

Supporting Reading Comprehension and Self-Perception in Adolescents with Reading Difficulties & the Feasibility of Literacy Targeted PLD

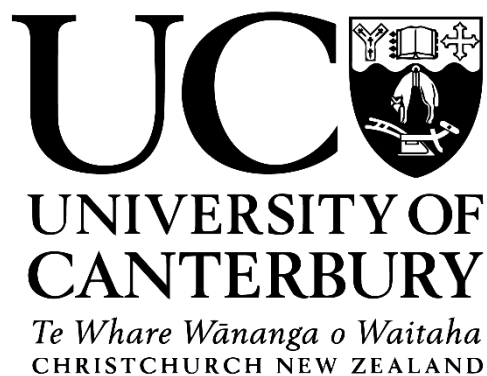
A thesis submitted in fulfilment of the requirements for the Degree of Master of Education
(MED)

Faculty of Education
University of Canterbury
2022

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Acknowledgements

Words cannot express my gratitude to the amazing community of individuals who have been beside me and supported me throughout this project. I was lucky enough to be able to have the support of so many different people, and I will be forever grateful to each and every person.

My first and biggest thank you goes to my supervisors, Professor Gail Gillon and Professor Brigid McNeil. I can't believe how lucky I have been to be able to have both of you support my work. Your guidance and support have been immeasurable, and the knowledge and expertise that you have shared with me over the past few years will forever guide my work.

I would also like to acknowledge the rest of the team within the Child Well-being Research Institute. During the course of my study, whenever I have needed further support, you have all never hesitated to offer your expertise or advice.

I would also like to acknowledge the school, teachers and students who participated in the study. Thank you for welcoming me into your spaces each day and making me feel a part of your school community and family. Even now, after the intervention has been completed for some time, you always welcome me with open arms whenever I visit. I hope that the skills that were used throughout the interventions and PLD sessions will be beneficial to you in the future.

Lastly, to my incredible family and partner who have been beside me every step of the way. Thank you for being my cheerleaders and always encouraging me to keep going. Your never wavering and ongoing support kept my motivation and excitement towards what I was achieving high.

Abstract

Purpose: This study aimed to better understand the benefits of focused literacy intervention for Year 8 students with literacy learning difficulties. The impact of the intervention on students' metalinguistic knowledge, reading and spelling along with their self-concept and self-efficacy was examined. In addition, the feasibility and impact of supporting teachers' knowledge and application of more explicit teaching in foundational learning areas such as vocabulary, listening comprehension, and phonological awareness for persistent struggling readers to complement the intervention was explored.

Method: Four Year 8 students, who were identified to be struggling with their reading comprehension and foundational linguistic skills, took part in an integrated intervention programme. Participants received an average of 14 hours of intervention that focused on developing their phonological awareness, morphological awareness, orthographic knowledge, reading fluency and reading comprehension. The impact of the intervention on students' literacy learning and self-perception was evaluated through a multiple single case study design using repeated probes during the intervention phase along with pre-post measures. The impact of a professional learning approach focused on supporting students' foundational literacy learning in the classroom setting was also evaluated for seven teachers through a case study design.

Results: The student participants showed visible gains across all assessment measures, particularly in their reading and spelling accuracy. The results also indicated that the students' positive self-perception increased following the intervention. The teachers reported that the workshops and teaching demonstrations had a positive impact on their knowledge and confidence in supporting their struggling students.

Conclusion: The results from this study should be used as a stepping stone to inform larger scale studies that utilise an integrated approach to support students with literacy learning

difficulties in the intermediate schooling years. Teachers also heavily highlighted the need for further professional learning in the area of foundational linguistic skills, so the benefit of providing them with this support alongside intervention should be considered in future studies.

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Chapter 1: Introduction and Literature Review

Advancing the literacy achievement of students in New Zealand is a national priority. The performance of students in New Zealand in international comparison studies (e.g., Progress in International Reading Literacy Study (PIRLS) (Mullis et al., 2017)) demonstrates an overall declining trend in their reading performance and wide variability in their reading comprehension achievement at 10 years of age, creating longer term educational inequities. The need for extra support in student's foundational literacy skills has been identified as a key area for 11-13 year old students in New Zealand, as they transition to secondary school (Houghson & Hood, 2022). The New Zealand Ministry of Education has recently mandated new requirements for basic literacy and numeracy achievement for secondary school aged students. Therefore, it is crucial that teaching and learning approaches to support the literacy development of students with literacy challenges in the intermediate years, are developed and evaluated. Advancing teaching and learning approaches in this area is likely to contribute to students' ability to succeed across the New Zealand curriculum, as well as having a positive impact on their self-efficacy and mental (Law et al., 2009). This thesis aims to investigate a model of small group reading support in combination with enhanced teacher knowledge for in class literacy teaching, to advance the foundational literacy skills for 11-13 year old students who are struggling in their reading and spelling achievement.

Literacy Development

Theoretical Models of Reading (SVR)

Over the years, many researchers have investigated the cognitive processes involved in supporting reading comprehension. One well established theoretical framework, developed to explain the broad processes involved and how they interact with each other for skilled reading comprehension, is the Simple View of Reading (Hoover & Gough, 1990).

The Simple View of Reading (SVR) (Hoover & Gough, 1990; Tunmer & Hoover, 2019) proposes that reading comprehension is the result of contributions from both word recognition/decoding ability and oral language comprehension (Word recognition/decoding (D) x Language Comprehension (C) = Reading Comprehension (R)). Decoding of written words involves the successful understanding of the relationship between the orthographic and phonological representations of words – so in essence, learning to decode how the written symbols represent spoken forms of a word in a given language. This component utilises skills that fall across the foundational literacy skill components, such as phonological awareness, orthographic knowledge and morphological awareness.

The second component; language comprehension, refers to understanding the lexical representations of words to support meaning and interpretation of language in its written form at word, sentence, and text levels. This involves the successful utilisation of inference, comprehension skills, integrating background/past knowledge, syntactical knowledge and word meaning knowledge.

Word decoding and language comprehension both have underlying processes and skills that work together to support each component as a whole. These components are broken down and further described in the Cognitive Foundations Framework (Tunmer & Hoover, 2019). Children who have good skills in both the decoding and language comprehension components, can be seen as good readers. However, some individuals will have more strengths and greater understanding in one component, than the other. They may also develop skills quicker in one area, compared to the other. Having weaknesses or difficulties with some, or all, of the skills that make up each of the decoding or language comprehension components is likely to lead to persistent reading difficulties.

When children first start developing decoding ability, the processes that they use can result in laborious and at times unsuccessful reading comprehension. Like most other skills,

reading comprehension success is dependent on the developmental and cognitive levels that they have available and are able to accurately and automatically apply to text. Consequently, if a child expends a lot of effort attempting to decode written text, it may reduce their ability to focus on other cognitive processes that aid in reading comprehension. Therefore, ensuring efficiency and automaticity of phonological and orthographic processing skills is especially important to ensure decoding accuracy, and can in turn support reading comprehension strategies (Gillon, 2018).

The development of the skills that make up each component is indicative of successful reading comprehension, and the Simple View of Reading is able to explain the differing types of reading strengths and weaknesses. Students that might be described as “poor decoders”, may then struggle with reading comprehension due to inefficiency in the ability to understand the connection between graphemes and phonemes, resulting in an inaccurate ability to decode a printed word. Once their decoding abilities enable increased reading fluency, these readers typically understand the text as they do not have underlying oral language comprehension difficulties. Children who have persistent difficulties in developing decoding abilities, due to underlying phonological processing challenges, may be described as having dyslexia or specific word reading difficulties (Everatt & Gillon, 2018). Another group of students may have specific comprehension difficulties. Their decoding of text may be accurate, but they struggle to comprehend what they are decoding. The final group of struggling readers may have both poor word decoding abilities and specific comprehension difficulties (Hoover & Gough, 1990). These types of students can be present in all classrooms, and can be supported by receiving targeted intervention that support the foundational literacy skills that underpin reading comprehension.

Foundational Skills

To learn and read successfully, students need to be able to analyse, comprehend and evaluate written information (Goldman, 2012). The specific foundational skills, that make up the components of the Simple View of Reading and the Cognitive Foundations Framework, stem from orthographic awareness, phonological awareness, and morphological awareness. These skills are necessary for advanced literacy learning and the development of these abilities is needed for the student's progression from "learning to read, to reading to learn", as they need to be able to comprehend more linguistically complex and variable text, and information (Chall, 1983). The importance of these foundational skills is discussed in the following sections.

Orthographic Awareness

Orthographic awareness/knowledge is the ability to represent spoken language in its correct written form (Apel, 2011). Orthographic knowledge includes awareness of simple and complex phoneme-grapheme mappings which is sometimes called phonics knowledge (e.g. knowing that the long 'a' sound (/æ/) can be spelt 'ae', 'ai', 'ay', 'ei' or 'ea'). Orthographic knowledge also includes the awareness of patterns in the writing system, such as spellings being dependent on the position of the sound in the word (e.g., the spelling of 'ck') and spelling patterns that are dependent on the length of the preceding vowel sound (e.g., when adding a suffix to a base word). Developing a strong orthographic knowledge base has been found to be a strong contributor to reading and spelling development. It can also be especially important when transitioning from a teacher-led setting to a more independent learning setting, like from primary school to intermediate school, as the levels of complexity of the vocabulary used in each setting continues to increase (Castles & Coltheart, 2004; Roman et al., 2009).

Orthographic awareness is known to typically develop in an expected pattern and can be broken down into three stages; the alphabetic stage, the pattern stage and the meaning stage. This can be tracked throughout a child's literacy development and tends to overlap over time (Joshi & Aaron, 2006).

In the *alphabetic stage*, children begin to learn the letter names, and their corresponding sounds, and make the connection and generalisations about them in relation to the concept of text. As they develop these connections, their abilities to recognise and track familiar text will increase and their ability to decode will start to emerge. It is here they also begin to play with the spellings of words, in particular the relationships between consonants and short vowels (Ehri, 2017; Helman & Bear, 2007).

In the next stage, the *pattern stage*, children build on their letter-sound knowledge and begin to experiment with the long vowel sounds and the varying levels of word structure; CVC, CVVC, CVCC etc. (Helman & Bear, 2007; Joshi & Aaron, 2006). They begin to have the understanding of how complex consonant blends and digraphs interconnect with the vowels they are becoming more accustomed to, and how long vowel patterns can be applied (Joshi & Aaron, 2006), all whilst continuing to build on their sight vocabulary knowledge.

In the final stage; the *meaning stage*, children develop their knowledge for multisyllabic words, and learn how to combine words and affixes (e.g. re-, -ed) to further their understanding of inflectional morphology. Here, students become automatic with segmenting and blending words and extracting their meaningful units. As they continue to develop, so too does their ability to recognise and understand more complex vocabulary and derivational morphology (Ehri, 2013; Helman & Bear, 2007).

Phonological Awareness

Phonological awareness (PA) refers to the conscious understanding of the sound structures of spoken language. This skill underpins literacy acquisition in all children (Gillon,

2018). Phonological awareness encompasses the awareness of all units of spoken words, ranging from the most basic skills; isolating large sound units (words and syllables), to the more complex and small units (onsets, rimes and phonemes) which are more critical for early literacy acquisition (Castles & Coltheart, 2004; Melby-Lervåg et al., 2012). The phonological awareness level that is most applicable to this current study, and that has shown to be the biggest predictor of reading and spelling acquisition, is the phoneme level awareness (along with early phonics knowledge as described in the orthographic knowledge section above) (Gillon, 2018). Phoneme level awareness is the understanding that spoken words are made of individual sounds called phonemes, and that each of these phonemes can change the meaning of a word. For example, the word ‘mat’ is made up of three phonemes /m/ /æ/ /t/. However, if one phoneme is changed it creates a new word and adds new meaning to it; e.g., bat - /b/ /æ/ /t/.

Phonemic awareness is a strong predictor of children’s reading and spelling acquisition and success. Children with strong phonemic awareness and phonics knowledge are likely to have strong early literacy development (Gillon, 2018). On the other hand, children that demonstrate difficulties with phoneme awareness are more likely to be poor readers and spellers (Gillon, 2018). Furthermore, this knowledge gap continues to grow over time, due to the increasing complexity of text and the different contexts that they need to learn to apply this knowledge to (Anthony & Francis, 2005). As the complexity of student’s context of learning increases, they need to be able to implicitly and explicitly draw on prior knowledge that best supports their textual requirements and expectations.

Many researchers (Diamanti et al., 2017; Lundberg et al., 1980; MacDonald & Cornwall, 1995) have highlighted the predictive power that phonological awareness has on later reading and spelling abilities. Phoneme awareness and phonics knowledge typically need explicit instruction for a learner to completely understand and be competent in using

them during the reading and spelling process (Gillon, 2018; Lundberg et al., 1988).

Therefore, providing robust and targeted phonological awareness intervention for students that have been identified as being ‘at-risk’ with reading and spelling difficulties, both in the early years and later school years, can help rectify these difficulties as they progress through school (Bradley & Bryant, 1983).

Morphological Awareness

Morphological awareness is another aspect of developing literacy acquisition that coincides with having good phonological and orthographic awareness. Morphological awareness is having the ability to analyse words into their separate morphological components (morphemes) (Nagy et al., 2014). Morphemes are the smallest units of meaning within written and spoken language. For example, if you come across an unfamiliar word and you understand the meaning of its morphemes, you can work out the meaning of the new word (e.g., the word cyclist can be separated into two morphological parts – ‘cycle’ and ‘-ist’, where cycle refers to bike, and –ist refers to someone that does something, therefore, cyclist means someone who cycles/rides a bike). Strong morphological awareness is also important for spelling development. In English, prefixes and suffixes are spelled consistently regardless of their phonology (e.g., the word jumped ends with a /t/ sound but is spelled ‘ed’). Further, root words are commonly spelled consistently across derived forms (e.g., signing, signature etc.). Therefore, if you can identify each of those components, you have a higher chance of recognising both the meaning and changes that occur within the word to support understanding and spelling.

For adolescents to be able to succeed across curriculum subject areas, they need to be able to accurately comprehend increasingly difficult texts and comprehend text in differing genres. Having strategies that allow them to break down unknown words into their units of meaning will support comprehension of more advanced vocabulary (Hendrix & Griffin,

2017). Targeting morphological awareness skills has shown to support the improvement in decoding, vocabulary, spelling, and general morphemic knowledge, and how to apply this knowledge across differing contexts (Goodwin & Ahn, 2013). It has also shown to have an influence on reading comprehension both directly and indirectly by supporting vocabulary knowledge as a whole (Nagy et al., 2006). Although, children can implicitly build morphological awareness, providing explicit and more systematic teaching opportunities to build their morphological skills and ability to analyse word structures and word meaning supports both reading accuracy and comprehension (Carlisle, 2010). It can also support writing development via improved spelling knowledge (Kirk & Gillon, 2009).

Reading Fluency and Reading Comprehension

Reading fluency refers to the fluid integration of all reading components (orthographic awareness, phonological awareness and morphological awareness) in a fast and accurate way, when reading both aloud and internally. It involves 3 elements that work simultaneously to produce fluent language; *accurate* reading at a conversational *rate* and with appropriate *prosody* (Hudson et al., 2005).

Accuracy draws on orthographic and phonological awareness; having a strong understanding of the alphabetic principle, phoneme blending skills, and having instant recognition of a large bank of high-frequency words to support the fluidity of the reading attempts. Rate of reading includes aspects of orthographic, morphological and phonological awareness, as it draws on the ability to decode efficiently and accurately, and the automatic recognition of high frequency words. When a child is struggling with their reading rate, they can sound very laboured in their attempts when reading aloud and the prosodic features of their speech when reading may be affected. The prosody is the rhythm and tone of language (i.e. intonation and stress patterns) using morphemic, syntactic, semantic and pragmatic cues.

This skill is also an indication that students understand what they are reading as they read it and provides interest for the listener of the reading aloud activity.

There are strong correlations between reading fluency and reading comprehension, as without accurate word reading, the reader is unable to access the full meaning of text and can lead to misinterpretations. Having a good rate of reading allows the reader to construct ongoing inferences and meanings from text as they read. Further, use of appropriate prosody when reading aloud can lead to improved inference comprehension (Hudson et al., 2005).

Literacy within New Zealand/NZ Curriculum

Reading comprehension and writing competency is particularly critical to content learning and demonstration of knowledge right across the New Zealand education curriculum. The acquisition of specific foundational skills focuses on the main counterparts of literacy and includes oral language, reading, writing and spelling. The important foundational skills that support later reading and writing success are initially developed during infancy and continue to develop through children's schooling and daily experiences (Nippold, 2014). Developing strong foundational skills is becoming evidently more important for literacy achievement and is a focus for the Government's recently launched Literacy Communication and Numeracy Strategy (Ministry of Education, 2022a). A system level shift is called for within the New Zealand Education system, as it has been identified that some students progress through high school without having the necessary basic foundational literacy skills to obtain a National Certificate of Educational Achievement (NCEA) passing grade. By not gaining a NCEA certificate, it is limiting students' future educational pathways such as university and polytechnic admissions, and apprenticeship pathways (Madjar & McKinley, 2013). From 2023, it will be necessary for junior secondary school aged students to demonstrate their literacy and mathematic basic proficiency abilities before progressing with subsequent higher-level qualifications. This will help ensure they will be able to meet

and achieve the expected standards of learning as they progress through NCEA (NCEA Education, 2020). These new strategies highlight the importance of research informed teaching practices and interventions that ensure all students have developed the foundational literacy skills necessary to support comprehensive literacy achievement.

Interventions/Approaches in New Zealand for Literacy

For years the leading reading intervention for young children who struggle to read in New Zealand has been Reading Recovery (RR) and has been funded by the Ministry of Education (MoE). Reading Recovery was developed by Professor Marie Clay, whose work focused on understanding how children develop literacy skills (Clay, 1994). RR is a short-term intervention approach that targets children that struggle to read at approximately 6 years of age. Intervention is implemented one-to-one with the students for 30 minutes daily. There are two overarching goals for the reading recovery program; (a) to support those students that have been identified as needing extra, more targeted support and (b) to further identify students that need additional, ongoing literacy support. The RR intervention has shown to be effective in improving reading levels for some students involved immediately following the intervention. The sustainability and generalisation of skills, however, is limited due to the one-on-one context and lack of focus on print-level strategies for reading, with significant concerns of its long term benefits for students being raised (Appleton-Dyer et al., 2020; Chapman & Tunmer, 2019). Chapman and Tunmer (2019) also highlighted that the RR data indicate that Māori and Pasifika students, and students from lower-decile schools, are less likely than their peers to successfully ‘recover’ after they received the intervention which is another limitation of the approach.

