty decoding words.

Table 3.2: *Descriptive statistics for Strand A and B participants'*

<b>Measure</b>	<b>Strand A</b>			<b>Strand B</b>		
	<b>M (SD)</b>	<b>Min-Max</b>	<b>Average literacy age</b>	<b>M (SD)</b>	<b>Min-Max</b>	<b>Average literacy age</b>
NARA- Accuracy	44.33 (10.25)	32.00-58.00	8y 4 m	34.64 (10.23)	16.00-49.00	7 y 8 m
NARA- Comprehension	12.22 (3.27)	8.00-17.00	7 y 7 m	11.64 (4.06)	6.00-18.00	7y 6m
NARA- Rate	35.38 (9.88)	19.90-46.70	7 y 1m	29.41 (8.50)	19.10-50.60	6y 8m
Schonell	35.33 (8.86)	23.00-48.00	8y 3m	24.55 (7.87)	13.00-39.00	7y 2m
BPVS	118.33 (12.08)	97.00-132.00	8y 4m	119.45 (15.93)	96.00-137.00	8y 8m

### **3.4 Strand A Results**

#### ***3.4.1 Pre/ Post- Intervention Results for Literacy Measures***

Table 3.3 presents the results for Strand A participants' literacy measures. A paired-samples t-test was conducted to compare the raw mean scores pre- and post-intervention for participants' literacy measures. There was a significant increase in scores for expressive vocabulary, Burt Word Reading test, morphological judgement task, morpho-syntactic task, and the phonological processing total scores ( $p < .05$ ). These results mean that the intervention led to a significant improvement in the participants' ability to understand vocabulary, decode and read single words, understand the morphological relatedness of words, morphologically manipulate words, and phonologically manipulate words. The paired samples t-test revealed that there were no significant differences in the scores for the Word Attack measure, the Passage Comprehension-Cloze task, and the morphology analogy task. These results suggest that the intervention had no statistically significant impact on the participants' ability to use phonological processing skills to read non-words, understand the sentences they have read, or morphologically derive or inflect words.

Table 3.3: *Pre-post intervention literacy measure results for Strand A participants*

Measure	Pre-intervention		Post-intervention		t (df 8)	Sig (2-tailed)
	Min- Max	M(SD)	Min-Max	M(SD)		
Expressive vocabulary	8 – 26	15.67 (5.52)	16 – 25	20.11 (3.52)	-2.35	0.047*
Word Attack-Graphemes	32 – 83	57.33 (17.97)	30 – 101	57.22 (19.64)	-0.04	0.971
Word Attack-Words	7 – 17	11.89 (3.95)	7 – 19	11.56 (3.43)	0.34	0.740
Cloze task	12 – 23	15.89 (3.72)	11 – 22	16.56 (3.68)	-0.72	0.493
Burt	40 – 74	54.22 (11.86)	42 – 90	61.56 (14.19)	-4.42	0.002*
PP Total	24 – 34	29.78 (3.67)	26 – 38	32.44 (4.00)	-4.00	0.004*
Morphological judgement	7 – 20	11.78 (3.60)	11 – 19	14.78 (2.77)	-4.37	0.002*
Morpho-syntactic task	10 – 16	12.78 (1.99)	14 – 17	15.78 (1.09)	-4.90	0.001*
Morphology analogy task	6 – 16	12.67 (3.50)	10 – 18	14.11 (2.57)	-1.35	0.213

\*Indicates significance at  $p < 0.05$  Note: PP Total= Phonological Processing task total score

### **3.4.2 Pre/ Post-Intervention Results for Psychosocial Measures**

Table 3.4 presents the results of the psychosocial measures for Strand A participants. A paired-samples t-test was conducted to compare the mean scores at Strand level pre- and post-intervention for all psychosocial measures to understand if there were any significant changes. There was a significant increase found for the measure of academic self-esteem ( $p < .05$ ). This result means that it is likely the participants perceived themselves as more competent regarding their schoolwork following the intervention. There were no significant differences seen in the pre- and post-intervention for global self-esteem, self-efficacy, resilience or total SDQ. This means that the participants did not report a significant increase or decrease in the way they felt about themselves; their confidence in their abilities socially, emotionally and academically; their ability to manage events that may happen in their life; or their behaviour following the intervention.

Table 3.4: *Pre-post intervention psychological measure results for Strand A participants*

Measure	Pre-intervention		Post-intervention		t (df 8)	Sig (2-tailed)
	Min – Max	M (SD)	Min – Max	M (SD)		
Global self-esteem	27 – 36	29.67 (2.30)	20 – 36	28.89 (4.91)	0.47	0.650
Academic self-esteem	7 – 15	11.78 (2.91)	7 – 18	13.11 (3.33)	-2.53	0.035*
Self-efficacy- total score	67 – 118	90.78 (16.48)	50 – 120	96.78 (21.13)	-0.92	0.384
Self-efficacy- academic	12 – 39	27.22 (8.83)	20 – 37	30.11 (6.09)	-1.28	0.236
Self-efficacy- emotional	25 – 42	32.11 (5.46)	16 – 45	31.78 (8.63)	0.13	0.899
Self-efficacy- social	27 – 37	31.44 (3.64)	14 - 45	34.89 (9.48)	-1.09	0.310
Resilience	26 – 58	43.67 (10.14)	32 – 62	49.22 (10.12)	-2.01	0.079
SDQ- total	6 – 27	13.56 (8.03)	6 – 27	13.11 (7.60)	0.33	0.753

*\*Indicates significance at  $p < 0.05$  level*

### 3.4.3 Correlations

Pearson correlation coefficients were calculated using the mean change scores for all literacy and psychosocial measures to identify any relationships between these variables. The change score was calculated by subtracting the pre-intervention score from the post-intervention score. The correlation tables are presented in Table 3.5. Cohen's (1988) guidelines define large correlations as ( $r = .5$  to  $1.0$ ), medium correlations as ( $r = .30$  to  $.49$ ), and small correlations as ( $r = .10$  to  $.29$ ). Large and medium correlations were found between all psychosocial measures and at least 2 literacy measures, with some statistically significant large correlations.

