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Enhancing teaching through professional learning: Case studies of professional learning to improve reading instruction for Year 2 students with reading difficulties in one Australian state

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ABSTRACT

Reading is internationally recognised as a mediating factor in the life outcomes of individuals and the continuing failure of Australian children to attain the same level of literacy as children in other Western countries is an ongoing concern. Within the continuum of reading development, there are some children who experience more difficulty than their peers in acquiring reading skills and these children are at even greater risk of poor life outcomes if they do not receive appropriate instruction. Research demonstrates that professional learning is an effective way of enhancing teachers' knowledge and practice and, therefore, the purpose of this study was to evaluate the efficacy of a professional learning program designed to improve teachers' pedagogical content knowledge (PCK) and practices in reading instruction.

The research utilised a mixed-method approach to data collection including case study methodology, as this enabled the Researcher to answer the 'how' and 'why' of a social phenomenon by providing elaborated information on the context of the professional learning program that was being explored. Case study teachers were selected from a broader group of participants in a multi-school professional learning project. Six teachers in three schools, two per school, volunteered to take part in the research. Data were drawn from the overall professional learning program to provide contextual information for the case studies, and the researcher conducted classroom observation and interviews with the case study teachers over 18 months to determine whether changes to pedagogical content knowledge resulted from their involvement in the Project.

This research highlighted some of the multiple factors that influence how teachers engage with and enact information from professional learning. These influences include teachers' beliefs about reading teaching and learning, including philosophical beliefs about how reading should be taught and pragmatic beliefs about the best way to teach children experiencing difficulties with reading. In the context of this study, the historicity of beliefs about reading teaching and learning were of particular relevance to the way teachers engaged with the professional learning. Of particular note were the individual factors that influenced how one individual's response to professional learning differed from another. These included the perceived relevance of the information on the basis of the teacher's prior experience, self-efficacy, learning orientation and existing PCK. Contextual factors such as the resources in the school and the learning environments were also relevant to how teachers engaged with professional learning.

DECLARATION

I certify that this thesis does not, to the best of my knowledge and belief:

i) incorporate without acknowledgment any material previously submitted for a degree or diploma in any institution of higher education;
ii) contain any material previously published or written by another person except where due reference is made in the text of this thesis; or
iii) contain any defamatory material

Signed: Date: June 4, 2014

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I would also to thank my friends who sat drinking wine with me on verandas discussing possible topics in the early days (perhaps there is still a thesis in training the kangaroos at Donnelly River to fetch coffee), to the later times when you made fun of my pain and kept me sane. Thank you also for still being there even after I lost the ability to talk about anything other than my PhD.

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I borrow from the African proverb, *It takes a village to raise a child,* when I say it takes a community to complete a PhD and I have been surrounded by a wonderful community.

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CHAPTER 1: INTRODUCTION

Learning to read is one of the most significant achievements in children's lives because, as Konza (2006) succinctly states, "reading is a life skill" (p. viii). Lyon (2001) asserts that inadequate reading skills impact not only on individuals' lives but also on society in general, and suggests that reading failure is in fact a public health issue. In his statement to the House Committee on Education and the Workforce in Washington, Lyon highlighted that at least half of the adolescents with criminal records have reading difficulties and a similar percentage of individuals with histories of substance abuse also have reading difficulties.

Juel's (1988) landmark study found that "the probability that a child would remain a poor reader at the end of fourth grade if the child was a poor reader at the end of first grade was .88" (p. 437) and highlighted the importance of effective reading instruction in the early years of schooling. Subsequent studies have supported Juel's finding that students who do not acquire adequate reading skills in primary school are likely to struggle with reading throughout their school lives (S. E. Shaywitz, 2003)[1]. Superficially the solution would appear to be simple: "quality classroom instruction in kindergarten and the primary grades is the single best weapon against reading failure" (Snow, Burns, & Griffin, 1998, p. 343), which raises the question of what constitutes 'quality instruction'?