In 2020, the Ministry of Education funded professional learning and development for New Entrant and Year 1 teachers to implement the Better Start Literacy Approach (BSLA). This is a strengths-based and culturally responsive literacy approach, specifically designed to

ensure all young learners develop the important underlying foundational skills in their first year at school (Gillon & Macfarlane, 2017; Gillon et al., 2022; Gillon et al., 2019). It includes explicit and systematic teaching of phonological awareness, phonics, vocabulary, listening comprehension and oral narrative skills. BSLA is set within a response to teaching framework to meet the needs of early learners. Following 10 weeks of large group or universal implementation of BSLA, teachers are supported to implement small group work with 5-6 year old children who need additional support via Tier 2 teaching techniques and strategies. Tier 2 increases the intensity of support to ensure critical phonological awareness skills, letter sound knowledge and word decoding skills are developing. Children's progress is regularly tracked by their classroom teachers using skill specific monitoring assessments that provide them with information of where the child is currently at and what their next steps for learning would be. Multiple studies have found that the Better Start Literacy Approach benefits all learners that participate, including those from diverse socioeconomic communities and ethnic backgrounds (Gillon et al., 2020; Gillon et al., 2022; Gillon et al., 2019).

Another form of support for struggling readers in New Zealand, funded by the Ministry of Education, is called Accelerating Learning in Literacy (ALL), and is available to teachers of students from Years 1-10. It focuses support on learners who are not meeting expectations in reading and writing once being at school for 40 weeks or more. This intervention is a short term, supplementary support strategy to help lift student's achievement while providing an enquiry based strategy for the teachers to challenge, scaffold and shift their own practices and behaviours in a way that will best benefit their students within their classroom programmes (Ministry of education, 2020). The Education Review Office (2018) gathered data from 193 schools across New Zealand via an education review. This review focused on both student achievement and teacher knowledge and actions. The Education

Review Office (ERO) reported that this approach best benefited schools that had collaborative and evidence-based teams that sought to have the approach implemented across classrooms and not just in those classrooms that contained the struggling students. Although ERO reported on the benefits and changes that some schools have seen since implementing this approach school-wide, they highlighted the wide variety of the outcomes across schools and students when implemented in schools that didn't commit to the support strategy at a school wide level (Education Review Office, 2014). No controlled studies demonstrating the effectiveness of ALL have been undertaken or published.

Therefore, while quality PLD, in the form of BSLA, has proven effective for teachers to enhance the literacy learning for children in the junior school years, there is currently a lack of evidence, through pilot studies and controlled trials, to indicate effective methods to support PLD of teachers in the upper primary years. There is a need then to investigate further PLD approaches and evidence-based interventions for struggling readers in the upper primary years.

Evidence of Effective Interventions

Numerous intervention approaches have been investigated to enhance students' reading accuracy and comprehension abilities (Ehri et al., 2001; Suggate, 2016). These studies provide useful insight into effective teaching strategies. For example, Gillon and Dodd (1995, 1997) demonstrated that even relatively short periods of explicit and systematic instruction in improving children's phonological awareness skills (i.e., 20 hours) can significantly improve both reading accuracy and reading comprehension for older struggling readers who demonstrate poor word decoding abilities. Other studies have focused more explicitly on reading comprehension strategies. For example, teaching students techniques that allow them to derive meaning from the individual parts of words (i.e. morphemes), then learning how to make inferences using those morphemes, and then finally, knowing how to

apply those inferences to the text, has shown to improve students ability to comprehend (Dawson et al., 2021; Singh, 2008; Vaughn et al., 2016).

Dawson et al. (2021) completed a study with two groups of learners (Group 1: 12-13yrs, n=39; Group 2: 16-19yrs, n=39). The participants were tasked with learning 18 “nonwords” and were provided with definitions that were semantically and syntactically consistent with regular English for half of the words, and semantically and syntactically inconsistent for the other half. Both groups showed significantly better semantic recall for the words that they were provided with that had semantically and syntactically consistent definitions. However, the students’ achievement of phonological and orthographic awareness did not follow a similar trend. The participants only showed an increase in achievement for those skills that were directly targeted in the training. This then tells us that understanding the meaning of the morphological units supports the comprehension of words and reading.

Other studies have investigated specific subsets of cognitive skills that support reading comprehension ability. Ritchey et al. (2012) examined students’ response to intervention by targeting reading fluency, comprehension strategies and introducing new vocabulary. The participants, 123 students with a mean age of 9 years 7 months, were allocated into a control and intervention group, and took part in 24 intervention sessions led by trained research assistants. The intervention sessions consisted of 4 teaching components; Fluency – repeated reading; Comprehension – explicit comprehension, vocabulary and Text instruction to the target passage; Vocabulary – introduction of two to four new target words each lesson; and Text Instruction – reading and discussing authentic texts. The researchers reported that those students who were a part of the intervention group had significantly better results for reading comprehension strategy knowledge and use across subject specific text in the skills that were targeted in the intervention.

Vaughn et al. (2016) also reported success for their participants in the skills that were targeted in their component specific intervention. This study included students aged 8;8 – 12;0 whose standard score was 85 or below in the Gates-MacGinitie Reading test (MacGinitie, 2000), when used as a screening assessment. The author implemented an intervention framework that targeted similar aspects, much like the framework found in the Ritchey et al. (2012) study, however they compared the effectiveness of researcher-provided support to school-provided intervention. The participants with reading difficulties in the school-provided condition were typically assigned to complete a published phonic and word-reading intervention program within their own school. At the end of intervention both treatment groups reported to have made significant gains in the sections of decoding, fluency and reading comprehension measures. This highlights the significant changes that targeted and intensive treatment can have on students, both via a specialist provided treatment program, as well as a teacher/school provided treatment program that follows structured and specific learning targets and outcomes.

When providing participants with a comprehensive phonological skill training, Gillon and Dodd (1995, 1997) found that it resulted in improvement in their overall phonological processing skills, and in turn resulted in further support to their reading accuracy and reading comprehension skills. Both studies were completed with children of similar ages, ranging from 9 years of age to 14 years of age, with (Gillon & Dodd, 1995) participants ages being between 10-12 years, and Gillon and Dodd (1997) participants being between 9-14 years. However, the length of intervention varied between the two studies. When comparing the effects of increasing intervention training time from 12 hours (Gillon & Dodd, 1995) to 20 hours (Gillon & Dodd, 1997) it showed that although students who receive at least 12 hours of intervention do make gains in phonological processing and awareness, by providing them

with only 8 hours more of explicit instruction, it resulted in more significant gains in those skills and also allowed for more transfer of skills to their reading performance.

An integrated intervention approach to supporting student's literacy was examined by Kirk and Gillon (2009) and Collins et al. (2020). Kirk and Gillon (2009) examined the effects of an intervention program that focused on morphological awareness, while also drawing on other forms of linguistic awareness (including phonology, orthographic awareness, syntax and semantics). The performance of 8 children, aged 8-11 years, showed to have made significant gains in both reading and spelling accuracy, when compared to the control group. The results also showed that the students were able to generalise these skills to new words, due to the functionality of the strategies that were being implemented in the approach.

Collins et al. (2020) also examined the outcome that a multi-linguistic structured literacy approach would have on improving literacy in adolescents with reading and/or language disorders. Within this approach the researchers included explicit teaching of the foundational linguistic skills of phonology, morphology, orthography, semantics and syntax. The programme was completed as a 2-week intensive camp, where participants met for 6 hours, each weekday, for 2 weeks. Their performance on the above foundational linguistic skills were analysed using their pre- and post-intervention results, with three case studies completed for individual students to illustrate the individualised benefits that occurred throughout the camp. The researchers reported that all students showed an increase in their literacy abilities across all linguistic components. They also reported that all case study participants showed an increase in how they viewed themselves as readers and their self-confidence towards attempting and achieving in new tasks.

The positive outcomes highlighted above for students that receive targeted intervention provide a strong rationale for the implementation of evidence-based support for students with literacy learning needs. By combining strategies and differing intervention

targets that target multiple linguistic components, e.g. decoding and comprehension skills and strategies, an integrated approach can be implemented. An integrated approach has the potential to improve reading and spelling attempts, written and oral comprehension and may also improve a student's self-perception, due to the increased confidence in their abilities and knowledge of strategies.

However, research to date has inconsistently addressed the involvement of teacher implementation of interventions. There is a need to better understand the effectiveness of strategies that can be implemented in regular class programmes and small group work within school and classroom settings, opposed to clinical research settings, as improved teacher knowledge will have greater transfer to other students' learning abilities over time. The findings of the Gillon et al. (2019) study support the benefits of creating a teacher-led intervention approach for the junior school classes. By allowing teachers to take the lead in intervention implementation, with the support of quality professional learning and coaching, it allows for generalisations of skills and strategies into areas other than the specified small group sessions.

McCutchen et al. (2021) also successfully used classroom teachers to implement a morphology-based intervention plan, where the teachers integrated targeted morphological instructions within their regular reading and writing activities. This study involved the participation of 519 students aged 9-11 years (246 intervention participants and 273 control participants) who completed a 12-week, teacher-delivered intervention program in America, where the intervention teachers were asked to include pre-designed lessons into their regular curriculum. The approach included 20-40 minute lessons that were completed 4-days a week. Following the intervention, the intervention participants outperformed the control participants on deriving meaning from words, manipulation of morphological structures in words and spelling. Although these results are promising and show the benefits of integrating targeted

intervention within regular classroom teaching, the setting and age of this classroom does not match those of the present study. Therefore, more information regarding this type of approach within intermediate age groups from ages 10 to 12 years needs to be done. This study also supported the success of teacher lead intervention with the improvement of writing at both word and sentence level for all participating students. McCutchen et al (2021) elaborated on the teachers' perspectives of them leading the intervention (as opposed to a literacy specialist implementing an intervention approach in isolation). The teachers found that their overall knowledge of particular linguistic foundations and areas improved during their involvement, leading to enhanced confidence in engaging with their students and providing them with more opportunities to extend their own writing outside of the intervention lessons. The generalisation of linguistic support and elaboration strategies used within the targeted work was also found to have occurred across subjects.

Continued research is needed that focuses on intervention approaches that are feasible and effective for classroom teachers to implement with older struggling readers, particularly in the upper primary or intermediate years and prior to students entering high school education.

Relationship Between Reading Comprehension and Health Outcomes

Reading success is strongly related to educational success and more positive health and life outcomes in the transition from school to working life (Johnson et al., 2010; Law et al., 2009; Ministry of Education, 2015). Johnson et al. (2010) and Law et al. (2009) found significant differences between literacy, mental health and employment outcomes for adults that had been identified to have communication impairments at an early age compared to those without early communication difficulties. However, if children with literacy needs receive targeted intervention, the results have shown long term positive outcomes in educational and psychosocial outcomes (Partanen & Siegel, 2014). This is particularly

apparent in students transitioning from intermediate to high school. Students who have lower levels of literacy before they transition into Years 9 & 10 (i.e., the beginning of high school) are more likely to have continuing difficulties within the next stages of learning, as they will always be trying to ‘catch up’ with their peers (Brown, 2014; De Waal & Eyre, 2019; Goodwin & Ahn, 2013).

Psychosocial Development

Self-perceptions’ Influence on Academic Abilities

Self-perception is an individual’s view of a specific domain in their life and can range from aspects such as physical appearance and social acceptance to school achievement and job competence (Harter, 1988). A person’s self-perception has shown to play an important role in an individual’s emotional experiences, behaviour and long-term psychosocial well-being. These perceptions can be created by internalized judgement of others (e.g., what they think are desirable/normal traits to have, drawn from their peers). Some other self-perceptions may be individual perceptions and not influenced by environmental factors. Self-perception develops as you get older and the influence of differing expectations and experiences become more apparent. It is also developed by how others express their thoughts and opinions about both themselves and other people.

Students’ academic self-perception is the self-evaluation and awareness of their own academic abilities. Positive self-perceptions of academic abilities can influence academic outcomes. There are numerous theories put forward in the literature to explain the relationship between self-perception and related outcomes. One model, the Nested Marsh/Shavelson Model (NMS Model) (Brunner et al., 2010; Brunner et al., 2009), explains the strong correlations between subject-specific self-concepts and the outcome they have on a student’s self-perception, especially as they continue to develop. Brunner et al. (2010) found that general academic self-concept can directly influence domain specific and domain general

measures of academic achievement. Therefore, a student's academic self-perception on their abilities in one learning area (e.g., English, Science, Maths etc.) can have an impact on different 'domains' of students schooling and learning areas. For example, low self-concept in one domain such as reading can have an impact on another domain/s such as maths (Preckel et al., 2013). Low academic self-perception in one academic learning area can negatively impact a student's ability to attend and/or level of effort which can in turn impact their success across multiple learning areas (Crosnoe et al., 2007; Preckel et al., 2013; Srikanth et al., 2015). It follows that building stronger literacy skills and thus self-perception of literacy learning may have positive impacts across other curriculum areas.

Collins et al. (2020) provided evidence that targeting improvement in students' reading comprehension and literacy skills has a positive effect on their self-esteem/self-perception. Participants of this study were drawn from adolescents enrolled in Camp CHRONICAL, a 2-week summer camp designed for students who struggle with the literacy demands of the curriculum in America. Participants were aged between 10 and 12 years and meet for six hours a day for 5 days of each week. The intervention included a multi-linguistic structured literacy approach that focused primarily on morphological awareness. The participants systematically moved through the following elements: narrative discourse, syntax, semantics, morphological awareness and syllable instruction. While language and literacy skills were the main focus of the camp, student self-perception was also recorded pre and post participation using the Reader Self-Perception Scale (Henk & Melnick, 1995). Following the camp, the participants reported a boost in confidence, as their results from the Reader Self-Perception Scale changed from being in the 'low' self-perception range pre-intervention, to the 'average' self-perception range post-intervention. The change of self-perception covered multiple aspects of personal progress; how they think they are doing compared to their peers, social feedback, and psychological states. Although the results from

this study are promising, more research needs to be done given the small scale of the project and the lack of a controlled research design. More information is needed to see if the impact of the approach would be similar in a New Zealand classroom setting.

By focusing on the particular relationship between cognitive skills (e.g., reading comprehension) and psychological influences on reading development (e.g., self-perception), researchers have found positive correlations between academic achievement and student's reported self-perception. For example, Greene et al. (2004) found that a student's feeling of competence and confidence in a specific task is directly influenced by when they are succeeding and aware of their success in said task. This relationship is also evident when flipped. If a student is not succeeding or is struggling in academic tasks, their motivation and self-perception reduces (Beluce et al., 2018; Jacobs et al., 2002). These results are consistent with the results of the 2016 PIRLS report, where New Zealand students' views and attitudes on their reading abilities corresponded with their overall decrease in results (Ministry of Education, 2017). This is especially evident in the intermediate ages, as their ability to gauge their school performance becomes more accurate and they begin to compare themselves to their peers. Understanding the relationship between intermediate aged students reading and self-perception is an area worthy of further investigation to help support both their academic achievement and their mental health wellbeing.

Strengths-based Approach to Learning

A strengths-based approach to learning embodies a student-centred form of education that focuses on empowering students (Gillon et al., 2022). This is done by focusing on ways to complement and support their skills to further their achievements, rather than focusing and drawing attention on the skills that they are lacking in and where they 'should' be achieving (Lopez & Louis, 2009). Strengths can be defined as a child's intellectual, physical and interpersonal skills alongside their personal interests, motivators and personal limits, and will

vary from child to child. The strengths-based approach encourages the child to be looked at as more than just their learning and developmental needs, and therefore provides a stepping stone to deeper thinking and understanding of the support that they need as an individual. By identifying a child's strength in a task, and what has been done in order to support this achievement, you are allowing a better opportunity for growth for the teacher/specialist in their practices. This targeting of strengths prompts deeper thinking and understanding of what and why things work, and how they can assist in building a bigger picture of potential future accomplishments.

The success of implementing an intervention approach that follows a strength-based framework is evident from a recent study within New Zealand. Gillon et al. (2022) found that following a strength-based approach, while providing both Tier 1 (class wide/universal) and Tier 2 (targeted small group) support, benefitted all students. The children that participated in the initial Tier 1 support performed significantly better in their phonological awareness, non-word reading and non-word spelling skills compared to their peers who only accessed their regular literacy curriculum. Students who accessed Tier 2 support continued to show even more growth with their phonological awareness, non-word reading and non-word spelling skills than their peers in the control group. These findings support and highlight the significant changes that can occur while providing targeted support using a strength-based approach and what more personalised support can do for students that have been identified for needing more literacy support.

Teacher Professional Development

Professional development of teachers is about supporting their continued learning while also transforming their knowledge into practices that will best benefit their student's growth in the classroom (Timperley, 2011). The translation of professional development into enhanced teacher practice may vary across settings (e.g., content and intensity of teaching

strategies may vary in class practice compared to experimental research studies validating the usefulness of the strategies). The feasibility of the implementation of evidence-based strategies within the class context need to be taken into consideration to ensure the usefulness of new professional learning and development.

Characteristics of Effective Professional Learning and Development

The ability to comprehend text is typically a skill that is learnt informally through the development of foundational linguistic skills and continuous exposure to different texts. However, some students need more explicit and formal instruction to use evidence-based strategies that support text comprehension. In order for teachers to effectively provide this instruction there has been an increasing understanding that teachers need strong metacognitive awareness of their own teaching practices. They need to understand the different stages of cognitive and metacognitive abilities of their students, and also have a strong understanding of the pedagogy and instructional values to explicit teaching, along with how to consistently implement them within their classrooms (Lovett et al., 2008; National Reading Panel et al., 2000). Providing teachers with a strong understanding of the developmental expectations of a student's foundational linguistic components, and how they interact with reading comprehension, is important. With this knowledge, teachers are able to make informed decisions on what the best strategies are and what level of support is necessary for their students. Providing teachers with both theoretical and practical knowledge will help ensure more sustained enhancement to their current ability to apply new knowledge to meet learners' individual needs (Lovett et al., 2008; Timperley, 2011).

Intermediate School and Teaching Philosophy

The transition from adolescence to teenager (middle/intermediate school to secondary school) can have a significant impact on students' literacy achievement and attainment if they are already 'struggling' learners (McGee et al., 2003). Internationally, there is a consistent

decline in literacy skills during the transition from primary to secondary school (McGee et al., 2003). Middle and intermediate schools were introduced to remediate the disparities that are found between primary school and high school teaching and environmental philosophies. The ideology of creating the intermediate/middle school is that early adolescents need a 'Learner-Centred Education' setting to best support their current learning phases (Martin & Williams, 2012; McGee et al., 2003). These schools follow the four main attributes of the philosophy of 'Learner-Centred Education' by being developmentally responsive, challenging, empowering and equitable. Understanding that early-adolescents need different educational supports promotes improved academic and social outcomes (Juvonen, 2004). This context provides an excellent opportunity to focus on ensuring all students have the necessary foundational literacy skills that will support the comprehensive literacy skill development that is necessary as they transition into the complex high school educational environment. Intermediate school contexts also allow teachers to integrate a team-teaching approach, encouraging consistent collaboration and an integration of specialised skills (Juvonen, 2004; Martin & Williams, 2012). By having these types of philosophies and student goals, it allows the schools to focus their approaches to help facilitate the learning of their teachers and students to ensure their success. Despite these unique opportunities of the intermediate educational context, there is minimal research that has focused on literacy learning in intermediate schools in New Zealand. There is a need, therefore, to investigate effective teacher practice and strategies that will support student's consolidation of foundational literacy skills during their intermediate school learning experiences.