Academic self-efficacy showed a large statistically significant positive correlation with the expressive vocabulary measure,  $r=0.74, n=9, p= 0.02$ , as well as a large correlation with the Burt Word Reading measure,  $r=0.63, n=9, p=0.06$ , and the morphological judgement task,  $r= 0.60, n=9, p=0.08$ . This means that there appeared to be a positive relationship between academic self-efficacy and skills in vocabulary, single word reading and the ability to morphologically manipulate words.

Three large positive significant correlations were found between resilience and expressive vocabulary,  $r= 0.74, n=9, p=0.02$ , Burt word reading,  $r=0.68, n=9, p=0.04$  and the morphological judgement task  $r= 0.72, n=9, p=0.29$ . These results reveal that there appeared to be a positive interaction effect on resilience as vocabulary, single word reading and morphological awareness increased.

There were three large correlations and four medium correlations found between the SDQ and literacy measures. There was a large negative correlations found between SDQ-total score and Burt word reading,  $r=-0.76, n=9, p=0.02$ , phonological processing task,  $r=-0.54, n=9, p=0.13$ , and morphological judgement,  $r=-0.52, n=9, p=0.15$ . There was a medium negative

correlation found between expressive vocabulary,  $r=-0.36$ ,  $n=9$ ,  $p=0.35$ , word attack graphemes,  $r=-0.40$ ,  $n=9$ ,  $p=0.29$ , word attack words,  $r=-0.34$ ,  $n=9$ ,  $p=0.37$  and morpho-syntactic  $r=0.37$ ,  $n=9$ ,  $p=0.32$ . The majority of these correlations were negative. This effect was expected as a decrease in SDQ scores indicates fewer reported behavioural difficulties. Therefore, the negative correlations indicate that decreases in behavioural difficulties were associated with increases in the student's literacy skills.

Three large correlations were found between self-efficacy and expressive vocabulary  $r=0.519$ ,  $n=9$ ,  $p=0.152$ , Burt word reading,  $r=0.594$ ,  $n=9$ ,  $p=0.092$ , and morphological judgement task,  $r=0.565$ ,  $n=9$ ,  $p=0.113$ . This indicates that as students improved their vocabulary abilities, single word reading and ability to understand the morphological relationships, their global self-efficacy also increased.

These results indicate an association between psychosocial and literacy development that as the students' literacy abilities increased their global and academic self-esteem, self-efficacy and resilience scores tended to increase. Alternatively, as literacy abilities increased there was an associated decrease in reported difficult behaviours.

Table 3.5: *Pearson correlations for Strand A participants*

	<b>GSE</b>	<b>ASE</b>	<b>SEff-Aca</b>	<b>SEff-Emo</b>	<b>SEff-Soc</b>	<b>SEff-Tot</b>	<b>Res</b>	<b>SDQ-T</b>
Expressive vocabulary	.339	-.172	<b>.739*</b>	.322	.280	<b>.519*</b>	<b>.738*</b>	-.356
Word Attack- Graphemes	-.080	-.086	.201	.212	-.220	.045	.248	-.397
Word Attack-Words	.014	-.271	.289	.263	-.471	-.026	.123	-.338
Cloze task	-.448	.227	-.049	-.170	.280	.053	.253	-.146
Burt	.291	.016	<b>.632*</b>	.446	.411	<b>.594*</b>	<b>.684*</b>	<b>-.759*</b>
PP Total	-.067	.474	-.058	.220	.147	.138	-.010	<b>-.539*</b>
Morphological judgement	.331	.115	<b>.600*</b>	<b>.585*</b>	.261	<b>.565*</b>	<b>.718*</b>	<b>-.518*</b>
Morpho-syntactic	-.351	-.258	-.226	<b>-.706*</b>	-.225	-.465	-.382	.374
Morphology word analogy	-.117	.436	-.205	.083	.173	.046	-.034	-.192

*Note:* Cohen's (1988) guidelines define large correlations as ( $r = .5$  to  $1.0$ ), medium correlations as ( $r = .30$  to  $.49$ ), and small correlations as ( $r = .10$  to  $.29$ ). GSE= Global self-esteem, ASE= Academic self-esteem, SEff-Aca= Academic self-efficacy, SEff-Emo= Emotional self-efficacy, SEff-Soc= Social self-efficacy, SEff-Tot= Total self-efficacy, Res= Resilience and SDQ-T= Total Strengths and Difficulties score.

**Boldface** indicates large correlations, *italics* indicates medium correlations.

\*Indicates significance at 0.05 level

### 3.4.4 Behavioural Changes

Strand A participants exhibited some changes in their behaviours as reported using the SDQ. As aforementioned, the SDQ has 5 subscales and a total score. Goodman (1997) presented cut points which converted the raw scores on the SDQ to range scores to better understand the behaviours reported on the SDQ and these were further developed in 2015. These cut-points have been made based on average scores within a UK community sample. 80% of children are within the ‘average’ range, 10% of children are within the ‘slightly raised’ range, 5% of children are within the ‘high’ range and 5% of children in the ‘very high’ range. Children who fall within the ‘high’ to ‘very high’ range are considered within the abnormal range, which means they have significantly more behavioural difficulties than their peers. The cut points for Strand A students are presented in Table 3.6. The mean results for Strand A students’ pre-intervention placed them within the average range for conduct problems, hyperactivity and prosocial behaviours and these remained within the average range post-intervention. Peer problems scored within the slightly raised range pre-intervention and did not change post-intervention. Emotional problems showed a change from ranges beginning in the slightly raised range pre-intervention and moving to the average range post-intervention, meaning that the student reported less emotional problems post-intervention. There was also a change found in the total score with scores pre-intervention placing the students within the slightly raised range and post-intervention within the average range.

Table 3.6: *SDQ ranges for Strand A participants*

	<b>Pre-intervention</b>	<b>Post-intervention</b>
<b>Measure</b>	<b>SDQ Range</b>	<b>SDQ Range</b>
Hyperactivity	Average	Average
Emotional	Slightly raised	Average
Conduct	Average	Average

Peer	Slightly raised	Slightly raised
Prosocial	Average	Average
SDQ- total	Slightly raised	Average

### 3.4.5 Follow up Results for Literacy Measures

Table 3.7 presents the results for a paired samples t-test for psychosocial scores pre-intervention and at follow up testing.