Attempts to answer this question have led to numerous national and international inquiries into the state of literacy and literacy instruction. Further, research has identified that many teachers are not equipped to teach reading effectively (see, for example, L. C. Moats, 2009). Resources to provide additional training for teachers are scarce and therefore it is necessary to ensure that time and money are only invested in literacy professional learning that results in positive outcomes: increased teacher knowledge about the reading process and how it is most effectively taught, and better outcomes for the students.

1.1. Context

Teaching reading has been a controversial subject for more than 50 years (see Flesch, 1955), but the current debate in Australia, resulting largely from the National Inquiry into the Teaching of Literacy (NITL), (Department of Education Science and Training, 2005), has

[1] Use of initials where two or more referenced authors have the same surname complies with APA 6th referencing convention 6.14.

challenged many Australian teachers' beliefs about the way they teach reading. Consistent with the recommendations of the Rose Report in the United Kingdom (Rose, 2009) and the Report of the National Reading Panel in the United States of America (National Reading Panel, 2000), the NITL Report identified the need to teach reading systematically and explicitly. Despite the growing body of knowledge about the skills children need to read effectively, Podhajski, Mather, Nathan and Sammons (2009) and Walsh, Glaser and Wilcox (2006) argue that there has been little change to classroom practice as in many universities, pre-service and in-service teacher instruction is not informed by the research on effective reading instruction. A model of reading acquisition based on holistic rather than skills-based development, which gained wide acceptance in the late seventies and eighties, had great intuitive appeal as it seemed to promise an effortless and enjoyable path to meaningful reading, and for a proportion of children with rich language backgrounds, this model was effective. Conversely, significant research findings support the view that, for most children, systematic instruction in the different components that comprise reading is the most effective approach.

In 2009, the Rudd Government committed to investing more than $62 million in school education with an emphasis on improving the quality of classroom practice (Gillard, 2010). Gillard explained that a key goal of the National Partnership Schools program was to build a national understanding of what constitutes effective literacy and numeracy practices with the belief that this would "drive changes in teaching practice and assist states and territories to make better informed decisions in supporting all students' literacy and numeracy development" (¶ 4). In 2010, the Grattan report *Investing in our Teachers, Investing in our Economy* was released, a key finding of which was the importance of improving teacher effectiveness to enhance the economic wellbeing of individuals and the nation (Jensen, 2010).

Within Western Australia, the development and implementation of the *First Steps* literacy strategy (Annandale et al., 2004) was aimed at improving the literacy outcomes of primary aged students. *First Steps* consists of "internationally acclaimed resources to help teachers and schools achieve targeted literacy and numeracy learning outcomes and standards for their students" (¶ 3) (Department of Education (WA), 2010). While National Assessment Program: Literacy and Numeracy (NAPLAN) results do indicate improved performance in reading, spelling and grammar for Western Australian children at Year 3 since 2009, it is still one of the lower performing states in Australia. Further, results point to a widening of the gap between higher and lower achieving students in the area of reading acquisition nationally (Ministerial Council for Education, 2009), which suggests that more should be done to develop the literacy skills of lower achieving students.

1.2. Problem

Teacher knowledge has been identified as a significant contributor to students' literacy outcomes (Department of Education Science and Training, 2005) and Moats (L. C Moats, 1999; 1994, 2009) has consistently expressed concern about the preparedness of teachers to teach children with reading difficulties. Her research reveals that many teachers are not adequately prepared to teach children with these difficulties and "current educational policies and funding practices continue to focus on program selection, school organization, and student test scores – not teachers, the contexts in which they teach, or the leadership and professional development required to ensure 'teacher quality'" (2009, p. 387). Moats (1999) also asserts that the teaching of reading really is "rocket science" (p. 1) and that "teachers cannot teach well what they do not understand themselves" (L. C. Moats, 2009, p. 387). While gathering examples of effective reading practices provides a pool of resources for teachers to use, determining exactly what teachers need to know to teach reading effectively is required to underpin any real change in the instructional practices of teachers. Shulman (1987) refers to this as pedagogical content knowledge, "the blending of content and pedagogy into an understanding of how particular topics, problems, or issues are organized, represented, and adapted to the diverse interests and abilities of learners, and presented for instruction" (p. 8).