Culturally Responsive Teaching

Culture influences how an individual thinks, communicates and perceives their day-to-day experiences (Glynn et al., 2010). This also means that for every student their experiences at home, in the community, and in their schools will be different and can be

heavily influenced by their own cultural identity. This can cause disparities between living and learning experiences as the current environments in which children are growing up in are typically dominated by a westernised methodology towards living and education, even though a large majority of a population does not identify with that culture (Fickel et al., 2017; Gay, 2018; Glynn et al., 2010).

This disparity between western culture and expectations, and indigenous culture and expectations is evident at a global level and can be significantly noticeable in school settings (Fickel et al., 2017; Glynn et al., 2010). Current curriculum and schooling expectations are derived from a westernised perspective that does not always take indigenous principles, knowledge, and methodologies into considerations. Within the New Zealand student population, 24.8% of students on the NZ school roll currently identify as Māori (Ministry of Education, 2022b), and educational data reveals that many Māori students have continued to struggle and underachieve within the current teaching environments. The most recent PIRLS report (Ministry of Education, 2017; Mullis et al., 2017) showed noticeable differences between the different ethnic groups within a New Zealand classroom for their reading comprehension abilities. Māori and Pasifika students consistently had the lowest mean reading comprehension scores from 2001 to 2015 compared to any other ethnic group in New Zealand (Ministry of Education, 2017).

As New Zealand classrooms are culturally and linguistically diverse, due to the ever-growing ethnic breakdown of the New Zealand population, these types of considerations need to become acknowledged, accepted and integrated to create a culturally inclusive environment where all children have an equal chance at success (Glynn et al., 2010). Understanding the significance of cultural knowledge/experiences and the importance this has on a student would enable teachers to adapt and include different strategies that are best suited for the individual learner. The inclusion of culturally responsive teaching approaches

to literacy learning, right from the start of schooling, will help support student and whānau engagement, which in turn will strengthen the development of student's foundational literacy knowledge which is necessary for literacy success (Gillon & Macfarlane, 2017).

Framework of Cultural Responsivity

Different components of learning need to be intertwined from the dominant culture and the indigenous culture to facilitate success in a culturally responsive paradigm. Focusing on one culture without the other, does not allow for equal opportunities for all students in the same setting. A framework that helps to achieve this ideology was developed by Macfarlane et al. (2015) called the 'Braided Rivers Approach' or 'He Awa Whiria'. This approach depicts how both western and indigenous knowledge needs to feed into the intertwining streams of psychological, cognitive and ecological influence in order to facilitate reading success (Gillon & Macfarlane, 2017). The framework highlights the importance of providing culturally responsive teaching (or intervention) that integrates indigenous knowledge and customs, while also including the knowledge gained from western science methodologies regarding the important cognitive skills required for reading success. Culturally responsive literacy teaching approaches include activities, resources and teaching strategies that are relevant and meaningful to the students. Furthermore, these approaches value the student's sense of place and cultural identity, and prioritise whānau engagement as an enabler of children's learning. The importance of culturally responsive and strengths-based approaches to teaching has been highlighted in a recent report that identified facilitators of success for Māori and Pasifika learners (Webber et al., 2022).

The current study

Many previous reading intervention studies have examined the supports necessary to advance students' foundational linguistic skills via small group targeted intervention approaches (Dawson et al., 2021; McCutchen et al., 2021; Ritchey et al., 2012; Singh, 2008;

Vaughn et al., 2016). However, there has been a lack of integration of multiple linguistic components within some of the current effective interventions. Studies have often targeted reading comprehension by focusing on one specific linguistic component (e.g., only phonological awareness skills or only morphological awareness skills) and have demonstrated that specific strategies can be useful when implemented with high intensity and consistency, such as multiple consistent treatment sessions each week (McCutchen et al., 2021; Ritchey et al., 2012; Vaughn et al., 2016). However, the growth in students' skills has often been shown to be isolated specifically to the intervention targets, and skills have not always been shown to generalise across to other foundational literacy skills for struggling readers.

Research intervention studies that implemented a more integrated approach to intervention (Collins et al., 2020; Gillon et al., 2019; Kirk & Gillon, 2009) show that including instruction that covers more than one foundational linguistic skill (e.g., phonological awareness and morphological awareness) results in gains across skill areas which can be particularly beneficial to older learners (adolescents). Emerging evidence also demonstrates positive associations between improved reading performance and improved self-learner perception. This current study seeks to extend previous research through an in-depth examination of individual readers' response to targeted intervention. This study focuses on students in an intermediate school setting who have struggled with word reading and spelling abilities at school, during Year 7 and through to Year 8, despite some having already received research informed literacy teaching instruction and previous evidence-based group interventions, similar to the current studies program. This study will investigate the response that these Year 8 students have to explicit teaching instruction, using research informed strategies, in terms of linguistic knowledge and reading outcomes, as well as their self-esteem. Additionally, understanding these students' teachers' perception of professional

learning and development to enhance their own knowledge and confidence in supporting persistent struggling readers will be investigated.

Aims of the Current Research

The current research project aims to extend findings from a larger scale pilot research study investigating the effectiveness of literacy interventions for struggling readers in an intermediate school setting (Gillon & McNeill, 2020). The pilot study, referred to as the Foundational Literacy study, involved screening all Year 7 students in one intermediate school on spelling and reading assessments. Following screening, 24 struggling readers were randomly assigned to small group intervention to improve their phonological awareness, morphological awareness and orthographic knowledge, or were assigned to a wait group. The current project aims to follow-up with 4 participants from the larger Foundational Literacy study, who showed persistent reading difficulties during Year 7 and into Year 8. The study aims to better understand the benefits of additional focused literacy intervention on students' foundational linguistic knowledge and the influence of further targeted intervention on students' well-being, including self-concept and self-efficacy, as they progress into and through Year 8. In addition, the feasibility and impact of supporting teacher's knowledge and application of more explicit teaching in foundational learning areas such as vocabulary, listening comprehension, and phonological awareness for persistent struggling readers will be examined.

The following research questions have been posed:

1. How do students aged 11-13 years who have demonstrated persistent lower levels of literacy ability respond to an integrated intervention approach that targets foundational linguistic skills, and how does this relate to their self-perception?

2. What is the feasibility and impact of PLD for teachers that focus on foundational literacy knowledge, alongside participation in a short period of in-class intervention for their students aged 11-13 year old students with reading difficulties?

The following hypothesis is made regarding the above research questions:

1. The intervention will result in an increase in literacy and reading comprehension skills and an increase in positive self-perception.
2. The teachers will have a positive view on the acceptability and integration of the PLD provided and how it interlinks with the in-class support.

Chapter 2: Method

Ethical Approval

Ethical approval was gained through the Educational Research Human Ethics Committee at the University of Canterbury in July 2021 (Ref: HEC 2021/73, Appendix 1.).

Research Design

The study used an individual pretest-posttest design to examine the participants' responses to a period of specific intervention to enhance their reading and spelling performance. Participants' self-perception was also tracked over the course of the study. Finally, teachers' perceptions and opinions on the professional learning and development they received as part of this intervention study was also examined.

The research implementation was led by a qualified speech and language therapist (the lead researcher and thesis author). Originally from Whakatane, the author undertook speech language therapy training at the University of Canterbury in Christchurch followed by a period of employment as a speech language therapist in the Canterbury school sector. All assessments and teaching sessions were provided in English.

Participant Selection Process

A CONSORT diagram is provided in Appendix 2. This diagram depicts the timeline and participation selection progress. The diagram details both the larger scale Foundational Literacy study (i.e., the initial intervention completed by the four participants) and the follow-up study which is the basis of this thesis. The Foundational Literacy study is depicted to provide adequate detail regarding the study's context and recruitment processes.

Recruitment and Consent

The research took place in a large Christchurch intermediate school with a decile rating of 7. The school is not zoned and enrolls students from up to 50 different primary schools. Once the school had agreed for a follow-up study to be undertaken at their school, information and consent forms were provided for the whānau of Year 8 students that were involved in the Foundational Literacy study the previous year (i.e., when they were in Year 7). Once whānau consent was gained, assent for participation in the research was also gained from the students themselves. This assent process was facilitated by a research assistant. Students were able to ask any questions, or have information further explained, before signing the assent form and deciding that they were willing to take part in this project.

Following the selection of the students taking part in the intervention (i.e., after the initial literacy assessment) verbal assent was also collected to ensure students assented to being involved in the intervention facet of the study.

Following identification of the intervention participants, their teachers were invited to participate in a Professional Learning and Development opportunity that complemented the intervention that was delivered through the study. Invitation to participate in the Professional Learning and Development was also extended to other teachers throughout the school. Consent for participation in the research project was gained for interested teachers.

Student Participants and Selection Process

From the 61 Year 7 students who had undertaken literacy screening assessments as part of the Foundational Literacy study, a total of 57 students were still enrolled in the intermediate school in 2021 as Year 8 students. These 57 students were invited to participate in a further literacy screening assessment process. Consent was gained for participation in the screening assessments for this study for 30 students. Three parents requested that their child did not take part, and consent forms were not returned for 24 students. From the 30 students

with consent, 3 students did not give their assent for participation. Therefore, the final sample for the follow-up literacy screening assessment process was 27 (13 males, 14 females).

These 27 students completed the follow-up literacy screening assessments (2021) over two sessions, each lasting approximately 20-30 minutes. Assessment session 1 included the Queensland University Inventory of Literacy (QUIL) non-word spelling assessment, and session 2 consisted of the Neale Analysis of Reading Ability and the Piers-Harris 3 (full details regarding these measures can be viewed in the next section). Following this assessment time point, students were then selected to take part in the intervention trial that was the basis of this current study. The inclusion criteria for being selected to take part in the intervention was students needed to score below the 30th Percentile ranking on the Neale Accuracy subtest and below a standard score of 8 in the QUIL Non-word Reading assessment. Four students met this criterion: 3 females and 1 male. Two of the participants (1 male, 1 female) received intervention the previous year through participation in the Foundational Literacy study. The other two participants had given consent to participate in the Foundational Literacy intervention, but were not selected to participate in that intervention as their assessment data did not meet the inclusionary criteria (i.e., were not in the lowest scoring band).

The participants will be referred to using a pseudonym; Emma and Ezra were selected for intervention in the Foundational Literacy and current study. Lizzie and Sarah participated in the current intervention alone.

Teacher Participant Selection Process

Study information and consent forms were provided to teachers of the students who were identified for intervention and to any others in the school that expressed interest in being involved in the follow-up project. Six teachers from Year 7 classes chose to participate: 2 male teachers, 4 females. Four of these teachers had been involved in the Foundational

Literacy study the previous year (2020) and therefore already had built a professional relationship with the lead researcher. One teacher was the school Assistant Principal and Year 7 Team Leader with her own classroom, and the other 5 were class teachers.

Assessment and Intervention Setting

All tasks involved in this project were completed on the grounds of the participating intermediate school in Christchurch, while not in COVID-19 lockdown. The assessment sessions were conducted in a small quiet room away from their peers and with limited distractions. The intervention sessions took place within a classroom during regularly scheduled English curricular activities.

The initial teacher focus group and results feedback session for the teachers involved in the study took place over google meets during level 3 lockdown in New Zealand. The intervention content workshop took place within the school during after school hours.

Assessment Measures and Materials

Literacy and Psycho-social Screening Measures

The following standardised spelling and reading assessment measures and psycho-social measure was used in this current study and Foundational Literacy study. These assessments were administered to all 27 students who gave consent to participate and were used to identify those students who met the inclusion criteria for the intervention.

Non-Word Spelling Test of the Queensland University Inventory of Literacy (QUIL) (Dodd et al., 1996). In this task students are required to spell 24 non-words. The administrator read each word out once, paused for 5 seconds and then reread the word out loud. When the student had finished their spelling attempt of the word, they then moved onto the next word and followed the same pattern until they completed the list. Raw scores and scaled scores were collected for analysis once completed. The test-retest reliability coefficient

is 0.89 for the whole QUIL test battery. The reliability for the QUIL Non-Word Spelling subtest is 0.98.

NEALE Analysis of Reading Ability – 3rd Edition (Neale, 1999). This is a measure of connected text reading. To complete the assessment, a text passage with a picture was placed in front of the student. The students were instructed to read the text aloud and that they would then be asked some questions about what they had just read. While the students were reading the passage out loud, they were timed to see how long it took them to complete the passage. The students were instructed to read the text at a regular pace and try not to speed through it. Reading accuracy, reading comprehension and rate of reading scores were obtained. Raw scores and percentile ratings were collected. The internal consistency reliability coefficients for the 6 years of schooling (YOS): Rate – 0.94; Accuracy – 0.96; Comprehension – 0.88. The internal consistency reliability coefficients for 7 YOS is: Rate – 0.96; Accuracy – 0.96; Comprehension – 0.89.

The Piers-Harris 3 Self-Concept Scale (Piers et al., 2018) was used to assess the students' attitude towards self and learning. To complete the assessment, students had to read 58 individual statements and circle either 'yes' OR 'no' depending on how they feel it relates to their own experiences and perceptions of their lives. Each question fell into 1 of 6 different themes/domains that cover a particular viewpoint of themselves; Behavioural Adjustment (BEH), Freedom from Anxiety (FRE), Happiness and Satisfaction (HAP), Intellectual and School Status (INT), Physical Appearance and Attributes (PHY), and Social Acceptance (SOC). Once the survey was completed, standard cores (T-Scores) were found for each student. The students result for each question was also scored and characterised by an overarching score that didn't separate each question into a domain, this score was called the total (TOT) score. Each score was given a descriptive classification of either low, average or above average, depending on the mean score for each domain and total score. The average

test-retest reliability correlation for the domain scales is 0.93 and 0.96 for the total (TOT) scores. This shows that the test-retest reliability of this assessment is acceptable and consistent with other behaviour rating scales.

Pre- and Post-intervention Literacy Assessment Probes

The following assessment probes were completed by the four students selected to take part in the intervention. These were completed pre- and post-intervention. These probes were completed individually in one session.

Real word reading probe - Students were presented with a list of 60 real-words and asked to read them out loud. The list consisted of words that contained the spelling rules that they would be learning during the intervention sessions. The students were taught 30 of the words throughout the intervention sessions, while the other 30 were not taught. This was to see if generalisation occurred across the similar spelling patterns. Students were scored out of 2 sets of 30 for the number of words that they read out loud correctly; Set A (taught words) and Set B (untaught words).

Real word spelling probe - To assess student's real-word spelling abilities, they were asked to spell the same 60 words that they read out loud. The list consisted of words that contained the spelling rules that they would be learning during the intervention sessions. The students were taught 30 of the words throughout the intervention sessions, while the other 30 were not taught. This was to see if generalisation occurred across the similar spelling patterns. To obtain these samples, students were first given each word in isolation, then given the word in a sentence, and finally given the word in isolation again. Students were scored out of 2 sets of 30 for the number of words that they spelt correctly; Set A (taught words) and Set B (untaught words).

Phoneme-grapheme manipulation word chains - Using two 6-word chains, that were made by the author and her supervisor, students were assessed on their ability to discriminate

between sounds in a word, recognise where a change occurred and update the base word into the new word. The words used contained a mix of simple and complex vowel changes, as well as blended and unblended consonants. For each chain, students were scored out of 5 for their ability to correctly change the base words spelling to the new words spelling (i.e. if this says flon show me slon) – students would have to correctly change the ‘f’ at the start of the word to an ‘s’. They were also scored out of 5 for their ability to correctly verbalise where the change occurred in the word when asked (i.e., “where did the change happen for ‘flon’ to ‘slon’?” “The change happened at the start.”).

Spoonerisms - Students also completed a spoonerisms task that involved the students hearing two words and then being asked to switch the first sound between them, with the complexity of the words increasing as they move through the list. This assessed the student’s phonological segmentation and manipulation ability, without the use of letter prompts, as they are required to complete the task using their internal monologue. It also draws on the students’ short-term memory ability. Students were scored out of 10, however, there was a discontinuation rule of 6 incorrect. Their scores were then converted into standard scores. An average score would fall between 7 and 13.

Weekly/Bi-weekly Literacy Assessment Probes

The following assessment probes were completed either weekly or bi-weekly, as stated in the following descriptions, by the four students selected to take part in the intervention.

Word chain probe – During each session, the students were timed completing a different 10-word word chain, with the encouragement to get faster every session. A chain consisted of a list of 10 words, where only one sound was different in each word as you moved down the list. Students had to master five different kinds of changes – addition, omission, substitution, shifting and repetition. The development of the complexity of the

sounds and letters being used increased over each session. When their times began to plateau with the non-words, they moved to the manipulation of real words. Students had the opportunity to work through the list together as a group initially, and then were required to complete the chain individually while being timed.

Non-word reading probe – Every 2 weeks, students were presented with a list of 10 non-words that contained a variety of vowel and consonant patterns that varied in complexity i.e., digraphs, blends, long vowels and short vowels. The students were asked to read them out loud as quickly, but as accurately, as they can. The student’s time taken to read the 10 words were recorded, as well as any incorrect readings of the words. This probe was completed every 2 weeks, with new words, to track any changes in the student’s accuracy in decoding and their speed of reading. This probe was completed individually.

Assessment Time Frame

Due to this project being a follow-up project to the initial Foundational Literacy Project, earlier data points for the four participants selected to take part in the intervention were also available. The assessment timeline and tasks administered at each time point is summarised in Table 1.

Table 1. Participant assessment point breakdown

	<i>Ax. Point 1</i>		<i>Ax. Point 2</i>	<i>Ax. Point 3</i>	<i>Weekly Int.</i>	<i>Ax. Point 4</i>
	<i>FLP</i>		<i>FLP</i>	<i>Aug 2021 pre-</i>	<i>Probe</i>	<i>Nov 2021 post-</i>
	<i>Aug 2020</i>		<i>Dec 2020</i>	<i>study intervention</i>	<i>completion</i>	<i>study intervention</i>
	<i>Screen</i>	<i>Probe</i>	<i>Screen + Probe</i>	<i>Screen + Probe</i>	<i>Probe</i>	<i>Screen + Probe</i>
<i>Sarah</i>	✓			✓	✓	✓
<i>Ezra</i>	✓	✓	✓	✓	✓	✓
<i>Lizzie</i>	✓			✓	✓	✓
<i>Emma</i>	✓	✓	✓	✓	✓	✓

Note. *FLP= Foundation Literacy Project*

Ezra and Emma participation in the Foundational Literacy Project intervention sessions are shown by the additional assessment probe dates – pre- and post-intervention at Ax.1 and Ax.2 time points.