Table 3.7: Pre-intervention and follow-up results for Strand A participants' literacy measures

Measure	Pre-intervention		Follow-up		t (df8)	Sig (2-tailed)
	Min-Max	M(SD)	M (SD)			
Expressive vocabulary	17.00-28.00	15.67 (5.52)	23.22 (3.19)	-6.34	.000*	
Word Attack- Graphemes	40.00-96.00	57.33 (17.97)	61.67 (17.97)	-.81	.440	
Word Attack- Words	7.00-17.00	11.89 (3.95)	12.33 (3.95)	-.41	.692	
Cloze task	12.00-18.00	15.89 (3.72)	16.22 (2.44)	-.28	.784	
Burt	45.00-85.00	54.22 (11.86)	63.00 (12.33)	-5.12	.001*	
PP Total	29.00-39.00	29.78 (3.67)	33.78 (3.42)	-4.62	.002*	
Morphological judgement	10.00-19.00	11.78 (3.60)	15.56 (3.21)	-3.21	.012*	
Morpho-syntactic task	13.00-17.00	12.78 (1.99)	15.89 (1.54)	-3.74	.006*	
Morphology analogy task	11.00-18.00	12.67 (3.50)	15.22 (2.59)	-2.95	.019*	

\*Indicates significance  $p < .05$  Note: PP total= Phonological Processing total score

An increased level of literacy skills appeared to be maintained over time following the intervention period for the majority of literacy measures. Expressive vocabulary, Burt word reading, phonological processing, the morphological judgement and morpho-syntactic tasks showed a statistically significant increase both post-intervention and at follow-up testing. This

means that the improvement in these areas that were seen post-intervention were maintained 1 Term after the intervention.

There was no statistically significant change seen in the Word Attack task, however, there was an interesting pattern of change. Both the graphemes and word scores showed a slight decrease following the intervention, however, when measured again, there was an increase seen in the scores. This may be due to exposure within their general classroom setting to more opportunities to practice effective decoding skills following the intervention period. The participants may have also been more confident in their decoding skills and therefore were willing to attempt more words leading to a higher number of successfully attempted words and graphemes.

#### ***3.4.6 Follow Results for Psychosocial Measures***

The results presented in this section include the follow-up testing, which was collected approximately one Term after the intervention for Strand A students. Table 3.8 presents the results for a paired samples t-test for psychosocial scores pre-intervention and at follow up testing.

Table 3.8: *Pre-intervention and follow- up results for Strand A participants' psychosocial measures*

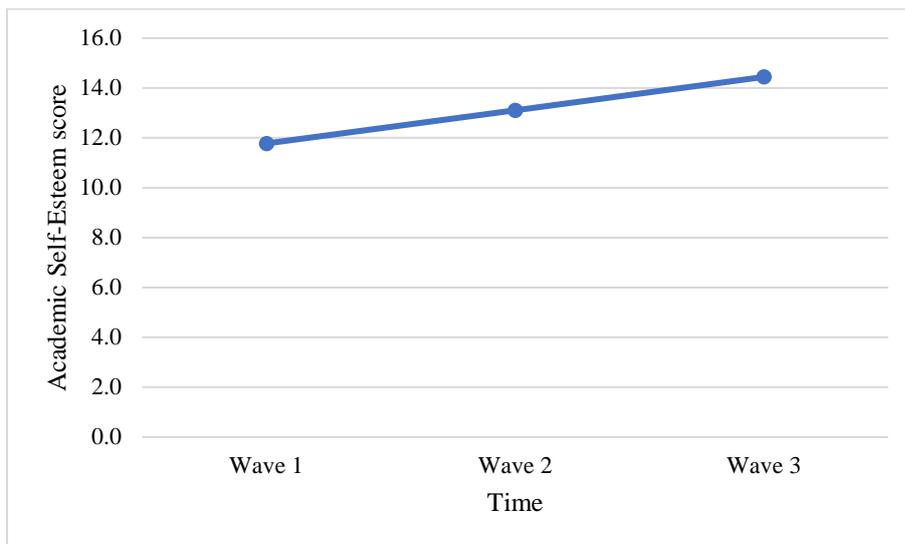
Measure	Pre-intervention		Follow-up		
	Min-Max	M(SD)	M (SD)	t (df8)	Sig (2-tailed)
Global self-esteem	14-39	29.67 (2.30)	28.44 (7.94)	0.50	0.631
Academic self-esteem	8-19	11.78 (2.91)	14.44 (3.75)	-5.66	0.000*
Self-efficacy- total	49-129	90.78 (16.48)	103.33 (52.74)	-1.55	0.158
Self-efficacy-academic	13-43	27.22 (8.83)	30.89 (11.14)	-1.10	0.303
Self-efficacy-emotional	24-44	32.11 (5.46)	35.67 (7.63)	-1.32	0.223
Self-efficacy-social	12-48	31.44 (3.64)	36.78 (10.45)	-1.49	0.175
Resilience	21-60	43.67 (10.14)	43.89 (12.11)	175	0.942
SDQ- total	4-28	13.56 (8.03)	14.11 (7.20)	-0.32	0.756

*\*Indicates significance at  $p < 0.05$*

There were very few significant changes in psychosocial measures during follow-up testing, which was also the case at post-testing. Participants total self-efficacy, academic self-efficacy, social self-efficacy and emotional self-efficacy scores showed an increase across all testing points. This means that the students reported that their belief in their abilities to manage situations they experience has improved during the intervention and was maintained over time; however, these differences are not statistically significant.

Figure 3.1 presents the average scores of Strand A participants' academic self-esteem scores. The increase in the participants' academic self-esteem was statistically significant both post-intervention and at follow up testing. This means that the students reported feeling better about their abilities academically both immediately after the intervention and this was also maintained over time.