Hattie (2003, 2009) asserts that, while individual student characteristics account for 50% of the variance in student achievement, "excellence in teaching is the single most powerful influence on achievement" (p. 4). Similarly, Marzano, Pickering and Pollock (2001) conclude that teaching is the most important factor affecting students' learning. Moats (2009) contends that in order to "improve teacher quality, we must first take to heart the necessity of establishing literacy as a content-laden teaching discipline— just as we acknowledge math, science, and the arts as content-laden teaching disciplines" (p. 390). This is supported by the work of Cunningham, Zibulsky, Stanovich and Stanovich (2009), which highlights the positive impact of professional learning programs that focus on increasing teachers' knowledge of these literacy content skills. However, they suggest that teachers' beliefs are another variable that can influence whether or not their classroom practice aligns with best practice and, consequently, the efficacy of the professional learning offered to them.

To present effective professional learning experiences there needs to be an understanding of all the elements that contribute to changing teacher practice so that it is more closely aligned to effective practice as identified in the research. This study explored the impact of a professional learning program aimed at improving teachers' knowledge of effective reading

instruction, on teachers' beliefs about reading instruction, their literacy pedagogical content knowledge, and how they teach struggling readers.

1.3. Rationale

In order to utilise educational resources effectively and provide appropriate literacy instruction for all children it is important that we evaluate professional learning programs to identify the features that contribute to their effectiveness. Furthermore, if we can develop an understanding of how teachers engage with these learning opportunities, including what elements have the greatest impact on improving their pedagogical content knowledge and changing their literacy practices, we can refine these practices and apply them to other professional learning opportunities. Christie (2009) highlights the need to ensure that professional learning programs deliver the intended outcomes and refers to the National Staff Development Council suggestion that, in addition to collecting data on teachers' initial reactions to professional learning experiences, it is necessary to gather information on teachers' attainment of new knowledge and skills, and how this has impacted on their teaching over time.

As this suggests, there is the need to go beyond teachers' initial responses to professional learning experiences if we are to ascertain how effective they have been in delivering the intended outcomes; a key component of these outcomes being gains in student performance (Timperley, 2011). Loucks-Horsley, Hewson, Love and Stiles (1998) also discuss the complex nature of change and suggest that this process is on-going, occurring over weeks, months or years, rather than resulting from a discrete event. Therefore, any comprehensive evaluation of a program must include ongoing observations of teachers' practices, with a focus on identifying knowledge, skills and beliefs, as well as an evaluation of the outcomes for students.

1.4. Purpose

To address concerns about poor NAPLAN results in reading, 49 teachers from 10 schools in an Australian metropolitan area participated in a professional learning project (referred to hereafter as the Project) in conjunction with a local university. The aim of the Project was to provide teachers with knowledge and pedagogical practices to incorporate targeted instruction for those students who were not acquiring the necessary skills as a result of their regular class-reading program. To achieve this aim, the Project focused on identifying Year 2 students who were experiencing difficulty in the development of reading skills and assisting teachers to embed explicit teaching of early reading skills in the broader approach to reading instruction currently being employed in their schools. It is widely acknowledged that effective

early instruction is the best way to ensure students' reading success (for example: Adams, 1990; D. Carnine, Silbert, Kame'enui, & Tarver, 2004; Juel, 1988); however, some children do not acquire these skills for a variety of reasons including insufficient knowledge and practice, specific reading difficulties, and other learning difficulties and delays. Regardless of the reason behind the learning difficulty, students require highly explicit and targeted instruction in order to develop age appropriate reading skills. Differences in learning trajectories become more evident in Year 2, with students being expected to decode and comprehend between three and four hundred words (D Carnine, 1982), and intervention at this stage provides the opportunity to ameliorate these difficulties before they become entrenched.