Teacher Participation

The participating teachers were involved in the following activities

A) *Focus Group*

Teachers participated in a focus group via a zoom meeting prior to the students commencing their intervention sessions. Data was collected from the seven participants using a semi-structured interview and followed a Consolidated criteria for Reporting Qualitative research (COREQ) (Tong et al., 2007) checklist when completing the analysis and reporting of the data collected (Appendix. 3). Two members of the research team (lead researcher and supervisor) designed the interview guide. The question design was made to be open-ended, non-leading and unbiased, to allow participants to voice their responses without being influenced. The interview focused on four key themes; professional development related to literacy teaching within their school, the identification of students with higher needs, current support for students with higher needs, and methods that may enhance the sustainability of new interventions. The group interview was audio recorded using the Voice Record Pro phone app. The audio recording was then automatically transcribed using otter.ai; an online transcription program. The transcription was then manually checked by the lead researcher for accuracy. Corrections were made where needed. Once the transcriptions had been analysed, the teachers were provided with the theme analysis to provide feedback on the results and to confirm that they were comfortable with the reporting of their statements.

B) *PLD Workshop*

Based on analysis of data gathered in the focus group, a 90-minute face to face workshop outlined the content of the students' intervention sessions and how to execute the strategies within small group sessions. Theoretical content as to the

importance of phonological, morphological and orthographic awareness to the word decoding and reading comprehension processes was also covered in the workshop. The importance of explicit teaching strategies, scaffolding students attempts to ensure success, using a strengths-based approach to teaching and specific examples on how these strategies could also be implemented at a class-wide level were all discussed within the workshop. The lead researcher worked through the lesson plans with the teacher relating to the specific teaching activities included in the intervention sessions.

C) Intervention Implementation

Once the intervention sessions commenced, the teachers first observed the implementation of these foundational literacy strategies by attending multiple intervention sessions alongside the lead researcher. The teachers moved from observing the lead researcher implementing the sessions, to co-teaching the sessions, to leading the complete session or part of the session. The progression through these steps and level of support provided by the lead researcher varied depending on the confidence of the teacher and the teacher's request for support.

D) Survey

Following the completion of the students' intervention sessions, the teachers were asked to complete an online survey using Qualtrics (<https://www.qualtrics.com>). The questions in the survey covered three main topics: Student Data, Strategies/Intervention Implementation and their Overall Experience/Thoughts. The questions were a mixture of multichoice answer (Yes OR No), with most requiring a text response as to why they selected their multichoice response. A copy of the survey is provided in Appendix 4.

Student Intervention

Intervention Design and Intensity

The intervention was designed for implementation over an 8-week school period with a target of 24 group intervention sessions (3 sessions per week) during this period. The 4 target students attended the session together each day, and each session was designed for a 35-40 minute period (following the usual length of a curriculum subject lesson period). The first two sessions of the week were direct intervention sessions, led initially by the researcher and then supported by a participating teacher as described above. The third session each week was designed as a “buddy session.” In this buddy session, each individual student was paired up with another student in the class. The intervention students then took on the role of the instructor and taught his or her peer activities/linguistic games that they had worked on in sessions 1 and 2 of the same week. The teacher, whose class the sessions were taking part in that week, selected the intervention students’ buddies. For the buddies, the teachers selected any students that had been previously identified as struggling readers/writers. This classification was identified via the regular assessment probes that were completed outside of the study and as a part of their regular curriculum.

Intervention Location

The intervention group sessions took place within the regular class setting during an English curricular teaching period. The sessions were implemented on a rotational basis in four of the participating teachers’ classrooms. The target was to have 6 sessions during the 8-week period in each of these teachers’ classes. This model allowed the teachers to observe and participate in some of the sessions (while still supervising their other students in the class who were engaged in different group or independent language activities during this period). The two teachers who were a part of the study, but did not have lessons in their own

classrooms, buddied up with a teacher whose classroom was being used to run sessions in and observed and participated in lessons in their teacher buddies' room.

Intervention Session Content

Lesson plans were developed to guide each direct intervention session. Each session covered four key foundational literacy skills as described below. An example of a lesson plan can be view in Appendix 5.

Orthographic Knowledge (Approximately the first 5mins of the session): This section focused on revision of phoneme-grapheme sound and rule knowledge using explicit teaching techniques and card sort activities. The intervention began with simple grapheme-phoneme connections, and then progressed to more complex connections including vowels.

Phonological Awareness (10 - 15mins): The students engaged in phoneme manipulation tasks, progressing from representing phonemes in syllables with coloured blocks and then to representing the phoneme with the associated grapheme blocks. The student was required to show where the sound change occurred in a pattern, and then represent the phoneme change with a different coloured block or the corresponding grapheme block. An example of a chain is as follows: *bat-sat-sap-map-cap-caps-cups-cup-cut-but*. Each session the students were timed completing a 10-word chain with the encouragement to get faster every session. The word chain was created using the same format was the word-chain probe. It consisted of a list of 10 words, where only one sound was different each time as you go down the list. The students had to master five different kinds of changes – addition, omission, substitution, shifting and repetition. Development of the complexity of the sounds and letters being used increase over each session. When their times began to plateau with the non-words, they moved to the manipulation of real words.

Morphological Awareness (10mins): During this section of the lesson, students were introduced to one or two morphological patterns. The item inclusion and progression of the

stages within this section was derived from a linguistic awareness intervention program developed by (Kirk & Gillon, 2009). The sequence of morphological patterns taught can be found in Appendix 6. To further support the student's recognition and identification of short and long vowels in words, the students worked through a list of spelling and vocabulary rules. For example, the changes that take place with specific words when adding a suffix i.e., for words that have short vowels, the final consonant is greedy so it needs to double before the suffix is added. Students were encouraged to self-monitor and self-prompt to build confidence and independence so that skills would generalise into tasks outside of the intervention setting. Students were encouraged to identify the vowel length in each word, the suffix, and recite the vowel length rules that are associated with each one.

Reading Comprehension and Fluency Strategies (10mins): This section focused on using phonological processing and morphological skills in decoding and comprehending written text. Students were provided with a piece of text that was relevant to a topic or theme they were already learning in their classrooms. From this text, students were given different tasks depending on the target for the session. If the focus was on fluency, the student would read out the text and ensure it was 100% fluent. If it was not fluent, they would reattempt reading the passage out loud until there were no errors. Any error a student made was initially highlighted to them by the researcher, along with what they could do to correct the error. As they moved through the sessions they were encouraged to self-monitor their reading, state whether their text reading was 100% fluent, and, if not, what had to be corrected when they reread the sentences. When students were able to read the sentence 100% fluent the first time, they moved onto reading 2 sentences and then to 1 paragraph. During other sessions, students were also provided with some other strategies to support reading comprehension, i.e., predicting, inferences/connections, summarising & re-reading. These strategies were initially modelled and supported by the research assistant and teachers leading the sessions. As the

students became more competent in these strategies, the complexity of the text increased and support provided to the student decreased.

The third session of the week (20-30mins) involved the participants supporting a buddy to work through 1 or 2 activities that they had previously completed that week – typically this focused on the phoneme manipulation word chain activity. At the beginning of this session, the specific chain that had been completed by the intervention students was introduced to the buddies. The intervention students then went through the chain with their assigned buddy. They read out the words in the chains as the buddies moved their coloured blocks/letter cards accordingly, providing explicit feedback and corrections when it was necessary. They then went through the chain a final time to have the opportunity to increase their speed.

Once the students completed the 8 weeks of intervention, they were then reassessed using the same pre-intervention assessment probes. Once this data was collected it, it was scored, coded and entered into a computer for statistical analysis.

A timeline and breakdown of the assessment and intervention periods are shown in Table 2.

Table 2. 2021 Assessment and intervention breakdown

Time Point	Action
School Term 3 – Week 1	Consents sent out and obtain from caregivers and participants
Week 2 & 3	Screening assessments for all children and intervention students selected
<i>Covid lockdown period weeks 4-7</i> →	
Week 7	Focus group discussion held with teachers via zoom
Week 8	Pre-intervention Probe assessment for four selected students,
Week 8	Intervention began
<i>School holiday two-week break</i> →	
School Term 4 – Week 1	Intervention content workshop with teachers

Weeks 1- 6	Interventions sessions continued
Week 7	Post-intervention assessment
Week 8	Teacher survey sent out

Chapter 3: Results

This chapter details the results of the measures collected from the students during data collection. It also includes the content analysis of the teacher's responses within the focus group and the end of intervention survey.

The student's data collection includes data from the Foundational Literacy study (2020) where applicable, and follows them through to the end of the intervention implemented in this follow up study (2021).

Intervention Data Analysis

The students' performance across the repeated probes are described using a visual and descriptive analysis as is appropriate with repeated single subject data. For pre- and post-intervention data, scores are directly compared across these timepoints. All data was collected and analysed by the same lead researcher, unless stated otherwise when extra support was required. Student attendance is detailed in Table 3. Student attendance was recorded via an audio recorder and notes taken at the end of each session, that was then transferred into a regularly updated spreadsheet. Disruptions to the planned number of sessions (i.e. 24 sessions during the 8-week period) were a result from Covid- 19 disruptions and absenteeism.

Table 3. *Student Attendance*

	<i>Direct Intervention</i>	<i>Buddy Session</i>	<i>Total Attended</i>
<i>Sarah</i>	16	5	21
<i>Ezra</i>	16	6	22
<i>Lizzie</i>	15	4	19
<i>Emma</i>	14	4	18

Phonological and Morphological Awareness

Weekly Word Chains

The progress of the student's weekly phoneme manipulation word chain results has been split into two parts; their increase in speed while using letter blocks and their increase in speed while using letter cards. These results were analysed separately due to the difference in skills that are required while using the different manipulation tools to complete the task, as they can influence their completion times. When students moved from using coloured blocks to using the letter cards, it was noticed that their speed decreased due to the increased complexity of the task.

Figure 1 presents the participants increase in speed while completing each session's word chain, while using letter blocks in weeks 1 to 4. Visual analysis of the graph shows that most students were getting faster in this task over time despite the task being more complex at each intervention week.

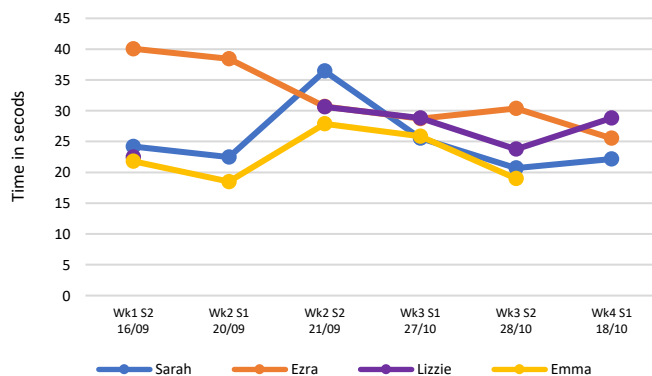


Figure 1. Students' speed in the weekly word chains while using coloured blocks

Figures 2-5 presents the students' speed over time when completing a 10-word chain using letter cards. Ezra and Lizzie showed to have increased their speed by 44% from the time they first attempted using the letter cards and their final attempt. Sarah and Emma also increased their speeds by 41% and 36% respectively.

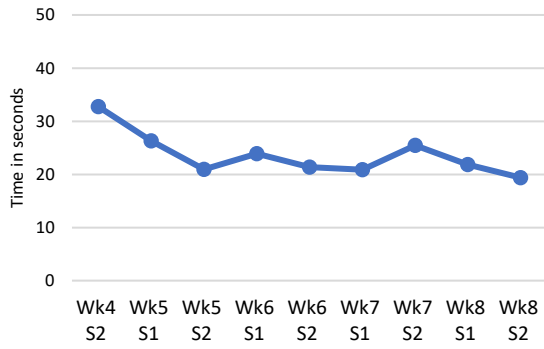


Figure 2. Sarah's performance in the weekly word chains while using letter cards

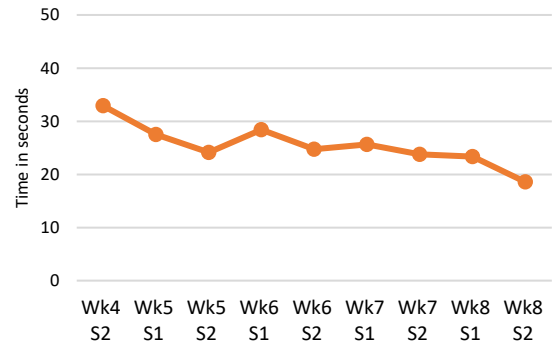


Figure 3. Ezra's performance in the weekly word chains while using letter cards

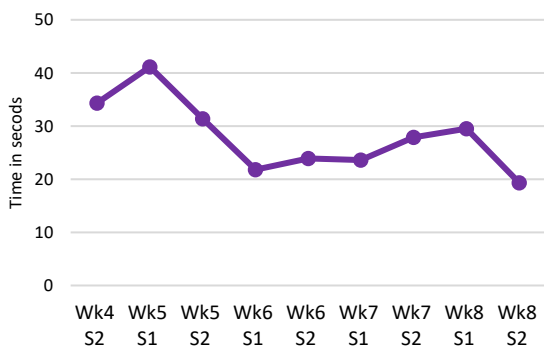


Figure 4. Lizzie's performance in the weekly word chains while using letter cards

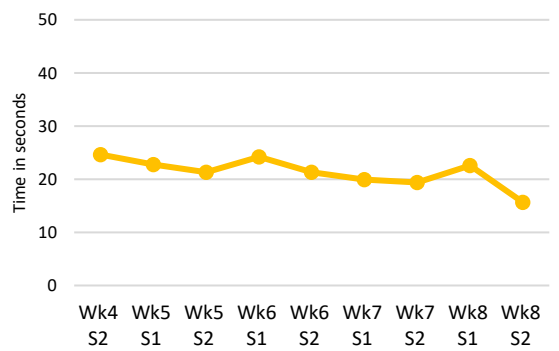


Figure 5. Emma's performance in the weekly word chains while using letter cards

Word Chain Probe

For Sarah, Lizzie and Emma, their pre- and post-intervention results for their accuracy in completing the word-chain probe did not demonstrated any consistent changes. However, there was a change present for Ezra. Figures 5 and 6 demonstrate Ezra's change in score for the word chain probe assessment. While the other participants did not demonstrate an increase in ability with this particular task, Ezra's ability to accurately manipulate phonemes in a word and correctly spell that phoneme, resulted in him achieving a complete score for both chains. When looking closer at the changes in Ezra's scores, his Time 3 results showed he struggled to correctly associate both short and long vowel phonemes with their correct graphemes, e.g. 'pim' was spelt 'piem' and 'ploon' was spelt 'plon'. However, following intervention, he was able to make the correct associations for all vowels.

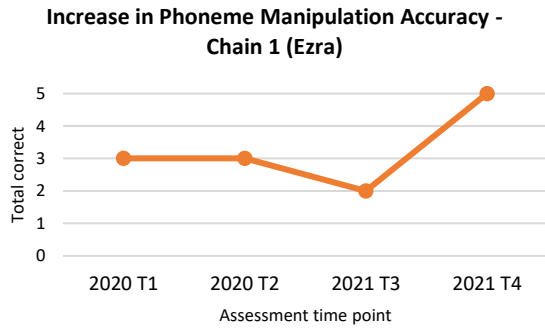


Figure 6. Ezra's weekly word chain probe scores over time – Chain 1

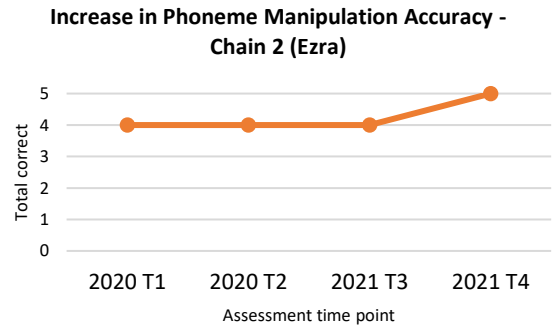


Figure 7. Ezra's weekly word chain probe scores over time – Chain 2

Pre- & Post-Intervention Assessment Results

Spoonerisms

Figures 8 to 11 present the students' scores in the Spoonerism assessment. A standard score between 7 and 13 indicates performance within the expected range for a child's age. Sarah and Lizzie both increased from a standard score of 7 at Time 3 to a standard score of 11 at Time 4. Emma's post-intervention standard score of 13 placed her in an above average range, with a standard score of 13.

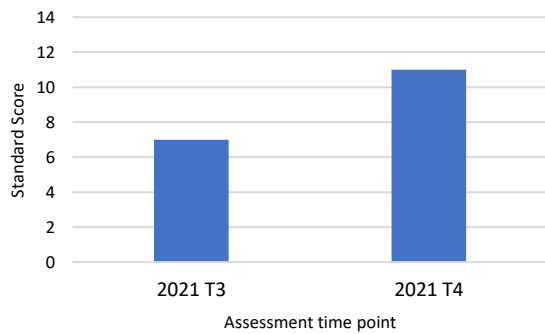


Figure 8. Sarah's Pre- & Post-Intervention Spoonerism Standard Score

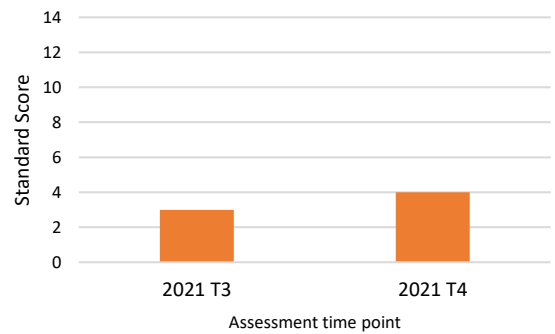


Figure 9. Ezra's Pre- & Post-Intervention Spoonerism Standard Score

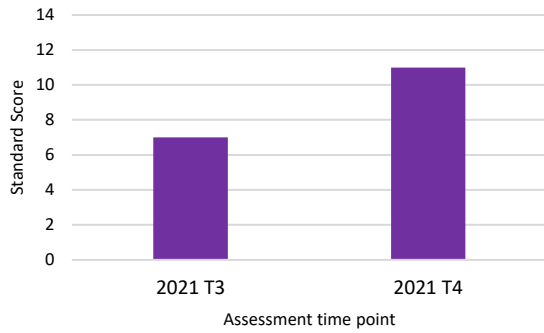


Figure 10. Lizzie's Pre- & Post-Intervention Spoonerism Standard Score

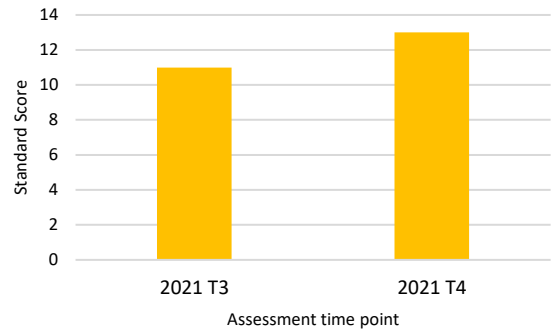


Figure 11. Emma's Pre- & Post-Intervention Spoonerism Standard Score

Although Ezra improved his standard score from 3 to 4 following intervention, he was still not within the expected range for his age. However, when looking at his raw scores in closer detail, he made a jump from 3 individual items correct to 12 individual items correct, indicating that his phonological processing skills had grown strongly in response to the intervention.