Figure 3.1: Change in Academic Self-Esteem over time for Strand A



### 3.5 Strand B Results

#### 3.5.1 Pre/Post- Intervention Results for Literacy Measures

Table 3.9 presents the results of Strand B literacy measures. A paired samples t-test revealed that there was a significant difference between the raw mean scores for the expressive vocabulary, Burt word reading test, morpho-syntactic task and phonological processing task outcomes. These results reveal that the intervention may have led to significant improvements to the participants' ability to understand vocabulary, decode and read single words, morphologically manipulate words, and phonologically manipulate sounds in words. The paired samples t-test revealed that there were no significant differences in the raw mean scores for the Woodcock-Johnson Word Attack measure, the Woodcock-Johnson Passage Comprehension-Cloze task, the morphological judgement task or the morphological analogy task. These results suggest that the intervention did not have a statistically significant impact on the participants' ability to decode unknown words, understand sentences they have read, make judgements about the morphological relationship between words or morphologically change words to be grammatically correct.

Table 3.9: *Pre-post intervention literacy measure results for Strand B participants*

Measure	Pre-intervention		Post-intervention		t (df 8)	Sig (2-tailed)
	Min – Max	M(SD)	Min – Max	M (SD)		
Expressive vocabulary	10 – 30	20.73 (6.87)	19 – 35	26.18 (5.56)	-7.34	0.000*
WJ word attack-graphemes	25 – 66	43.64 (14.23)	21 – 85	43.45 (18.91)	0.03	0.981
WJ word attack-words	5 – 13	9.00 (2.57)	4 – 15	8.27 (3.26)	0.57	0.582
WJ cloze task	8 – 22	14.18 (5.23)	9 – 21	14.36 (3.80)	-0.15	0.881
Burt word reading	32 – 62	45.09 (8.06)	40 – 54	49.09 (4.89)	-2.63	0.023*
PP Total	26 – 39	31.18 (4.38)	29 – 39	34.73 (3.04)	-3.41	0.007*
Morphological judgement	9 – 18	13.09 (3.30)	6 – 18	14.55 (3.56)	-1.62	0.136
Morpho-syntactic task	10 – 17	13.27 (2.57)	14 - 18	15.55 (1.13)	-3.37	0.007*
Morphology analogy task	5 – 17	11.91 (4.32)	6 – 20	13.00 (4.43)	-1.47	0.173

*\*Indicates significance at 0.05 level* Note: PP total= Phonological processing task total score

### **3.5.2 *Pre/ Post-Intervention Results for Psychosocial measures***

Table 3.10 presents the results for Strand B participants' psychosocial measures. A paired samples t-test revealed that there were no significant changes in the raw mean scores for any psychosocial measure. This means that over the intervention period the students did not report a significant increase or decrease in the way they feel about themselves; their perception of competence related to their schoolwork; their confidence in their abilities socially, emotionally and academically; their ability to manage events that may happen in their life; or their behaviour.

Table 3.10: *Pre-post intervention psychosocial measure results for Strand B participants*

Measure	Pre-intervention		Post-intervention		t (df 10)	Sig (2-tailed)
	Min – Max	M (SD)	Min – Max	M(SD)		
Global self-esteem	22 – 38	27.91 (5.32)	20 – 38	28.27 (5.14)	-0.41	0.694
Academic self-esteem	8 – 22	12.18(4.05)	6 – 21	12.55 (4.74)	-0.40	0.700
Self-efficacy- total score	50 – 119	85.27 (22.26)	57 – 121	81.27 (21.31)	1.14	0.280
Self-efficacy- academic	14 – 44	26.18 (9.74)	12 – 36	26.18 (8.81)	0.00	1.000
Self-efficacy- emotional	16 – 42	29.27 (8.51)	13 – 43	27.72 (8.21)	0.77	0.457
Self-efficacy- social	14 – 42	29.82 (8.99)	16 – 42	27.36 (8.52)	1.65	0.131
Resilience	18 – 61	44.45 (14.09)	22 – 56	43.73 (10.68)	0.33	0.751
SDQ- total	7 – 25	15.82 (6.16)	7 – 28	16.64 (6.04)	-0.57	0.580

*\*Indicates significance  $p < .05$*

### 3.5.3 *Correlations*

Pearson correlation coefficients were calculated using the mean change scores for all literacy and psychosocial measures to understand any relationships between these variables. The change score was calculated by subtracting the pre-intervention score from the post-intervention score. The correlation table is presented in Table 3.11. Cohen's (1988) guidelines define large correlations as ( $r = .5$  to  $1.0$ ), medium correlations as ( $r = .30$  to  $.49$ ), and small correlations as ( $r = .10$  to  $.29$ ). There was some medium to large correlations found between the psychosocial measures and literacy measures.

There were large positive correlations found between global self-esteem and Word attack graphemes,  $r=0.531$ ,  $n=11$ ,  $p=0.093$  and Word Attack words,  $r=0.577$ ,  $n=11$ ,  $p=0.063$ . Interestingly, a negative correlation was identified between global self-esteem and phonological processing,  $r=-0.551$ ,  $n=11$ ,  $p=0.079$ . These results suggest that as the ability to read words at the sound level appeared to be associated with how students viewed themselves overall. However, as students became more proficient at using phonological skills, they tended to view themselves less positively. This may be due to the students' inability to recognise the phonological learning as easily as reading single words, or the ability to read words may be more important to the students.

There were negative correlations found between the self-efficacy total score and Burt word reading  $r=-0.477$ ,  $n=11$ ,  $p=0.138$ , morphological judgement  $r=-0.465$ ,  $n=11$ ,  $p=0.149$ , and morphology word analogy task  $r=-0.349$ ,  $n=11$ ,  $p=0.292$ . This means that as students literacy abilities increased, there was a notable decrease in self-efficacy judgements overall.

Alternatively, there were more positive correlations found between academic self-efficacy and literacy measures such as that between the cloze comprehension task  $r=0.507$ ,

n=11, p=0.111. This means that as literacy skills increased, students' academic self-efficacy also tended to increase, meaning they felt more skilled in their academic abilities.

There was a large negative correlation found between the SDQ total score and morphology word analogy  $r=-0.696$ ,  $n=11$ ,  $p=0.017$ . This indicates that as the students were better able to morphologically derive and inflect words, they reported engaging in more problematic behaviours. The majority of the other correlations were negative. As aforementioned, this effect was expected as a decrease in SDQ scores indicates fewer reported behavioural difficulties. Therefore, the negative correlations indicate that decreases in behavioural difficulties were associated with increases in the student's literacy skills.

The correlations for Strand B students showed that the relationship between literacy and psychosocial variables was variable, as for some psychosocial variables the relationship was positive and for other psychosocial variables it was negative. This variability aligns with notions of individual differences, as well as, with theories of development.

Table 3.11: *Pearson correlations for Strand B participants*

	<b>GSE</b>	<b>ASE</b>	<b>SEff-Aca</b>	<b>SEff-Emo</b>	<b>SEff-Soc</b>	<b>SEff-Tot</b>	<b>Res</b>	<b>SDQ-T</b>
Expressive vocabulary	.112	<i>.376</i>	<i>.339</i>	<i>-.314</i>	-.260	-.087	.185	<i>-.368</i>
Word Attack Graphemes	<b>.531</b>	-.117	.235	.227	.219	.363	.285	-.015
Word Attack -Words	<b>.577*</b>	-.063	.214	.159	.249	.325	<i>.409</i>	.003
Cloze task	.129	-.047	<b>.507*</b>	-.092	-.065	.223	.274	<i>-.273</i>
Burt	.027	-.183	.125	<b>-.599*</b>	<b>-.494</b>	<i>-.477</i>	.198	.104
PP Total	<b>-.551*</b>	-.152	-.116	.242	.110	.116	<i>-.361</i>	.056
Morphological judgement	-.106	-.221	.257	<b>-.555*</b>	<b>-.710*</b>	<i>-.465</i>	.092	<i>-.164</i>
Morpho-syntactic	<i>-.318</i>	.235	.193	.009	-.070	.091	-.215	<i>-.297</i>
Morphology word analogy	.277	.220	.077	<i>-.342</i>	<i>-.470</i>	<i>-.349</i>	.271	<b>-.696*</b>

*Note:* Cohen's (1988) guidelines define large correlations as ( $r = .5$  to  $1.0$ ), medium correlations as ( $r = .30$  to  $.49$ ), and small correlations as ( $r = .10$  to  $.29$ ). GSE= Global self-esteem, ASE= Academic self-esteem, SEff-Aca= Academic self-efficacy, SEff-Emo= Emotional self-efficacy, SEff-Soc= Social self-efficacy, SEff-Tot= Total self-efficacy, Res= Resilience and SDQ-T= Total Strengths and Difficulties score.

**Boldface** indicates large correlations, *italics* indicated medium correlations.

\*Indicates significance at 0.05 level

### 3.5.4 Behavioural Changes

Strand B participants exhibited some changes in their behaviours as reported using the SDQ. As aforementioned, the range scores for Stand B participants behaviours were derived from the raw scores and are presented in Table 3.12. There was a slight increase in hyperactivity, conduct problems, externalising problems and total problems following the intervention, however, these are not considered significant as the scores remain within the average- slightly raised range. There was an increase seen in the pro-social skills scale following the intervention. The mean reported score for prosocial skills pre-interventions yielded results within the average range, however, the mean reported score post-intervention yielded results within the high-very high range, which means this is an area of difficulty for these children. This change may have occurred due to the group dynamic promoting and potentially valuing anti-social behaviours such as a reluctance to be helpful.

Table 3.12: *SDQ ranges for Strand B participants*

	<b>Pre-intervention</b>	<b>Post-intervention</b>
<b>Measure</b>	<b>SDQ Range</b>	<b>SDQ Range</b>
Hyperactivity	Slightly raised	Slightly raised
Emotional	Average	Average
Conduct	Average	Average
Peer	Slightly raised	Slightly raised
Prosocial	Average	High
SDQ- total	Slightly raised	Slightly raised

## **4 Chapter Four: Discussion**

The current research aimed to understand the impact that developing literacy skills in Year 7 and 8 students would have on psychosocial outcomes such as their self-esteem, self-efficacy and resilience. To complete this, students with literacy learning difficulties took part in an intensive reading intervention with a focus on morphology, phonology, comprehension, vocabulary and fluency. The results of the analysis indicate improvements in literacy abilities and some areas of psychosocial development, although these results were variable. These results are consistent with an answer to the first research question that literacy interventions can increase both literacy abilities and psychosocial development. However, the results were not consistent with improvements in all areas of psychosocial development and literacy development. Correlational analysis revealed relationships between literacy abilities and psychosocial development, although these correlations varied in strength and direction. These results provide an answer to the second research question regarding the relationship between literacy and psychosocial development; however, there are some areas of psychosocial development that did not show a relationship with literacy outcomes which may require further research to investigate. The intervention led to an increase in literacy and psychosocial development for both groups of the intervention. These results indicated that the increased behavioural difficulties of the second intervention group did not appear to have a significant difference in the students' outcomes.

### **4.1 Changes in Literacy and Psychosocial Outcomes Following Literacy Intervention**

The first research hypothesis was that there would be changes seen in the students' literacy and psychosocial outcomes following the intervention. Such differences have been identified before, such as in the research completed by Denston (2017) on New Zealand students using a similar intervention to that used in the current study. However, the current

study focused on older students than in the Denston (2017) study, and as such, older students would have experienced a longer period of struggling in their literacy work, which may mean that these experiences have had a larger influence on their psychosocial outcomes.

The findings indicated that students in Strand A showed a significant change in their academic self-esteem, which was maintained over time. This suggests that following the intervention they had a more positive perception of themselves concerning their academic outcomes, which may have been a result of their increased accomplishments within their learning tasks and learning environment. Factors contributing to this change may have been environmental, such as being in a group of others at the same level (Casserly, 2013), positive and encouraging feedback received within the intervention group and the improvement they have experienced in their academic abilities due to the learning they were engaging in. The positive change in academic self-esteem found post-intervention is supported by the literature (Marsh & Shavelson, 1985; Trautwein et al., 2006).

However, a similar change was not identified in Strand B students. Those in Strand B exhibited more defiance and lack of engagement in the learning activities, which may be one explanation for the lack of impact on their academic self-esteem, despite the increase in literacy abilities found. Denston (2017) found that the changes in psychosocial variables differed based on the baseline rating of students, with those rating lower initially showing more increases than those who had higher initial ratings who showed stability or a decrease in the scores over time. This may explain the difference found between the students in Strand A and B, in that Strand A students may have had lower initial ratings and therefore were more likely to show a greater increase in their rating post-intervention. Humphrey et al. (2004) described a self-esteem protection model in which students who struggle with academic abilities devalue academic success to protect their self-esteem. This may be the case for the students in Strand B, meaning

that their success academically does not have as much of an influence on their academic self-esteem as they do not consider it as important in order to protect themselves.