QUIL Non-Word Spelling Probe

The participants' performances on the QUIL non-word spelling assessment are presented in Figures 12 to 15. Performance within the expected range for a student's age on this task is a scaled score between 7 and 13. Sarah, Ezra and Lizzie all demonstrated improvements from the Time 3 assessment point to their Time 4 assessment point. Lizzie achieved a standard score of 10 following the intervention which is within the expected range for her age. Sarah's standard score improved 2 points to a standard score of 5, which sits just below the average range. Ezra and Emma's standard scores following the intervention were 9. There was seen to be a slight increase in score from Ezra by one point, and a slight decrease in score from Emma by one point. However, as stated above these are still considered as an average score for their age.

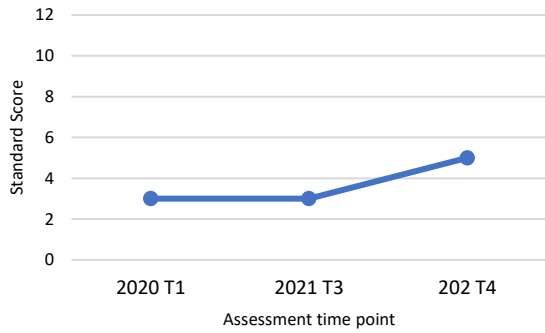


Figure 12. Sarah's QUIL Nonword Spelling Standard Score over time

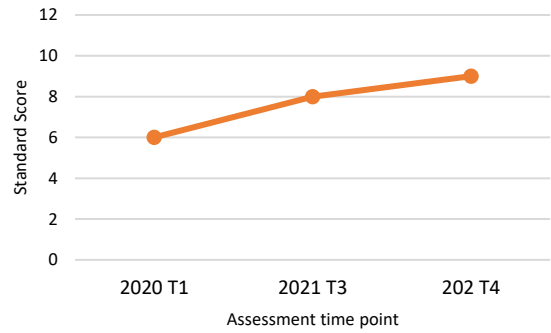


Figure 13. Ezra's QUIL Nonword Spelling Standard Score over time

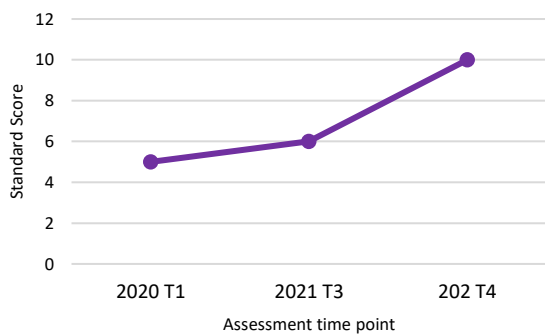


Figure 14. Lizzie's QUIL Nonword Spelling Standard Score over time

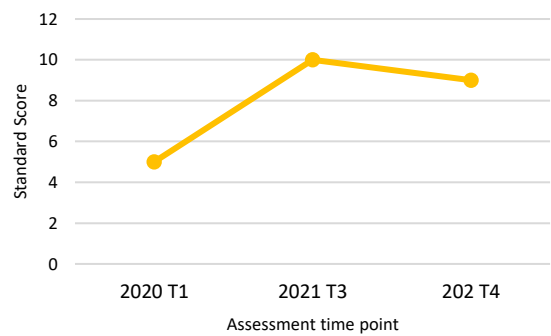


Figure 15. Emma's QUIL Nonword Spelling Standard Score over time

When looking more closely at the changes within the items of the test, Sarah and Lizzie showed to have made the most gains in their ability to accurately differentiate between long and short vowel sounds and use the correct corresponding grapheme. Following intervention, Lizzie correctly spelt five words that she has previously got wrong due to an incorrect grapheme correspondence which she was able to correct in her Time 4 attempt. For example, she was able to use the correct spelling for the /aw/au/or/ sound in Dorf → **Dauf** (T4 attempt) vs **Darwf** (T3 attempt). Sarah also demonstrated a bigger percentage of change in scores following intervention (67% growth in response to the current intervention) compared to a 0% change between the 2020 and 2021 pre-assessment points. The same pattern also occurred with Lizzie's results, where she showed a 67% change in response to the intervention compared to 20% growth over the previous year. Emma dropped one

standard score, but was still performing within the expected range for her age following the intervention.

Real Word Spelling Probe

The participants all demonstrated gains in the real word spelling probe, as shown in Figures 16 to 19. The participants' scores are shown in the two spelling sets they completed; the Taught word list (Set A) and the Untaught word list (Set B).

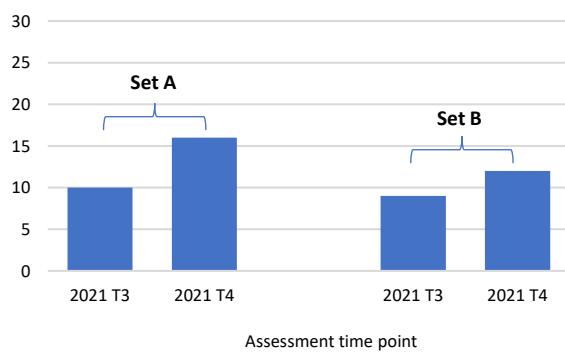


Figure 16. Sarah's Pre- & Post-Intervention Spelling Probe Results

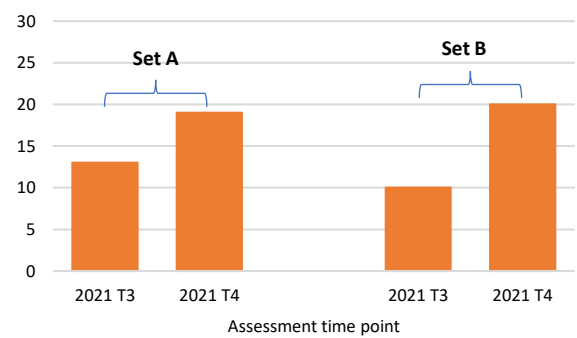


Figure 17. Ezra's Pre- & Post-Intervention Spelling Probe Results

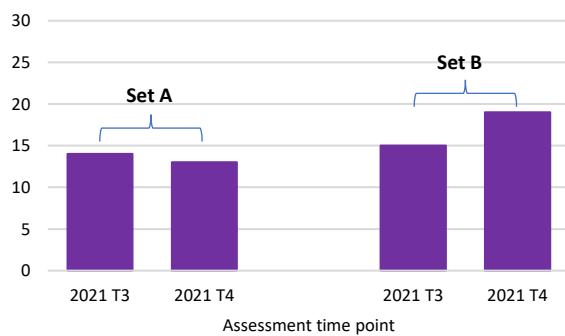


Figure 18. Lizzie's Pre- & Post-Intervention Spelling Probe Results

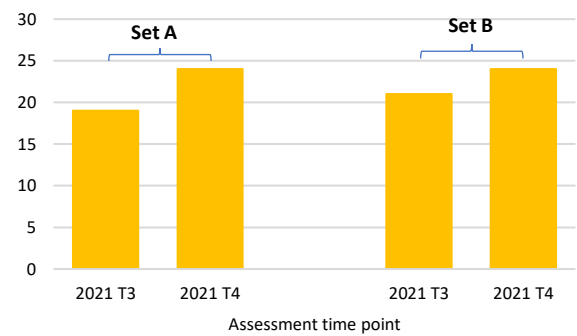


Figure 19. Emma's Pre- & Post-Intervention Spelling Probe Results

Following intervention, Sarah, Ezra and Emma scored higher following intervention for the Set A Taught spelling list. All participants scored higher in the Set B Untaught spelling list. Lizzie scored one less on the Set A Taught spelling list after intervention.

When looking more closely at the students' scores; grapheme by grapheme, it is easier to see the exact changes in their spelling abilities that occurred. Ezra was one of the lower scoring students before intervention, and following intervention shifted to one of the highest. Following intervention, he showed skills of using the correct suffix spelling rules and had increased accuracy of correct phoneme to grapheme correspondence, especially when it came to the short and long vowel pairs. These changes were also evident in Sarah's, Lizzie's and Emma's scores, however, their changes were more heavily leaning towards better understanding of the spelling rules associated with suffixes.

Real Word Reading Probes

The participants' results from the real word reading probe were a bit more varied than in other assessments. Figures 20 to 23 display the participants' pre- and post-intervention scores from both the Set A Taught spelling list and Set B Untaught spelling list.

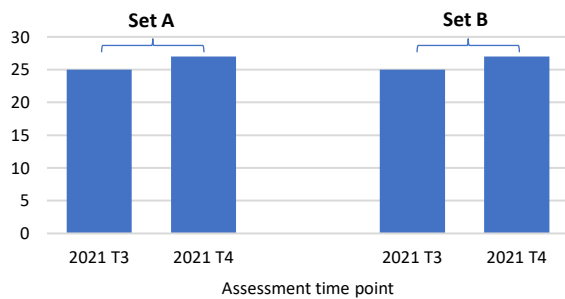


Figure 20. Sarah's Pre- & Post-Intervention Reading Probe Results

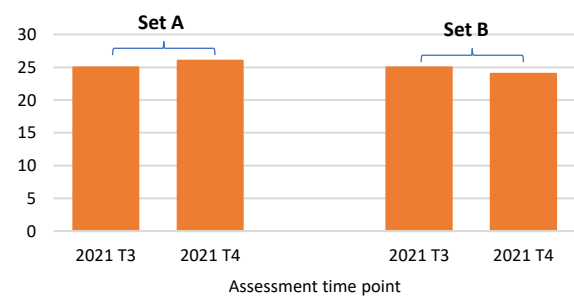


Figure 21. Ezra's Pre- & Post-Intervention Reading Probe Results

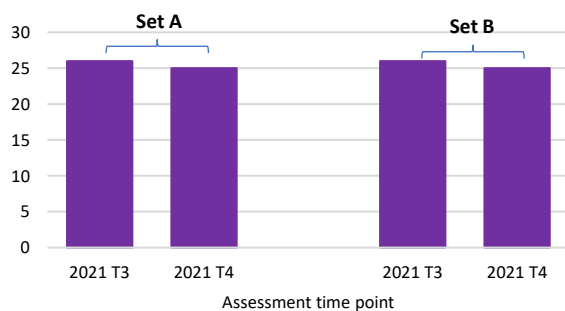


Figure 22. Lizzie's Pre- & Post-Intervention Reading Probe Results

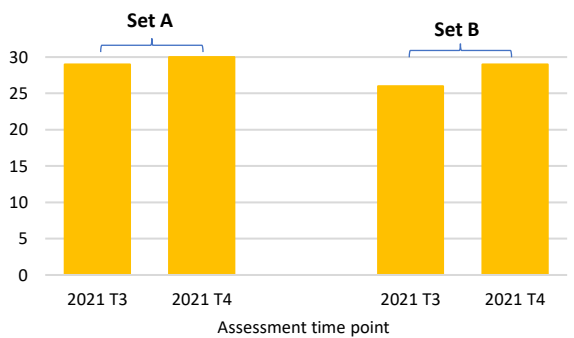


Figure 23. Emma's Pre- & Post-Intervention Reading Probe Results

Sarah and Emma showed to have increased their scores across both reading sets following intervention. When looking at the changes across the sets, their accuracy in recognising and using the correct phoneme for the written grapheme increased, particularly their ability to use the correct vowel for its length.

The participants' errors that were present in both Set A and Set B probes following intervention were all vowel length errors. No participant made errors for consonants within a word.

Reading Accuracy and Comprehension

Figures 24 through to 31 present the students' results at the different time points across both the pilot study and the follow-up study for reading accuracy and comprehension. All participants had a Time 1 baseline assessment time point. Ezra and Emma also have assessment results at Time 2 due to them being involved in the Foundational Literacy studies intervention or wait group. Percentile ranking are depicted for these measures. An average score for a typically developing child in Year 8 would be expected to fall between 23 and 76.

The participants showed an increase in scores in their accuracy results (Figures 24-27). Following the 2022 intervention, Sarah, Lizzie and Emma achieved scores within the mid to high percentile ranking range. Ezra's percentile rank following intervention is 21, which is slightly lower than expected for his age. However, over the 8-week intervention period, his pre-intervention score had improved by 6 points.

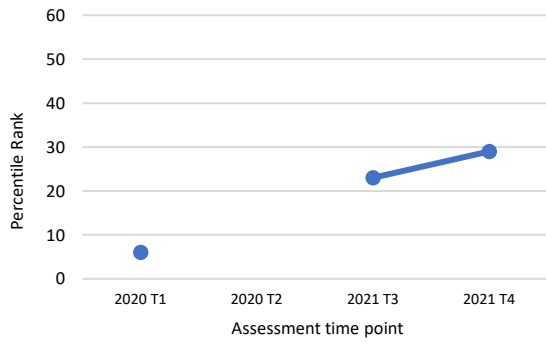


Figure 24. Sarah's Neale Reading **Accuracy** Change Over Time

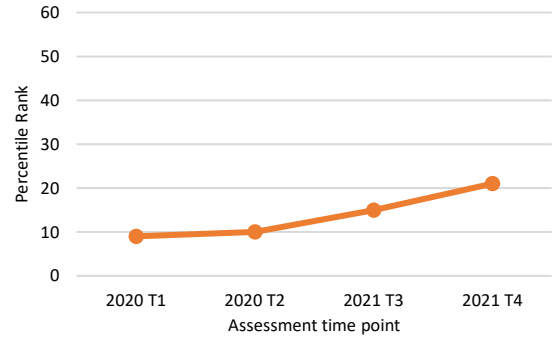


Figure 25. Ezra's Neale Reading **Accuracy** Change Over Time

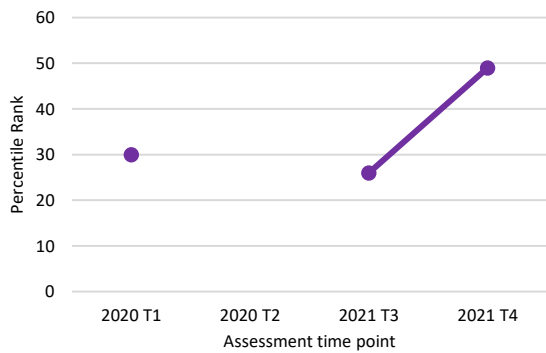


Figure 26. Lizzie's Neale Reading **Accuracy** Change Over Time

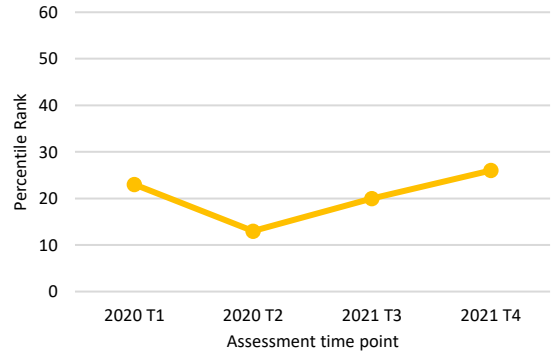


Figure 27. Emma's Neale Reading **Accuracy** Change Over Time

Figures 28-31 show the participants' percentile rankings of their reading comprehension scores. The results show that following intervention, Sarah and Ezra now score in the above average range, with Emma sitting just below the above average range, with a percentile score of 70. Lizzie's percentile score fell by 5 points; however, she still sits in the above average range for her age group.

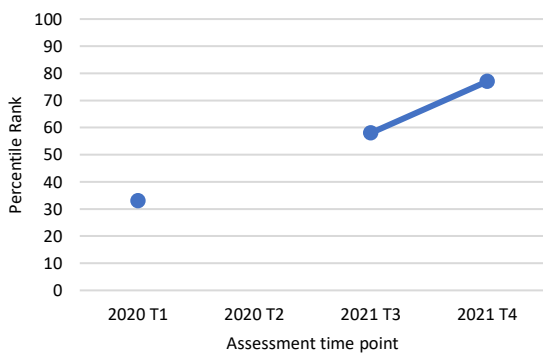


Figure 28. Sarah's Neale Reading **Comprehension** Change Over Time

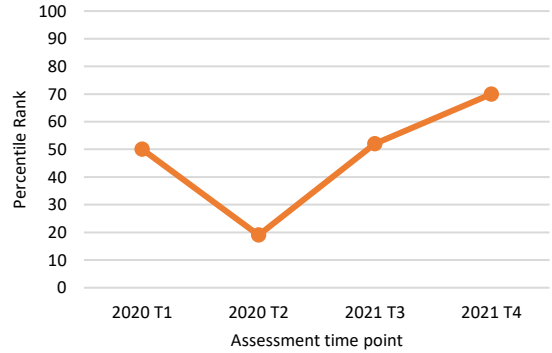


Figure 29. Ezra's Neale Reading **Comprehension** Change Over Time

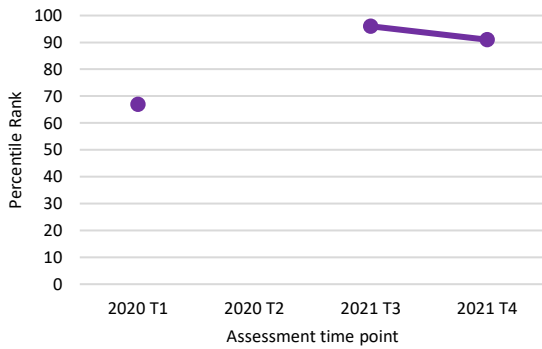


Figure 30. Lizzie’s Neale Reading **Comprehension** Change Over Time

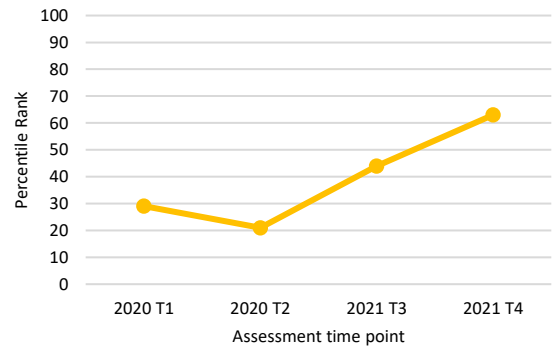


Figure 31. Emma’s Neale Reading **Comprehension** Change Over Time

Two participants’ reading rates also improved over time as shown in Table 4. Ezra and Lizzie, however, decreased their percentile rank for reading rate slightly over the intervention period. This small decrease could be due to their results improving in the accuracy and comprehension subtests (they scored higher in either one or both), as they were more heavily focused on ensuring they were accurate with their reading and comprehension of the text.

Table 4. Neale Rate of Reading Percentile Rank

	Ax. Point 4	Ax. Point 4
<i>Sarah</i>	33	36
<i>Ezra</i>	28	15
<i>Lizzie</i>	66	58
<i>Emma</i>	45	52

Note. 2021 Rate of Reading assessment time points and their data.

Self-Perception

Figures 32-35 present the participants’ data for their Piers-Harris 3 Self-Perception Total (TOT) score across 3 time points. Their results revealed that they all sat within the average range at all time points, and their positive self-concept scores all increased following intervention.