There was limited change found within the students' global self-esteem in both Strand A and B. This lack of change may be supported by the Marsh/Shavelson hierarchical model, which proposed that there was a weaker link between academic achievement and global self-esteem than between academic achievement and academic self-esteem (Marsh & Shavelson, 1985). Therefore, an increase in literacy abilities may be less likely to influence global self-esteem as academic self-esteem. Another factor that may have contributed to the lack of change seen in global self-esteem is the age of the students. Robins et al. (2002) reported that as students approach adolescence there tends to be a decrease in self-esteem ratings, which aligns with the age of the students in this research. Therefore, the students' in this research are more likely to show a downward change in their global self-esteem based on the establishment of more complex cognitive abilities which allows them to make accurate evaluations of their true self and ideal self. This may have contributed to the limited increases seen in the global self-esteem scores.

In this research, there was no significant change found in the students' self-efficacy following the intervention. As the students' literacy abilities increased it was expected that their academic self-efficacy would also increase based on experiencing success. However, the most important factor contributing to change in self-efficacy is mastery experiences (Bandura, 1977; Bong & Skaalvik, 2003). Therefore, if the students did not experience success to a degree in which they perceived that they had mastered a literacy technique it is unlikely that change would be seen in their self-efficacy ratings. In conjunction with mastery experiences, Schunk (1989) stated that one must cognitively assess the improvement and mastery of skills for a change to be seen in one's self-efficacy. These two factors may explain the lack of change seen in the students' self-efficacy ratings, despite the increase seen in literacy abilities. The students

may have felt that they had not mastered the techniques they learnt to improve their reading, they may not have recognised the improvement in their abilities or they may not have cognitively restructured their thinking to change the way in which they internally assess their literacy abilities. It may be that these changes only come with more prolonged experience of success in their literacy work, which would be more indicative of mastery.

There was no change seen in the students' resilience in Strand A or B. Students were faced with academic adversity during the intervention in the form of difficult tasks, such as being presented with long words to decode and text with words that may be perceived as difficult. Learning the strategies to overcome these adversities was hypothesised to lead to an increase in resilience, however, this was not seen in this research. Martin (2002) described increasing 'boosters' and decreasing 'guzzlers' as important when increasing an individual's resilience within an educational setting. Although the students experienced many 'boosters' through the intervention, such as positive encouragement to overcome difficulties, there may have also been internalised 'guzzlers' present, such as failure avoidance shown through reluctance to attempt difficult tasks and limited persistence on difficult tasks. Some students also expressed that they did not like attending other academic support classes which made them feel "stupid" and may have had the effect of a 'guzzler' on their resilience. This may have contributed to the lack of change seen during the time of the intervention. Ensuring that there is ongoing positive encouragement for learning outside the intervention may lead to more changes seen within the resilience scores. In order to make a difference within the intervention, it may be necessary to ensure that 'boosters' are present while simultaneously, and actively, trying to reduce the effect of 'guzzlers'. For example, an understanding of the main 'guzzlers' present for a specific group of students before beginning intervention may assist in ensuring these are reduced or addressed. Being more aware of the effects of failure avoidance on resilience may have led to a different approach within the intervention, such as more

scaffolding of tasks and exposure to success following small setbacks to help students cope with failure and experience success overcoming the setback.

Strand A and B students had similar outcomes in their literacy improvement following the intervention. There was a significant improvement found in multiple areas of literacy development for students in both Strand A and B post-intervention indicating that the intervention was successful in improving literacy abilities. There were significant improvements found in students' vocabulary, morphological awareness and phonological awareness, which were maintained over time.

Interestingly, there was a difference found in students' ability to decode different types of words. Both Strand A and B students showed an improvement in their ability to decode single real words, but not unknown non-words post-intervention. During the intervention, the students were exposed to many new words and texts which contained complex words for them to read and decode. This exposure to more complex words may have increased their sight word recall (Ehri, 2005) and expanded their vocabulary leading to an improvement in single real word reading. When reading real words, the students could use prior word knowledge to assist their correct word reading, allowing them to integrate prior word knowledge along with word attack skills to read the word with a trial and error approach. This may have allowed them to use their word attack skills in conjunction with vocabulary knowledge skills to read more words successfully. Alternatively, when reading non-words, the students need to rely primarily on word attack abilities and knowledge of phonics and phonemic awareness with limited input regarding the recognition of the word, which is where these students appeared to struggle. This indicates that their word attack abilities may not have improved significantly during the intervention to the degree where they could be independently applied in such tasks as word attack. Interestingly, there was an increase found in the ability to decode non-words during follow-up testing for Strand A students, although the change was not statistically significant.

This may indicate that the ability to decode unfamiliar words using a word-attack approach may develop more slowly in students and given time to practice the skills they learnt in intervention, this ability may improve. More longitudinal data on the outcomes of literacy abilities and the maintenance or growth of taught word attack skills would be interesting.

#### **4.2 Relationship Between Literacy and Psychosocial Development**

The second research hypothesis posed is that there would be a relationship between literacy abilities and psychosocial outcomes. The correlations completed showed some variable results.

There was a significant increase in academic self-esteem seen for Strand A student's post-intervention. However, the correlations between academic self-esteem and literacy outcomes for both Strand A and B students were weak with many small correlations and some medium correlations and correlations that were both positive and negative. This means that although, for some students, there was improvement seen in both academic self-esteem and literacy there was limited evidence that the gains in one area were linked to gains in the second. This posits the possibility that the increase in academic self-esteem post-intervention was not simply linked to the improvement in literacy abilities. Although this finding does not align with the research completed by Trautwein et al. (2006) which identified a relationship between academic achievement and academic self-esteem, the results do align with the findings of Denston (2017) who also found that there was a limited relationship between academic self-esteem and literacy. In Strand B students there was limited change found in academic self-esteem post-intervention and therefore the limited relationship with literacy abilities makes sense, as there was limited change seen in one variable and therefore an increase in literacy abilities is unlikely to show a direct relationship to academic self-esteem outcomes. However, Strand A students showed an increase in their academic self-esteem abilities but a limited

relationship between literacy abilities and academic self-esteem. This may be due to the attributions the students made to the success they experienced academically. For example, if they believed their academic success was based on their increased abilities there may be an increase in academic self-esteem seen. However, if they attribute academic success to factors external to themselves such as the teacher or the difficulty of the work there may not be an effect seen in their academic self-esteem (Humphrey et al., 2004). Interestingly in this research, there was an increase in both abilities seen but a limited relationship for one group of students. Further research into the nature of this relationship may be necessary to understand this further.

Similar results were found in the research completed by Denston (2017) and the present study in regard to the relationship between global self-esteem and literacy achievement. As described above, research has shown a stronger relationship between academic self-esteem and academic abilities than global self-esteem and academic abilities (Trautwein et al., 2006). However, global self-esteem showed stronger correlations with the different areas of literacy assessed than academic self-esteem. Denston (2017) attributed this finding to students functioning within a global self-esteem domain. These findings clearly show the complexity of the research between these two areas of functioning.

There were varied results regarding correlations between self-efficacy and literacy. As explained above, there was not a significant change in self-efficacy rating post-intervention. However, there was some medium to large correlations found between academic self-efficacy and literacy for both Strand A and B. This means that there appears to be a relationship between improvement in literacy and an increase in academic self-efficacy. Similar results were found for global self-efficacy and literacy measures. As described above changes in self-efficacy scores are changed more readily based on the individual's experiences of mastery of the skill. Individual attributions of the level of mastery may differ despite similar changes in ability when compared to other students. For example, there may be a similar increase in literacy ability

seen between two students. One student may experience mastery of the skill, based on their improvement and subsequently increase their self-efficacy scores. In contrast, the other student may not experience mastery based on their improvement and therefore a limited change may be seen in their self-efficacy score. This may explain the relationship found between increased literacy skills and self-efficacy scores. Although the students may not have experienced enough mastery experiences to lead to significant changes in their self-efficacy ratings, the relationship between literacy ability and self-efficacy ratings is present. Therefore, further success in literacy may lead to further increases in global and academic self-efficacy ratings.

There was some medium to large correlations found between resilience and literacy measures for Strand A. Therefore, there is some relationship between improvement in literacy outcomes and resilience. Resilience is a process that develops based on the lived experiences of the individual and the way in which individuals believe able to overcome stressors or obstacles (Fletcher & Sarkar, 2013). Therefore, the relationship between resilience and literacy ability may be seen as students feeling that they are better able to manage/cope due to the experience of successfully overcoming academic challenges during the intervention. Although the students were exposed to some challenges within the intervention, how they attributed their success in overcoming these challenges may differ from each individual. There were fewer medium correlations found for Strand B participants meaning that the link between resilience and literacy outcomes was not as strong as was seen for Strand A. This may be due to multiple reasons. The exposure to overcoming challenges academically may not have been attributed to the student's own abilities and therefore more exposure and success attributed to their actions may be required to build the perception that they can cope with the difficulties they experience. The difference in baseline resilience may also influence the difference seen between students in Strand A and Strand B, although this difference was not significant. Students who had a higher initial level of resilience may not experience as much change in their resilience as

students who reported a lower initial rating of resilience (Denston, 2017). Additionally, students with a lower rating of resilience may require more exposure to successfully overcoming difficulties to raise their resilience. Some students engage in negative or problem behaviours to avoid learning tasks that they find difficult. Ensuring that such student does engage with learning is important for their success and their feelings of success. This may, in turn, lead to an increase in resilience as the students experience success in learning while overcoming a difficult academic challenge they have encountered. Equally, the negative/problem behaviours may be seen by some students as their way to cope with difficult situations and hence some students have higher levels of behavioural difficulties that interfere with learning may still see themselves as resilient.

As described above, based on this research there appears to be some relationship between psychosocial outcomes and literacy, as increases in literacy abilities were found to be correlated with increases and decreases in psychosocial outcomes. This is found to be true for global self-esteem and self-efficacy variables. Further research regarding the relationship between academic self-esteem and literacy outcomes is needed to understand the relationship. Interviewing the students following the intervention may provide additional information regarding the way in which they have individually conceptualised their literacy improvements and may provide insight into the relationship found between academic self-esteem and literacy abilities. It may be that the students have attributed the academic success to factors external to themselves, such as luck or assistance from the teacher, rather than attributing the success to their abilities.

### **4.3 Differences Based on Behavioural Difficulties**

The final research hypothesis posed was that there would be differences in the outcomes for students that experienced more behavioural difficulties. This research had two intervention

groups that differed based on their accompanying behavioural difficulties, as rated by their classroom teachers. Consistent with the teacher rating, the second group of students (Strand B) did show more behavioural difficulties during the intervention exhibited through their reluctance to attend and participate in the group, unkind comments about others in the group, leaving their seat when asked to remain seated, and failing to follow instructions. The students in the group also appeared to associate a sense of status within the group to the students who frequently engaged in the undesired behaviours, which may have led to more occurrences of these behaviours within the intervention group based on social acceptance. This may explain the increase in behaviour range categories seen in the prosocial subcategory, which indicated that there were less prosocial behaviours reported by the students. The ratings of ones' peers become more influential as children approach adolescence (Harter, 2006), which aligns with the age range of these students and may have contributed to the increased behavioural difficulties seen in the second group. However, the differences in behaviour reporting on the SDQ did not place the two groups in different behaviour range categories for most of the subcategories other than total difficulties and prosocial behaviours.

Although the students' in Strand B exhibited more behavioural difficulties and less engagement within the intervention, the improvements in their literacy and psychosocial outcomes were similar to students in Strand A. There were some differences which have been explained in more detail above. However, the outcomes for students presenting with additional behavioural difficulties were, possibly surprising, similar to those with fewer behavioural difficulties.