Another difference that is important to note is the percentage of change between each participant time points. Between Sarah, Ezra and Emma, the percentage of change that occurred between the 12 months that separated Time 1 and Time 2, was either negative (Ezra = -12% & Emma -7%) or stayed the same (Sarah = 0%). However, following the 8 weeks of intervention their scores percentage of change between Time 3 and Time 4 were positive (Sarah = 7%, Ezra = 11% & Emma = 7%).

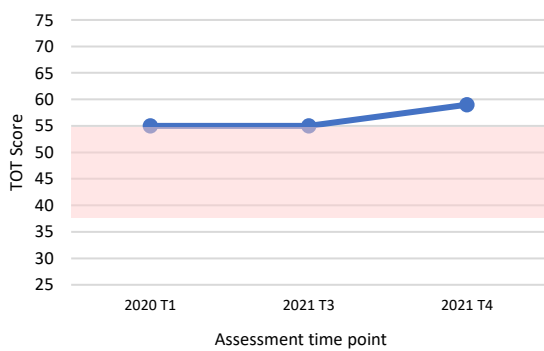


Figure 32. Sarah's Piers-Harris 3 Self Concept Total (TOT) Score Over Time

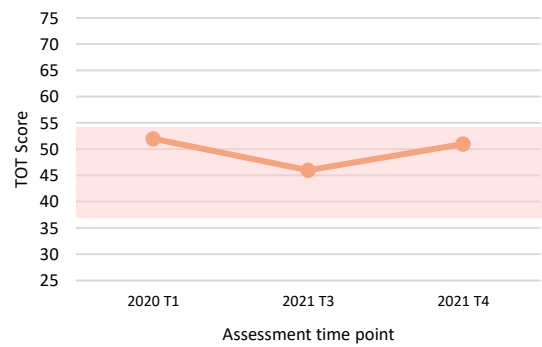


Figure 33. Ezra's Piers-Harris 3 Self Concept Total (TOT) Score Over Time

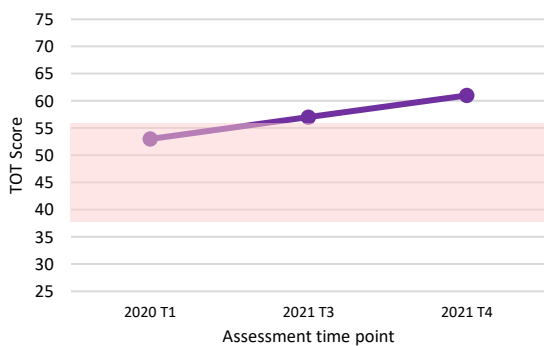


Figure 34. Lizzie's Piers-Harris 3 Self Concept Total (TOT) Score Over Time

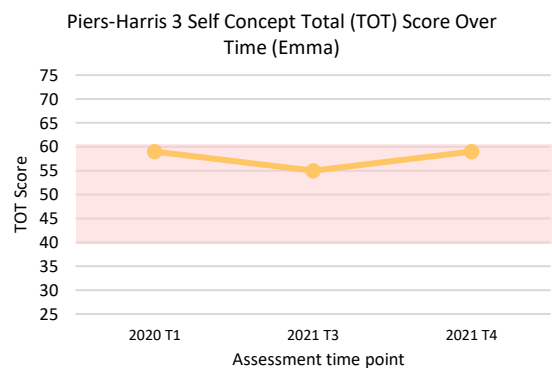


Figure 35. Emma's Piers-Harris 3 Self Concept Total (TOT) Score Over Time

When looking more closely at the student's self-perception within the domain of Intellectual and School Status perception (Figures 36-39), two students' scores increased (Lizzie and Emma), one stayed the same (Sarah) and one decreased by 1 point (Ezra). Lizzie and Emma's Time 4 scores moved into the high/very high range with scores of 61, while Ezra and Sarah's score still sat in the average range.

When looking at the individual items where changed occurred for Lizzie’s and Sarah’s responses, they were more confident with different aspects of school and their literacy abilities following the intervention. Lizzie felt more comfortable presenting and being up in front of her class, whereas Sarah felt that she was now an important member of her class. These are important positive shifts in academic self-perception.

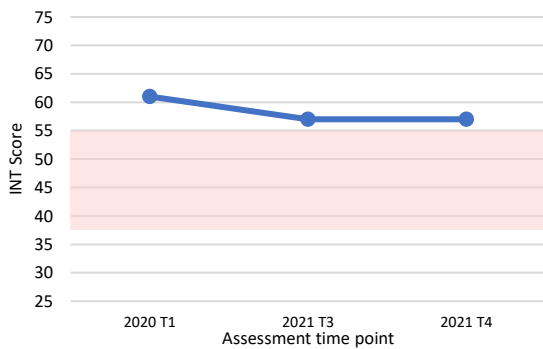


Figure 36. Sarah’s Piers-Harris 3 Intellectual and School Status Perception Over Time

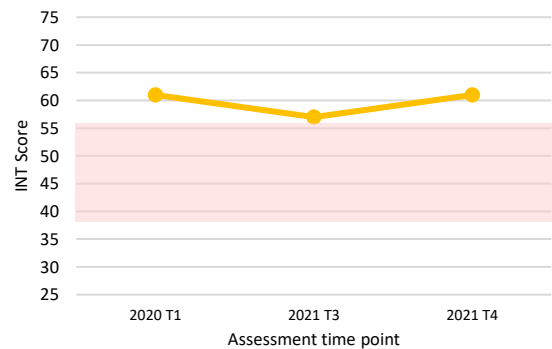


Figure 37. Ezra’s Piers-Harris 3 Intellectual and School Status Perception Over Time

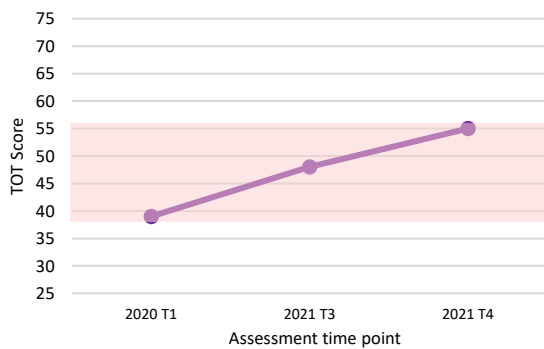


Figure 38. Lizzie’s Piers-Harris 3 Intellectual and School Status Perception Over Time

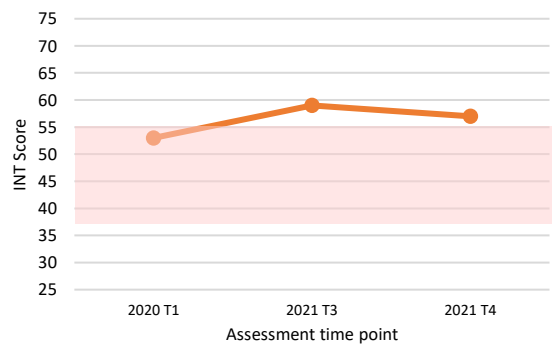


Figure 39. Emma’s Piers-Harris 3 Intellectual and School Status Perception Over Time

Focus Group Data Analysis

The focus group transcript was analysed by the lead researcher using content analysis in NVivo (QSR International Pty Ltd., 2020). Content analysis is described by Downe-Wamboldt (1992) as “a research method that provides a systematic and objective means to make valid inferences from verbal, visual, or written data in order to describe and quantify specific phenomena” (p.314). It allows the researcher to get the main idea and generalisations

without losing the information from the original data. This was executed by initially sorting the responses data into the corresponding seven questions asked, using NVivo. From there, the data was collated into parent categories in instances where the responses added more context and detail to one another. This resulted in four overarching themes: professional development within the school, identification of students for support, current literacy support for identified students, and sustainability of the intervention practices. Three themes had subcategories from the collated question responses. The participants were invited to review the analysis to check whether or not the analysis accurately reflected their experiences and opinions. The Year 7 lead teacher fed back that they were happy with the analysis and quotes used.

1. Professional Learning and Development (PLD) within the School

Current views on PLD

The teachers all stated that they knew that PLD was an important component of their teaching careers and that they understood that they needed to continually take part in PLD opportunities to support their students. It was reported that all teachers were able to choose their own PLD themselves this year, where in previous years they were assigned PLD by their principal. Four teachers verbally agreed that this method was preferred as they can choose topics that are meeting the more immediate needs of their students and any current challenges they are facing. From there they are able to apply their learning directly to their classrooms, which they all stated was important.

“Teachers are problem solvers, and so they have a problem, and if then they're able to build that problem into their professional development, and seek ways to solve that problem, then usually that's effective” (Speaker 1)

PLD engagement

The teachers reported a varying level of school PLD attendance, depending on their seniority. Senior staff report meeting approximately 7-8 times so far in the current year (June 2021) to engage in professional development, where other staff report 2-3 meetings so far. They reported having a current focus on assessment and creating agency with students, to support them to be “*assessment capable students*” (Speaker 1) - creating students that know what they don’t know and need to know, and then be able to understand and follow the next steps of learning.

2. Identification of Students for Support

How student data is collected

The teachers stated that they used multiple ways to identify students that may need more literacy support throughout the school year: observation, before-school interviews, data from previous years, current year testing and parent identification of their child’s needs to the teacher. One reported that they found e-asTTle the most useful assessment tool, however, they still need to utilise other means of identification as some results may be unreliable. For those students that have been identified as needing more support, teachers are moving toward using probes to track their achievement as it can be done more consistently throughout the year.

“I found e-asTTle more useful than PAT. But it's worthwhile seeing any gaps, because I had one student, X who the others will know but he just pressed enter enter enter for the e-asTTle and but his PAT's, he got a five, which by the way he acts doesn't, you wouldn't always expect that he would get a five, but actually, he's quite a good reader” (Speaker 1)

“And their class performance is just really obviously in front of your eyes, whether they understand it or not.” (Speaker 5)

One teacher, who supports students with higher needs, reported more extensive assessments that they use to determine students ESOL status and eligibility for ICS funding (i.e. spelling, object and dictation tests, writing samples, JAM mathematics test).

“They have to be working at level one across reading, writing and maths for us to even have a hope of getting them accepted for the ICS, so you know that's quite low.”

(Speaker 1)

Difficulty of collection and receiving funding

Several teachers reported the difficulty of acquiring assessment results. This can be due to time constraints and assessments taking up time that cut into library and teaching time as they are not released to complete it. Two teachers also reported the difficulty of acquiring funding from the assessment results, as the students need to be “*working at level 1*” across the board to have a chance of them being accepted for ICS support.

3. Current Literacy Support for Identified Students

Current practices

All respondents reported that support provided by them to the children with higher literacy needs tends to be specific to the student. Some students prefer group work, as it can be a more comfortable space for them to ask questions and work with others that are at the same level as them. While others do not like to be singled out.

To help support the varying levels of abilities within the classroom, three teachers reported using different ways to access the same text (i.e., audio, visuals, text & videos). This strategy helps support students by allowing them to access the same content, while using different strategies that better fit current skills and levels. They also reported using different levels of text in certain situations where possible, as well as providing different learning goals that would better suit the student’s needs.

One teacher reported making time to meet for 5-10 minutes every day to check-in with the lowest readers during the week to see how they are going and whether they need more clarification for tasks.

Another teacher also reported that most teachers are integrating taught spelling programs within their classroom (i.e. Lexia and WordLab), which has helped the students better understand words, and the meanings that are built into them.

“Some of them [students] don't want to be singled out. Whereas some of them will be quite happy to have that extra support. So I think every kid would be slightly different [support needed].” (Speaker 4)

“I just find that small group, I know that when they come to ALL: IN [sic], they feel a lot safer. So they will ask that question. And you can have that explicit meaning and that definition for them, they're like, I get it now” (Speaker 6)

“That's why I switch my reading program up with film sometimes as well. So it's different texts, but the same comprehension inference skills are being used, it just doesn't affect the people that aren't that good of readers, and still access the same content just in a different way” (Speaker 6)

Resource and time allocation

All teachers reported feeling like that do not have enough time to provide students with the one on one support they need, and that they find themselves spending more time managing behaviour than learning support. One teacher reported only being able to provide explicit learning for 10mins out of an hour when doing small group work as the rest of the time can be spent attending to other needs.

Five teachers explicitly stated how much they appreciate the support of teaching assistants (TA) within their classrooms across multiple settings (i.e. small group work, one on

one, alongside whole class interactions), as they are able to provide the student with higher needs more support, and allows the teacher to support the rest of the class.

One teacher reported working on acquiring resources and content that is suitable for the lower achieving students that they will be able to achieve with. They also stated how it is a big ask for Year 7 and 8 teachers to be teaching content that is designed for very early learners as it is not their area of expertise.

“And as well as the learning needs in each of our classes, we’ve got emotional needs, and psychological needs and behavioural needs. And, and so to try and balance those and give, give those kids the one on one attention they need. I don’t think any of us probably feel as if we’re able to do that adequately.” (Speaker 1)

“I think so many of the kids could do with some kind of one on one support” (Speaker 1)

4. Sustainability of the Intervention Practices

All teachers reported that the best way to ensure the continual use and application of the intervention strategies is by modelling and coaching of the activities in the classroom alongside the teachers, and providing them opportunities to attempt the activities. Some reported that demonstration and being able to watch others implement new activities allows them to see how they can be used in different settings, and how they can be adapted to support the different needs of learners. This is important in their current teaching practices as student engagement and understanding level varies significantly from student to student. It was also highlighted that being able to integrate the strategies into class wide settings, rather than only small group/individual settings is important, as they have more time they can commit to the whole class and will be able to target more students.

Two teachers reported reading a PDF handout they received last year, but found that seeing other teachers performing the strategies more useful to understand how they should be executed. Two also reported that feeling confident in their ability to execute and explain the

theoretical knowledge is important, so that when students ask questions they are able to provide correct feedback and know when and how to advance the students work.

Survey Data Analysis

Two teachers completed the survey. The survey data was analysed by the lead researcher by grouping the questions and responses into their overarching topics. The responses were then summarised and are described below in their respective categories.

Student Data

The two teachers reported that the student's results were fed back clearly and were 'well resourced' for what they were hoping to know. One teacher reported that the results were not surprising as they were similar to the results of the Foundational Literacy study's findings. The teachers reported that they were already aware that their students were not achieving at the expected level for their age group. However, they were shocked at just how low some students were scoring at, and they were also surprised by the number of students that were identified as scoring in the below average range.

Strategies/Intervention Implementation

The teachers reported that they felt they were provided with enough detail and information regarding the different intervention domains when taking part in a researcher lead PLD session. They also stated that from the information they receive during the PLD session, they believed that they would be able to begin to transfer what they learnt into their everyday teaching. One teacher did highlight that they expect that the further they integrated these teaching suggestions into their teaching, the more questions they may have as they will come across different needs and levels of required support.

The teachers were also asked about any challenges that appeared throughout the intervention session/s or if they expect to come across any as they continue to implement the

strategies. One teacher reported that they expect it may be difficult to balance themselves between the whole class and the small group that they may be targeting, as this is already a current issue across subjects. Another teacher stated that they may have trouble attending to the varying levels of their students' needs and figuring out how to create practical ways to adapt and implement the program for those learners.

When asked about how they felt about the overall relevancy of what was a part of the PLD sessions, both teachers stated that everything that was included was relevant, and the information provided helped them to understand why it was important to go right back to foundational skills for this age group, and how they can be applied. One teacher also specified that the PLD workshop session helped her to 'unskill' things that she had already learnt and was implementing that were not actually beneficial to the student's development in those particular literacy areas.

Overall Experience/Thoughts

The teachers reported that the in-class support and demonstrations were the most beneficial to their learning, as they got to observe how the strategies and activities were executed in a real-life setting. However, it was highlighted that they still needed that theoretical knowledge.

Overall the response to the project was positive, and that they found their involvement within the PLD workshop and the intervention sessions as beneficial to their learning and teaching practices.

Both teachers that responded to the survey did feed back that they wished that there could have been more time/opportunities for the teachers to participate in and lead the sessions with the researcher present.

Both teachers also stated that the feasibility of them continuing to implement the activities and strategies after the project was high as they saw the benefit of them and the motivation the students had while participating.

Chapter 4: Discussion

The current research aimed to evaluate the impact of literacy intervention for Year 8 students over a 14-month period. It also aimed to explore the effects of targeted literacy intervention on participants' self-perception, looking more closely at their self-concept and self-efficacy. To complete this study, students that had consented to taking part in a prior pilot study (Foundational Literacy study), were invited to participate in this follow-up project. To execute the project, four students that were identified to be struggling the most with their literacy and reading comprehension, took part in an intensive intervention program. The program targeted reading comprehension and fluency specifically, but also included all foundational literacy skills of orthographic awareness, morphological awareness and phonological awareness. The results of the analysis indicated improvements in literacy and reading comprehension abilities, and some aspects of self-perception over the 14-month period, with the most gains occurring after they completed the intervention program. Visual analysis of the repeated probes to monitor the impact of the intervention and pre-post data showed that the students' literacy abilities generally increased across all measures along with some positive shifts in self-perception.

The impact of PLD and feasibility of the intervention approach was also explored via interview and survey data from teacher participants. These responses indicated that the most valuable piece of the PLD was observation of intervention strategies and opportunities for co-teaching within the intervention sessions alongside trained professionals.

Changes in Literacy and Reading Comprehension Skills and the Relationship it has with their Self-Perception.

The first hypothesis was that students with literacy and reading comprehension difficulties would show an increase in these skills over the 14-month period, with the most

change occurring within the intervention block/s. It was then assumed that it would in turn result in an increase in positive self-perception. The acceleration of literacy skills following similar intervention plans for intermediate aged children has been seen in previous studies (e.g., Kirk and Gillon (2009) & Collins et al. (2020)). However, the current study implemented an intervention focused on a wider variety of targeted literacy skills and also monitored participants' self-perceptions over the study alongside the literacy skills.

This hypothesis was generally supported for all participants. Visual analysis of the repeated measures showed a general trend for increased speed and accuracy in completing word chains along with increasingly accurate non-word reading across the intervention period. Further, analysis of pre- and post-intervention data generally showed an increase in percentile rank or standard score for those assessments that had normative data.

For skills that were more specific to phonological awareness, the findings indicated that the students showed growth of improvement across all activities. The students demonstrated a higher ability to accurately manipulate sounds within words. All participants were able to increase the speed in which they completed word chains, which required an ability to segment words into their phonemes, identify the change and then replace that sound with either the correct coloured block, or the correct grapheme. The positive change within this area of linguistic skill, not only shows change in the students' abilities to identify and correctly manipulate changes in words, but it also suggests that due to the repetitiveness of the task, the student's ability to identify and recall their phoneme to grapheme knowledge was becoming increasingly more automatic. This ability to segment words and correctly identify the phoneme to grapheme relationship was evident in the QUIL Non-word Spelling task. All but one student, demonstrated an improved performance in correctly spelling non-words. Non-word spelling tasks have been shown to be a good way to assess a student's spelling abilities, because it encourages them to draw on their phonological knowledge

rather than relying on memory or guesses for how a word should be spelt (Dodd. et al., 1996). Most changes that occurred in the participant results were in the post intervention results, as they were able to spell the entire the word right, or if they did not get the complete spelling correct, they were all able to use the correct vowel spelling for the phoneme in each of the words. It can be assumed that this latter change occurred due to the consistent work on familiarising the students with the orthographic properties of vowels during their intervention sessions.

Lizzie's and Sarah's results for the QUIP also showed that they made bigger gains following the intervention period than they did in the 12 months from the start of the initial pilot study to when they started the 8-weeks of intervention. In this period between the initial pilot project and the follow-up projects intervention, you would expect to see growth in this knowledge from general classroom teaching and experiences. This was evident at a small level for Lizzie but absent for Sarah. However, following the current intervention, Lizzie made over three times the amount of growth than she did in the period between the pilot and the follow-up, and Sarah went from no change to 67% growth during the intervention. This demonstrates just how beneficial providing direct and explicit support can be for a student who is struggling with their literacy. It also supports the findings of Gillon and Dodd (1995, 1997) studies, where they stated that even with 20 or less hours of direct and explicit intervention, students can demonstrate significant gains and can generalise those gains across settings.

The participants' results from the Spoonerisms assessment further supports these changes in students' skills. The changes seen in the results for this particular assessment task also highlights the generalisation that occurred for the students throughout the intervention period. The participants had only previously manipulated non-words during the phonological awareness aspect of the intervention program, and had no further practice manipulating

sounds in real words and without letter tiles to manipulate to support the phoneme identification. This generalisation within the assessment tasks from non-words to real-words, suggests that the participants would now be able to generalise and then utilise these skills in more contexts within their classroom settings. This assumption is supported by Kirk and Gillon (2009) who found generalisation and transfer of decoding skills and spelling rules learnt during the intervention period were being used across contexts and with new words not included in the intervention.

When looking at the assessment results for morphological awareness skills, the results are seen to be a little more variable. However, there is still a consistent trend of the participants achieving higher following intervention.

When analysing the participants' results from their Taught and Untaught real-word spelling results, all participants increased their final raw scores. The students demonstrated that following intervention, they were able to retain the correct spelling of the target words that were included in each intervention session. They also demonstrated that they were able to generalise their knowledge of the spelling rules to the untaught wordlist. This ability to generalise to unknown words, and the continual ability to utilise taught spelling rules following the targeted morphology instruction also aligns with the literature (Bowers & Kirby, 2009; Henry, 1989; Nunes et al., 2003). Ezra showed to have made the greatest amount of change with these assessments, as he went from being one of the lowest scoring participants to one of the highest, with most of the changes in his answers coming from his ability to correctly represent vowel sounds in his spelling. This trend was also consistent when looking at the students' results from the taught and untaught reading lists. Although there were a couple of instances where two participants scored lower following intervention, their final scores were still high, as at both time points they were nearing 100% accuracy. When analysing the results for the taught and un-taught words in this study against, the Kirk

and Gillon (2009) study is good to compare it to, as they also assessed their participants using the same probe. Although Kirk and Gillon (2009) were able to have more intervention sessions, and was also a mix of group and individual sessions, the current study was able to show the same results post intervention. Both groups of participants from each study demonstrated higher results in reading of the taught and untaught words, and the generalisation of spelling rules from the taught words to the untaught words was also present for both groups. This comparison further validates both the current studies intervention targets, the time spent receiving intervention and the context of the intervention; group work versus a small group and individual support, as the same results were still evident with these changes.

Analysis of the reading accuracy and comprehension data from the Neale showed that the students' improved performance on phoneme awareness, and the reading and spelling tasks supported growth in text level reading also. Results generally showed that students made an improvement in text-level reading accuracy and comprehension specific skills, with the exception of Lizzie's comprehension score. The impact of the intervention on text level reading is likely due to the multi-component/integrated nature of the intervention which targeted different literacy skills that contribute to reading accuracy and comprehension skills (Chall, 1983; Hoover & Gough, 1990; Hudson et al., 2005).

When pairing this data with the change in the student's self-perceptual results, it suggests that supporting and increasing student's literacy and reading comprehension skills do have a positive impact on how they perceive themselves and their academic abilities. This assumption is supported by the increase in the participants' total self-perception scores, as indicated by their results from the Piers-Harris 3 (Piers et al., 2018). The student's results from this assessment indicated that over the course of the intervention period their self-concept had improved. This may have been due to their increased accomplishments and

awareness of achievements throughout the intervention (Beluce et al., 2018; Jacobs et al., 2002), as well as having the chance to take on a leadership role for other struggling learners. Although environmental changes may have also contributed to this change, such as taking part in learning alongside peers working at a similar level, immediate and positive feedback from the ‘teacher’ and multiple opportunities to succeed at a task before moving on to something else (Casserly, 2013), for a couple of students their results within the Intellectual and School Status domain indicated that their overall improvement was directly related to their confidence in their own intellectual and academic skills, rather than changes in another domain that could have been due to friendships or physical appearance/attribute confidence. These results also support the findings from Adams (2020) study, whose participants also showed an increase in their psychosocial outcomes following literacy intervention, in particular with their academic self-efficacy. This is highlighted both in their study and the current study with students self-reporting directly on their academic and intellectual confidence. The current study also provides further information that supports the involvement of teachers supporting the facilitation of the intervention and the success that can still result if it is being completed within the classroom. It also provides more insights into the literacy skills that develop during intervention, as the current study assessments included more linguistic skills and reported on the potential links that facilitates the psychosocial changes described above.

Feasibility and Impact that PLD would have on Practices and Knowledge Surrounding the Foundational Literacy Skills

The second research question centred around the feasibility and impact of the PLD from teachers’ perspectives. In general, teachers had a positive view of the PLD provided and

particularly valued the practical elements of the support which included observation, modelling and some co-teaching where possible.

One of the biggest facilitators of change in teaching practices is teacher attitude (National Reading Panel et al., 2000). Teachers that have a strong desire to support and see change in their students' achievement are more engaged with PLD and therefore, have a higher chance of implementing and sustaining enhanced teaching practices in the classroom. Analysis of the teacher data showed that teachers generally had a positive attitude regarding the intervention implemented in the study.

One important factor that the teachers expressed that encouraged this kind of positive view towards PLD and the implementation of it, was being able to select what PLD they took part in, so that it was closely connected to their students' current needs. This allowed them to take part in Professional development that they felt was most important and valid to their situations, which then allowed them to transfer what they learnt straight into their classes. This approach to teacher PLD has been reported as being one of the most important factors to ensure teachers are engaged in what they are learning (Houghson & Hood, 2022).

Alternatively, if teachers were made to take part in PLD that is not specific to the needs of their current students, the implementation can become weak due to lack of opportunities to put learning into practice and/or decreased motivation of teachers to engage well with the professional learning. Therefore, by providing teachers with the choice to opt in to the current studies PLD ensured that those who did consent were invested in the upskilling of their practices and knowledge surrounding literacy skills and reading comprehension, and were eager to implement the intervention within their classrooms.

The teachers within this project also reported that the demand to know how to support students with higher literacy needs in the intermediate schooling context in New Zealand is continuing to grow. This comment is supported by the current literature and education reports

both worldwide and nationally (Houghson & Hood, 2022; National Reading Panel et al., 2000). They also acknowledged that they are aware that they have not been able to provide them with the support that they know that they require, in order for them to succeed in their current schooling settings, as well as while they transition to high school and other areas of life. This need has also been highlighted in recent reports and is evident within schools across the country (Houghson & Hood, 2022; Ministry of Education, 2017). Knowing that the teacher's assumptions align with the literature, shows that there needs to be more support and PLD offered in this area, such as what was provided within this project.

During the focus group, the participants reported that their most preferred form of learning was via demonstrations, side by side modelling and having opportunities to practice what they have learnt alongside a specialist or researcher. This opinion was again later supported by the response of the two teachers that took part in the post intervention survey. Both respondents stated in the survey that the most beneficial form of PLD they received were the demonstrations and having someone there to support them and answer questions in the moment when needed, as it 'allows them to jump the gap between theory and practice'. The literature supports this form of learning, where teachers move through different components of learning; following the pattern of Theory or Rational → Demonstration or Modelling → Practice, where they spend different amounts of time on each component depending on the complexity of the content and dependent on their own learning needs/desires. This form of learning promotes a deeper understanding of what they are trying to achieve and allows them to practice the theory in real life settings (Joyce & Showers, 2002). Due to the complexity of reading comprehension and all the different factors that come into play that can have an influence on that skill, having theoretical knowledge is vital to be able to adequately and confidently apply the necessary knowledge and practical solutions in a classroom setting and to change their current teaching practices. Therefore,

ensuring that the teachers had adequate opportunity to implement the tasks and strategies in the current study was an important factor in ensuring the implementation and sustainability of the strategies to be continued once the project had ended.

During the focus group, one common theme that kept appearing throughout different questions was that a big setback to providing more comprehensive literacy support was time, resources and funding. These concerns were apparent throughout the project, due to the limited time in which the teachers were able to attend to a session, and the need for resources to be provided to them from the researchers. This observation was also reinforced from the teachers' end of project survey, where both teachers stated that they wished they had more opportunities to take part in the sessions and how valuable they found the resource kete's they received with their participation. These findings are further supported by the literature by both teachers and researchers alike (Houghson & Hood, 2022; Maharey et al., 2021). A way that has been suggested to remedy this is to provide teachers with more opportunities and release time to take part in professional learning and development with concepts and support that align with the aims of this current project. By allowing teachers to systematically take part in PLD with specialists that targets literacy specific areas, while also providing them an opportunity to practice these skills, it would support the permanent embedding of skills that help not only those that are struggling but every other learner in the class.

Limitations of the Current Research

There are a number of limitations in the current study that should be considered.

Firstly, due to the interruption of Covid in the middle of the year, the starting point for this project was delayed. This meant there was less time to complete the pre- and post-intervention assessment time points, which resulted in the length of intervention being reduced from 10-weeks to 8-weeks. A 10-week intervention period would have allowed students to complete closer to 20 hours of direct intervention. The literature has shown that

taking part in at least 20-hours of direct intervention ensures that participants have the highest chance of demonstrating and sustaining improvement (Gillon & Dodd, 1997; Jacoby et al., 2002). Had the start date not been pushed back, it would have also allowed for a baseline phase to be set up for the repeated probes measurement. This would have added more control and robustness to the visual and pretest-posttest analysis that was used to examine the impact of the intervention (Lobo et al., 2017).

Due to the short time frame and the number of teachers that were interested in taking part in the intervention, it meant that the teachers' ability to attend and participate in intervention sessions was also limited. In order to ensure that all teachers had at least four opportunities to observe and participate in a session, the intervention group rotated around classrooms. However, this meant that the teachers did not have many opportunities to practice the strategies and activities within their classrooms while there was a specialist present. Having these limited opportunities to observe and take part in the sessions may result in reducing the maintenance and continual implementation of the strategies and activities within their classrooms once the project had finished.

Another limitation of the research is that there were only two responses to the post intervention survey. Although the survey was distributed to the seven teachers that participated in the study, the timing of it may have affected their ability to respond, as it was distributed towards the end of the year and again at the start of the next year. Only having two completed responses meant that the thoughts of the other teachers involved was unable to be gathered. In future studies, researchers may want to consider making survey completion for PLD participants a compulsory aspect of participation in the project.

Like with most self-reported measures, there is the potential for the respondents to answer inaccurately or to not answer truthfully, so that they are responding in a way that they believe is most socially acceptable. This was controlled for as much as possible by letting the

students know that in the self-perception measure there was no ‘right’ or ‘wrong’ answer and to let them know that only they are able to decide how they truly feel so to try score it that way. This assessment task was also the last task administered to allow the student and the examiner to build rapport and to make sure they were comfortable with the examiner as some of the questions could be quite personal. Within the Piers-Harris 3’s manual, it describes this occurrence of answering inaccurately as an ‘Exaggeration’, and is classified as that when the participants T-score of 66T or above. Although the participants T-scores were not that high in this project, and they didn’t fit into the manual’s criteria for concern, it should still be considered as it is not possible to determine if all of the responses were accurate.

Implications of the Research Findings

The results from this study have several implications for future research.

Within New Zealand, it has become apparent that our children’s wellbeing and literacy achievement is a national concern, with the consistent decline in academic achievement and the increasing reports of general struggle within their school and home environments (Houghson & Hood, 2022; Mullis et al., 2017). Given that this piece of research shows that by targeting and supporting student’s literacy and reading comprehension it can have an impact on their self-perception, it also highlights that there needs to be more opportunities to support students in this way. By giving students a better chance to succeed in a skill that is required for everyday functioning, you are giving them a better chance at improving their education, health and overall well-being.

These findings also indicate that a short burst of direct and explicit intervention can have an impact on intermediate-aged students with literacy learning difficulties. Given that it is typically recommended to complete at least 20 hours of direct intervention to ensure there is the highest chance of improvement, these participants achieved generalised change in literacy skills with an average of only 14 hours of intervention each. In many cases the gains

meant that students were now performing within the expected range for their age of the literacy task. This finding may be enticing to others as it shows that it doesn't need to take endless amounts of direct intervention/teaching time to support students to achieve at an age appropriate level.

The results of this study also highlight some key finding that would support the successful integration of this study into other Year 7 and 8 classrooms. They should be taken into consideration if this study is to be replicated or applied in other classroom settings by ensuring the inclusion of some key conditions. The first being providing teachers with the theoretical knowledge that underpins the development of literacy skills and the application of strategies and principles within classroom settings. This will ensure that they feel more confident in the application of skill specific linguistic strategies, as well as the rationale behind the skills being taught as they are not typically skills that would be used with averagely or high achieving Year 7 and 8 students. Another consideration for successful implementation, is ensuring that you have the time in your day to work with your target students in the small group or one on one settings. By having this set time allocated to struggling students, it allows for more explicit teaching for the areas that they need support with and also allows teachers to make the necessary corrections and provide immediate feedback to their students. Another important component that facilitates the success of this approach, is the time spent directly supporting these struggling students. This study highlights and supports past research studies that state that even short periods of targeted intervention can make significant changes to your students (Gillon & Dodd, 1995, 1997).

Further research on the inclusion of 'buddy' sessions with intervention programmes would also be beneficial. Within the current study the analysis of this aspect was beyond the scope of the study, however, there are some important implications that may arise from this aspect if further analysis was included. The involvement of buddies within this study can be

considered as a strengths-based or mana enhancing support, as it allows students who have had consistent struggles with their literacy and reading, take part in leadership roles that may not have been possible previously. By putting students in positions where they are the ones teaching students how to complete tasks, it also provides opportunities of further practice of newly learnt skills, and supports a deeper understanding of what they are doing, if they need to explain it to their buddy. This approach can also be an effective use of resources and time as it can allow teachers to leave students working together independently, so they can support other students as needed.

This project has also begun to highlight the strong need for Professional Learning and Development for teachers in this area, especially for the teachers that are working with these older students who are scoring at levels much lower than what they are used to teaching. This is also reinforced by the teacher's acknowledgement that they are not currently doing enough to support these severely underachieving students, but that they also do not know how to support them. By reporting on these interests and desires from the teacher feedback, it suggests that there needs to be more PLD opportunities for teachers within this literacy area. And that this support not only needs to be able to provide them with more theoretical knowledge and strategies to support students with varying degrees of skills, but also allows them the opportunity to practice what is learnt in practical settings alongside a specialist; e.g. within a classroom or small group setting. Having the opportunity to take part in PLD that offers practical experiences and in person support, points toward ensuring there is continuous implementation of the strategies and builds a higher level of confidence within the teachers.

This model of teacher lead intervention will also help to ensure that struggling readers have higher chance of receiving the support they need without referrals to other professional supports, especially if they are not eligible for further supports. It also ensures that both teachers and students have a strong understanding of the foundations that support successful

literacy and comprehension. This will be beneficial to all students as the new changes to the New Zealand NCEA requirements begin in 2023. Ensuring that both teachers and students have the foundation understanding and skills that support literacy and reading achievement, provided them with more opportunities for success.

Future Directions

There is a need for replication of these research findings within larger-scale research that utilised a controlled research design. In particular, evaluation of the connection between the response to literacy intervention and children's self-perception is a critical area of research needed. Larger scale studies would ensure that there would be more diversity with the population and settings, and would allow for the results to be analysed and then generalised to the wider population.

A follow-up study that assesses the maintenance of the gains made from the current studies participants would also be an important next step to help establish if the immediate results from the targeted intervention is sustained over time. It would also be interesting to look how the skills learnt during the intervention supported the requirements of literacy within a high school setting. An assessment of maintenance and generalisability would include the administration of the same assessment tasks again after this research has been completed, to assess the long-term results of the intervention. It may also include some tasks that would be more specific to their current high school setting/literacy requirements (e.g. different text that aligns with the literacy curriculum for their year).

To ensure that there is continued implementation and use of the strategies and activities that are included, it would be important in future research to ensure that the teachers have more time to lead sessions. Due to the time constraints, the teachers were unable to have more than four sessions each of observing and implementing activities. By giving the teachers more time to become confident with leading the entire sessions, it will increase the

chances of continual implementation, as well as the potential for them to generalise the skills and strategies across to other topics.

Although the findings of this research indicate that a common theme highlighted by the participating teachers is that they know their students need more support and that they desire more PLD that is literacy focused, it would be good to include more teachers in different schools. This would help to ensure that the views and opinions that the teachers showed to have had in this project, can also be applicable to a wider population.

Finally, it is critical that future studies evaluate the impact of the impact of this type of PLD on teachers' approach to literacy teaching in the Tier 1 (class-wide) programme.

Conclusion

The current research aimed to look at the development of literacy and reading comprehension skills for intermediate aged students over a 14-month period, after completing a targeted literacy intervention plan. It also aimed to understand the impact that this targeted intervention would have on their self-perception and psycho-social ability.

The research showed that intervention targeting learning in four key foundational literacy areas resulted in improvements in their literacy and reading comprehension abilities. Although all participants demonstrated some form of growth from the start of the pilot project to the end of the current project, all participants demonstrated having the biggest changes in results following the 8-week intervention provided in this research. The results also indicated that the students' positive self-perception increased the most following the intervention. The results of two participants' total self-perception score increased within the domain of Intellectual and School Status perception, which indicates that this increase in self-perception is directly related to a change in their self-perceived level of achievement and confidence within their classes.

This research also aimed to understand the feasibility of participating in literacy specific PLD and then applying it to their teaching, and whether it would have an impact. Teacher involvement and their feedback throughout the study showed that teachers knew that there is a big need for more professional learning and development within the literacy area, and that this support needs to be provided to their students. This response indicates that if there were more opportunities provided for this kind of learning, then teachers would take part and apply it to their teaching practices.

This research can be used as a stepping stone for further research completed with a bigger number of student and teacher participants to confirm that the results and perceptions are able to be generalised to the wider population.

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Appendix

Appendix 1. Ethical approval letter



HUMAN ETHICS COMMITTEE

Secretary, Rebecca Robinson
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Email: human-ethics@canterbury.ac.nz

Ref: HEC 2021/73

2 July 2021

Nikki Turpie
College of Education, Health and Human Development
UNIVERSITY OF CANTERBURY

Dear Nikki

The Human Ethics Committee advises that your research proposal "Supporting Students' Literacy Learning in the Intermediate Context: Innovative Foundational Learning" has been considered and approved.