#### **4.4 Limitations of the Current Research**

Before accepting the current results, limitations of the research should be considered. Firstly, testing both intervention groups at all three-time points would have allowed for

considerations of potential environmental factors within the school setting that may have affected the changes seen in this research: for example, improvements based on school-wide classroom changes in teaching practice or learning completed in class reading lessons. Unfortunately, assessment of all students at each of three-time points was not possible due to students in the intervention also being placed in other specific academic learning groups for maths, writing and reading. Engagement in these other learning groups also may have had an impact on the results, particularly within the psychosocial factors as students expressed to the researcher that they did not like attending these other groups very much. The impact such expressed feelings had on psychosocial changes within the intervention is unknown. Having information from all 3 time-points may have allowed for a better understanding of this influence.

As with all self-report measures, there is a possibility that students' may alter their responses to provide answers that they believe are more socially acceptable. This may have been exacerbated by the oral administration of these measures to control for literacy abilities in answering the questions, as they may experience more pressure saying their answers over writing them down. This was controlled for as much as possible by telling the students there is no 'right' or 'wrong' way to answer the questions. If students tended to respond in more socially acceptable ways, the conclusions derived based on the changes in psychosocial outcomes may not be accurate. The relationship built with the administrator over the intervention may have had the potential to influence the self-report ratings. Students may have felt more comfortable reporting more accurately post-intervention as they were more comfortable with the administrator. This may have led to fewer improvements being reported by the students in their psychosocial outcomes as their initial ratings may have been less accurate and formulated based on social desirability.

An interview post-intervention aimed at determining to what the students attributed their increase in literacy outcomes (internalised or externalised factors) may assist in further understanding of the psychosocial development post-intervention and investigate the effects of social desirability in their responses to the questions. For example, students may have attributed their success to their abilities improving, consistent with increases in psychosocial outcomes being related to better literacy levels. In contrast, if they attribute their literacy increases to luck or more teacher support, then any increase in psychosocial outcomes may not be due to literacy improvements.

Another limitation of the research may have been the relatively small sample size that was obtained. The size of the sample was based on the number of students that fit the criteria for inclusion in the research, which was lower than initially expected. This factor contributed to there being fewer students in Strand A, as there was more time for the school to organise students to take part in the intervention later in the year. Despite the small sample size, significant effects were identified, suggesting that the relationships between variables found were indicative of a large effect. However, the small sample size limits the ability to generalize the findings of this research to other students. Replication of the research with students from different backgrounds may be required to ensure that the effects seen in this group of students are consistent across different cohorts of students in Year 7 and 8. Further investigation into any differences in outcomes between students in Year 7 and 8 may be interesting, as the students in Year 8 will be preparing to move to high school, which may lead to changes in their engagement in learning or psychosocial outcomes.

#### **4.5 Implications of the Research Findings**

Given this research, some additional qualitative information may lead to a better understanding of the relationship between literacy and psychosocial outcomes, and potentially

better outcomes for the students. Checking in with the students individually during the intervention may be beneficial to understand the connection between the student's view on their success and the outcomes of the intervention. For example, asking the student questions about how they managed to overcome a challenge they faced within their learning will give an understanding regarding the student's attribution of success to their individual abilities, or external factors such as luck, guessing or assistance. If this is known during the intervention, changes may be made to help guide the student to attribute their academic success to their abilities, rather than external sources. This may increase their self-esteem, self-efficacy and resilience.

Ensuring that the environment and values of the intervention group are positive may also be important for future intervention work. Within the second group of students in the current research, a sense of status and enjoyment regarding difficult behaviours was established. This may have led to further behavioural difficulties establishing within the group, which may have had an impact on the psychosocial outcomes of the students. Maintaining clear boundaries and revisiting the group values established at the beginning of the intervention may assist in avoiding such behavioural problems leading to negative engagement practices.

This research will contribute to the current research and understanding of the effectiveness of literacy intervention on older students with literacy learning difficulties. This research showed that the intervention is effective at improving literacy abilities in students who are in Year 7 and 8 at school. This means that this style of intervention may be beneficial to include as an intervention option for students from Year 4 – 8. This intervention has also been seen to be somewhat effective in improving psychosocial outcomes for older students to a variable degree. This finding may help guide further research to investigate ways to increase the psychosocial outcomes for students in Year 7 and 8.

This research may also be beneficial for teachers to better understand the relationship between academic and psychosocial outcomes for students with literacy learning difficulties. If the students' academic achievements are improved then they are more likely to feel better about themselves in terms of their global and academic self-esteem, self-efficacy and show more resilient qualities, which will be beneficial for their future. Teachers recognising these connections may improve their practices too and provide a means to monitor strategies aimed at improving the whole child.

#### **4.6 Conclusion**

The current research aimed to understand the impact that increasing literacy abilities in Year 7 and 8 students would have on psychosocial outcomes such as their self-esteem, self-efficacy and resilience. This research showed that a targeted literacy intervention can increase literacy skills and psychosocial outcomes such as academic self-esteem. However, the findings also indicated that the relationships between literacy and psychosocial outcomes were mixed, with reasonably sized correlations being found between literacy and global self-esteem, academic self-efficacy and resilience but not with academic self-esteem. Such a lack of relationship is inconsistent with previous research and seems at odds with the positive effect of the literacy intervention on academic self-esteem, suggesting the need for further research to further understand the potentially complex relationships between achievement and psychosocial development. Further research may also indicate how interventions, such as that used in the current research, may be altered to increase their effect on academic self-esteem. This research showed that increased behavioural difficulties did not appear to have an effect of the literacy or psychosocial outcomes of the students; however, ensuring that the behaviours are managed to avoid such negative behaviours gaining social status is required.

## 5 References

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## 6 Appendix

### 6.1 Ethical approval

Ref: 2018/01/ERHEC-LR  
23 February 2018

Professor John Everatt and Dr Amanda Denston  
College of Education, Health and Human Development  
UNIVERSITY OF CANTERBURY

Dear John and Amanda

Thank you for submitting your low risk application to the Educational Research Human Ethics Committee for your research proposal titled “Facilitating Emotional Well-being and Positive Behaviours in Children with Literacy Learning Difficulties”.

I am pleased to advise that this application has been reviewed and I confirm support of the School’s approval for this project.

With best wishes for your project.

Yours sincerely

*PP*



Dr Patrick Shepherd

**Chair Educational Research Human Ethics Committee**