Please note that this approval is subject to the incorporation of the amendments you have provided in your email of 30th June 2021, and the following:

- *Please complete a proofread of all participant documentation to address any outstanding errors, e.g. change "guild" to "guide", check Gail Gillon's email address, and amend references to "EHERC"/"the Educational Research Human Ethics Committee".*

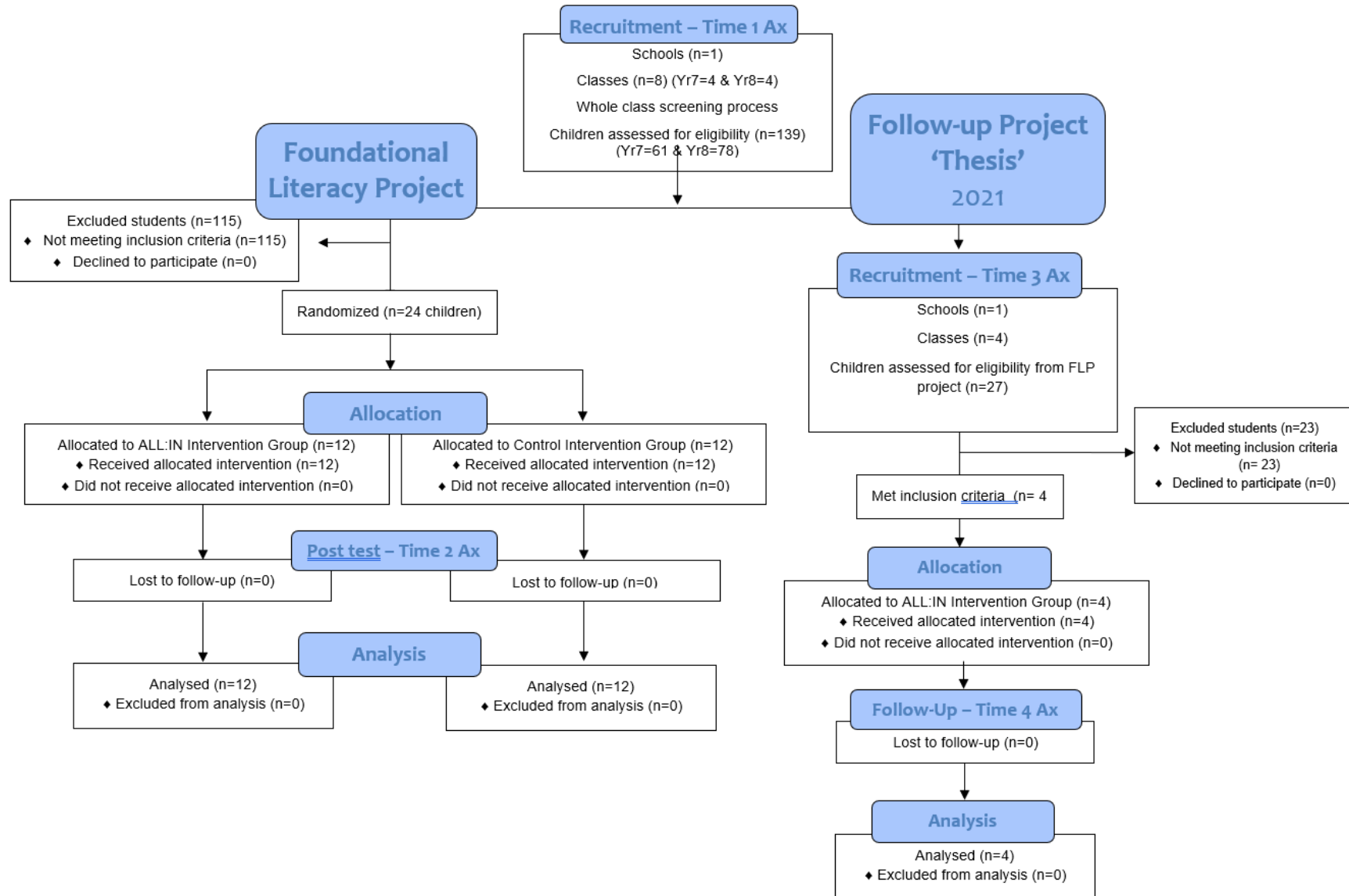
Best wishes for your project.

Yours sincerely

A handwritten signature in black ink, appearing to be 'D. Sutherland'.

Dr Dean Sutherland
Chair
University of Canterbury Human Ethics Committee

Appendix 2. CONSORT Diagram



Appendix 3. Consolidated criteria for reporting qualitative studies (COREQ): 32-item checklist (Tong et al., 2007)

Domain 1: Research team and reflexivity

	Number and item	Guide questions/description	Response
Personal Characteristics	1. Interviewer/facilitator	Which author/s conducted the interview or focus group?	Lead researcher – Nikki Turpie
	2. Credentials	What were the researcher’s credentials? E.g. PhD, MD	Bachelor of Speech and Language Pathology with Honours - BSLP(Hons)
	3. Occupation	What was their occupation at the time of the study?	Speech therapist and researcher
	4. Gender	Was the researcher male or female?	Female
	5. Experience and training	What experience or training did the researcher have?	Experience with conducting interviews in previous research projects.
Relationship with participants	6. Relationship established	Was a relationship established prior to study commencement?	6 participants were known to the researcher prior to the interviews from the pilot study. The interview started with introductions for those that had not previously meet.
	7. Participant knowledge of the interviewer	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	Participants were provided with a Participant Information sheet prior to participating in the study which included the rationale for the research.
	8. Interviewer characteristics	What characteristics were reported about the interviewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	2 members of the research team (NT and GG) worked together to design the interview guide. The team were careful to ensure that the interview guide contained non-leading and open-ended questions where participants could discuss both positive and negative experiences.

Domain 2: study design

Theoretical framework	9. Methodological orientation and Theory	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis,	Content analysis was used using NVivo
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		ethnography, phenomenology, content analysis	
Participant selection	10. Sampling	How were participants selected? e.g. purposive, convenience, consecutive, snowball	The option to participate was open to all staff employed at the participating intermediate school. Those who provided consent to be involved were invited to take part in the focus group.
	11. Method of approach	How were participants approached? e.g. face-to-face, telephone, mail, email	Face-to-face
	12. Sample size	How many participants were in the study?	Participants from 1 intermediate school, with 7 participants in total
	13. Non-participation	How many people refused to participate or dropped out? Reasons?	N/A
Setting	14. Setting of data collection	Where was the data collected? e.g. home, clinic, workplace	Online at an agreed time
	15. Presence of non-participants	Was anyone else present besides the participants and researchers?	No
	16. Description of sample	What are the important characteristics of the sample? e.g. demographic data, date	Participants from 1 intermediate school that were all a part of the year 7 team. Sample included 2 males and 5 females. 5 participants took part in the pilot project in the previous year.
Data collection	17. Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	The key themes being discussed were provided in the information sheet provided to the participants before they consented to being involved. A pilot was not conducted. It was agreed that the interviews would be conducted in English.
	18. Repeat interviews	Were repeat interviews carried out? If yes, how many?	No
	19. Audio/visual recording	Did the research use audio or visual recording to collect the data?	The interviews were conducted and audio-recorded using an audio recorder. Audios were transcribed using the otter.ai programme and then manually double checked.
	20. Field notes	Were field notes made during and/or after the interview or focus group?	No
	21. Duration	What was the duration of the interviews or focus group?	recording was 28.40minutes

	22. Data saturation	Was data saturation discussed?	Not applicable for this study
	23. Transcripts returned	Were transcripts returned to participants for comment and/or correction?	No

Domain 3: analysis and findings

Data analysis	24. Number of data coders	How many data coders coded the data?	One (Lead researcher)
	25. Description of the coding tree	Did authors provide a description of the coding tree?	Yes
	26. Derivation of themes	Were themes identified in advance or derived from the data?	Categories were assumed prior to the interview by the intended question and confirmed by their responses (some themes did result in merging). No new themes were identified.
	27. Software	What software, if applicable, was used to manage the data?	NVIVO
	28. Participant checking	Did participants provide feedback on the findings?	Yes, participants were invited to review the final draft thematic analysis and comment on whether or not the analysis accurately represented their views
Reporting	29. Quotations presented	Were participant quotations presented to illustrate the themes / findings? Was each quotation identified? e.g. participant number	Yes
	30. Data and findings consistent	Was there consistency between the data presented and the findings?	N/A
	31. Clarity of major themes	Were major themes clearly presented in the findings?	Categories were explained and supported with data
	32. Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	N/A

Appendix 4. Teacher participation survey

Kirkwood PLD Feedback

Start of Block: Demographics Block

Q1 Please enter you name

Q2 Please outline your involvement in the research project

End of Block: Demographics Block

Start of Block: Data Content

Q3 Did the information about the data and the results that were presented at the workshop meet your expectations?

Please explain why or why not?

Q4 Were there any other results or data had you been hoping to see? If yes, what?

No (1)

Yes (2) _____

Q5 Were the findings of the assessments surprising? Please explain.

Q6 What did you find the most interesting or surprising?

Q7 Were there other aspects of your students' skills you would have liked to see measured? If yes, please explain?

No (1)

Yes (2) _____

End of Block: Data Content

Start of Block: Strategies Provided

Q8 Were the different intervention domains (Phonological/Orthographic/Morphological) explained in sufficient detail? If no, what other information would you have wanted/how else would you have liked to have had this explained?

Yes (1)

No (2) _____

Q9 How easily do you think you would be able to provide these strategies in your own classroom setting?

Q10 What challenges do you anticipate with implementing these strategies?

Q11 From the information given about each domain (Phonological/Orthographic/Morphological), do you think you would be able to integrate and create activities that target those areas or would you like to receive more explicit ideas for activities?

Q12 Are there other literacy domains or skills that you think we should have included in the intervention? If yes, what?

No (1)

Yes (2) _____

End of Block: Strategies Provided

Start of Block: Overall

Q13 How do you feel the overall relevancy of the information provided in the workshop was, in relation to what you were hoping to learn/see?

Q14 Is there anything that you would change and/or add to the workshop that would better benefit the implementation of the strategies? If yes, please explain.

No (1)

Yes (2) _____

Q15 Are the workshops and intervention what you were expecting when you put your name forward to be involved? Please explain.

End of Block: Overall

Appendix 5. Lesson plan example

Week 1	Lessons 1 & 2 + 1 buddy session
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Orthographic Knowledge Grapheme – Phoneme Rule Knowledge – 5min
Objective: To revise grapheme-phoneme rule knowledge
<p>Long and Short Vowel Game Activity 2: Listening to long and short vowel sounds in words. Teach a few word pairs slowly first c- u- t (short vowel) c- ue- t (cute: long vowel).</p> <p>Divide group into pairs - one student from the pair listens for long vowel sounds and the other for short vowel sounds. Get the pairs to throw a block under the label for LONG Vowel or SHORT vowel as appropriate to the word the teacher calls out. At the end of the list, the teacher places the written word under long or short vowel. Read words together and highlight the spelling differences between the pair.</p> <p>➔ SHORT vowels only have one vowel present in the word & LONG vowels have a split digraph with the e at the end. Words: <i>cut cute; win wine; rip ripe; mat mate; rob robe; cub cube; din dine; pip pipe; hat hate; hop hope</i></p> <p>➔ SHORT vowels words end with a ck & LONG vowel, have an e at the end or end with a k following a long vowel digraph. Words: <i>lick, like; clock, cloak; sack, sake; tack, take; sock, soak; lack, lake; rack, rake; spick, spike</i></p>

Phonological Awareness activity – 10-15min
Objective: Phoneme segmentation activities with monosyllabic words
<p>Phoneme Segmentation - Definition</p> <p>Explain that a phoneme is an individual speech sound - phonemes distinguish words from each other. Identify the phoneme that changes to make each different word.</p> <p><i>pet – pot – pod – pad – lad – lid</i></p> <p>Phoneme Segmentation Using Coloured Blocks</p> <p>Use coloured blocks to segment phonetically regular single-syllable words into phonemes.</p> <p>Explain that each different coloured block represents a sound in a word. Highlight that the focus is on the sounds of each word, not the spelling of a word.</p> <p>Segment 3- 6 phoneme words depending on group ability. (C: consonant, V: vowel)</p> <p>CCVC- e.g., <i>stop</i> (4 different coloured blocks)</p> <p>CVCC e.g., <i>bust</i></p>

CCVCC e.g., *stand*

CCCVC e.g., *street* – note the same coloured block is used to represent the same /t/ phoneme

CCCVCC e.g., *strict*

Group Activity: Write down 3 to 5/6 phoneme single-syllable words onto cards (depending on ability level). Pick a card and read out the word without showing the others. The others race to see how many blocks they need to put out to identify the number of phonemes in the word.

Words (divide over the 3 sessions): brag, drum, skid, trot, shed, shun, tank, bump, think, crest, roast, loom, champ, splash, blend, stripe, still, moist, lime, shoe,

Morphological Awareness activity – 10min

Objective: To facilitate morphological processing abilities in reading

Word Sort: Choose a long and short vowel word pair. Read each root word out loud and identify the root words' vowel length. Read, in a random order, the words with their attached suffix. For each word have the students group them depending on vowel length.

Use each word in a sentence, and explain meaning as necessary. Identify and bring attention to the spelling rules if you are writing the words on a board or using word cards e.g., short vowel sound, double the final consonant before the suffix & long vowel sound, drop the 'e' or just add the suffix

Session 1:

hop *hope*
hops *hopes*
hopped *hoped*
hopping *hoping*

Repeat with other base
words
mop *mopes*
din *dine*

Session 2:

lick *like*
licks *likes*
licked *liked*

Repeat with other base
words
tack *take*

Reading Fluency & Comprehension – 10min

Objective: Use phonological and morphological skills in decoding and comprehending written text

Select a piece of text relevant to the current English topic of your class. This can be a section of a book or are relevant few paragraphs found elsewhere.

Have the students read through the sections silently to themselves for about 2-3 minutes.

Then facilitate a discussion around the text – targeting 1/2 of the following strategies depending on time left (vocabulary development, predicting, making connections/inferences, summarising, creating questions relevant to the text, self-monitoring of fluency (reading text out loud))

Mae sure to change the strategies for each session.

Appendix 6. Morphological pattern sequence

Morphology sequence derived from:

A linguistic awareness intervention program for older children struggling with reading and spelling:

Reference:

Kirk, C., & Gillon, G. (2009). Integrated morphological awareness intervention as a tool for improving literacy. *Language, Speech, and Hearing Services in Schools*, 40: 341–351.

Week	Objective	Target words			
Wk 1	<ul style="list-style-type: none"> Identification of long and short vowels 	Example 1: <i>hop hope</i> <i>hops hopes</i> <i>hopped hoped</i> <i>hopping hoping</i>		Example 2: <i>lick like</i> <i>licks likes</i> <i>licked liked</i>	
Wk 2	<ul style="list-style-type: none"> Understanding the relationship a suffix has on a base word. 	Someone who 'Xs' farmer owner worker leader helper	More 'X' fresher neater cheaper smaller older	The most 'X' meanest freshest quickest fastest loudest	
Wk 3	<ul style="list-style-type: none"> -ing suffix on base words with long and short vowel words 	<u>-ing Long Vowels</u> hoping moping baking caning filing raking pining striping	<u>-ing Short Vowels</u> hopping mopping canning filling racking pinning stripping	<u>-ed Long Vowels</u> raked pined striped hoped moped baked	<u>-ed Short Vowels</u> racked pinned stripped hopped mopped backed

Wk 4	<ul style="list-style-type: none"> -y suffix on base words with long and short vowels 	<p>Example word list:</p> <table> <tr><td>hazy</td><td>sleepy</td></tr> <tr><td>icy</td><td>shiny</td></tr> <tr><td>creepy</td><td>skinny</td></tr> <tr><td>smoky</td><td>boggy</td></tr> <tr><td>spotty</td><td>dusty</td></tr> <tr><td>crabby</td><td>musty</td></tr> <tr><td>foggy</td><td>crusty</td></tr> </table>	hazy	sleepy	icy	shiny	creepy	skinny	smoky	boggy	spotty	dusty	crabby	musty	foggy	crusty		
hazy	sleepy																	
icy	shiny																	
creepy	skinny																	
smoky	boggy																	
spotty	dusty																	
crabby	musty																	
foggy	crusty																	
Wk 5	<ul style="list-style-type: none"> -tch vs -ch suffix on base words with long and short vowels 	<p>Example word list:</p> <table> <tr><td>coach</td><td>catch</td></tr> <tr><td>peach</td><td>patch</td></tr> <tr><td>beach</td><td>batch</td></tr> <tr><td>leach</td><td>latch</td></tr> <tr><td>speech</td><td>stretch</td></tr> <tr><td>screech</td><td>scratch</td></tr> <tr><td>march</td><td>match</td></tr> </table>	coach	catch	peach	patch	beach	batch	leach	latch	speech	stretch	screech	scratch	march	match		
coach	catch																	
peach	patch																	
beach	batch																	
leach	latch																	
speech	stretch																	
screech	scratch																	
march	match																	
Wk 6	<ul style="list-style-type: none"> -er vs -est suffix on base words - consonant doubling and y → i 	<p>Example word list:</p> <table> <tr><td>sadder</td><td>saddest</td></tr> <tr><td>flatter</td><td>flattest</td></tr> <tr><td>sloppier</td><td>funniest</td></tr> <tr><td>fussier</td><td>sloppiest</td></tr> <tr><td>madder</td><td>fussiest</td></tr> <tr><td>sunnier</td><td>maddest</td></tr> <tr><td>bossier</td><td>sunniest</td></tr> <tr><td>happier</td><td>happiest</td></tr> </table>	sadder	saddest	flatter	flattest	sloppier	funniest	fussier	sloppiest	madder	fussiest	sunnier	maddest	bossier	sunniest	happier	happiest
sadder	saddest																	
flatter	flattest																	
sloppier	funniest																	
fussier	sloppiest																	
madder	fussiest																	
sunnier	maddest																	
bossier	sunniest																	
happier	happiest																	
Wk 7	<ul style="list-style-type: none"> -ish (means 'sort of X' where X stands for the base word) -en (means 'to make something X') 	<p>Example word list (-en):</p> <table> <tr><td>freshen</td><td>thicken</td></tr> <tr><td>dampen</td><td>fatten</td></tr> <tr><td>sadden</td><td>madden</td></tr> </table>	freshen	thicken	dampen	fatten	sadden	madden										
freshen	thicken																	
dampen	fatten																	
sadden	madden																	

		tighten lighten brighten lengthen deepen sweeten Example word list (-ish): greenish brownish reddish pinkish biggish coolish fattish smallish boyish flattish devilish kittenish
Wk 8	<ul style="list-style-type: none"> -ly (tells how something is done, or describes something) AND <ul style="list-style-type: none"> Revision of Previously Learnt Suffixes and Spelling Rules 	Example word list: sweetly deeply smoothly weekly/weakly thinly sadly lonely widely