The purpose of this research was to investigate how specific teachers engaged with the professional learning experience and how it impacted on their knowledge and beliefs about teaching reading, their classroom practice and student outcomes. To meet this objective a case study approach was utilised to gain insight into teachers' personal perspectives as well as their teaching practices. Yin (1981) argues that a case study approach provides descriptive data for explanatory purposes as well as to test explanations for the occurrence of specific events (p. 98). In addition to the rich personal and contextual detail that a case study can provide, quantitative data collected on teachers' knowledge and beliefs was integrated with qualitative data to explore factors that may contribute to teachers' actions. The 49 teachers involved in the Project were invited to be involved in this research, resulting in case studies of six teachers in three schools.

1.5. Research Questions

The overarching question for this research was:
How does a Professional Learning Project focused on effective reading instruction impact on teachers' beliefs, reading pedagogical content knowledge, and classroom practice?

Within this broader question there were five specific research questions:

1. How does the Project impact on teachers' beliefs about reading teaching and learning?
2. How does the Project impact on teachers' reading pedagogical content knowledge?
3. How does students' reading performance influence teachers' classroom practice and beliefs about reading teaching and learning?
4. How does involvement in the Project impact on teachers' classroom reading practices within a whole-class context, and with the children identified as having reading difficulties?

5. What factors facilitate or inhibit changes in teachers' beliefs, knowledge and practice?

1.6. Significance

Ideally children will receive effective literacy instruction in the early years of their primary education. Lyon and Fletcher (2001) suggest, however, that there will always be children who require additional support to develop their reading skills, whether that is due to children having reading disabilities or receiving inadequate reading instruction, the latter group being referred to by Reid Lyon as 'instructional casualties' (2002). Teachers need to be adequately trained to teach reading at all levels and this research will contribute to an understanding of what skills teachers require and how to provide professional development to meet these needs.

Ingvarson, Meiers and Beavis (2005) explain that "professional development for teachers is now recognised as a vital component of policies to enhance the quality of teaching and learning in our schools" (p. 2). As such, investment in professional learning is substantial and those funding these programs are looking for evidence that they actually deliver improvements in teaching skills and student achievement. Ingvarson et al. (2005) acknowledge the need for research that provides guidelines for designing professional learning programs that are more likely to result not only in changes in teacher knowledge, but also changes to practices that subsequently result in improved outcomes for students.

Employing a case study approach in this study (Figure 1.1) enabled the Researcher to explore the teachers' reactions to their professional learning experiences in more detail, including the value they placed on it and the factors that were significant in how they engaged with it. Observing how teachers engage with their students around reading learning experiences provides important information about the impact of professional learning experiences on building teachers' skills and pedagogical content knowledge, and whether these skills are applied to teaching generally or just reserved for children not achieving the benchmarks.

This study contributes to our understanding of what constitutes effective professional learning in relation to teaching reading skills to children who are not achieving the established benchmarks, as well as professional learning design in general. The outcomes of this study should be of significant interest to education authorities: those involved in both pre-service and in-service training of primary and early childhood teachers, and anyone interested in how we can improve reading skills and therefore educational outcomes of our children.

1.7. Overview of the Thesis

Figure 1.1 provides an overview of the thesis structure. A chapter that explores the existing literature on effective reading instruction and professional learning that provided the context for this study follows this introductory chapter. The following chapter explains the methodology that the Researcher used to explore the research questions. Chapter 4 presents information from all of the schools that were included in the Project to provide the context from which the case study subjects were drawn. Chapters 5, 6 and 7 present data gathered as part of the Project in conjunction with the classroom observations, artefacts and observations gathered by the Researcher. This information is collated and examined in the cross-case analysis, Chapter 8, with conclusions in Chapter 9.

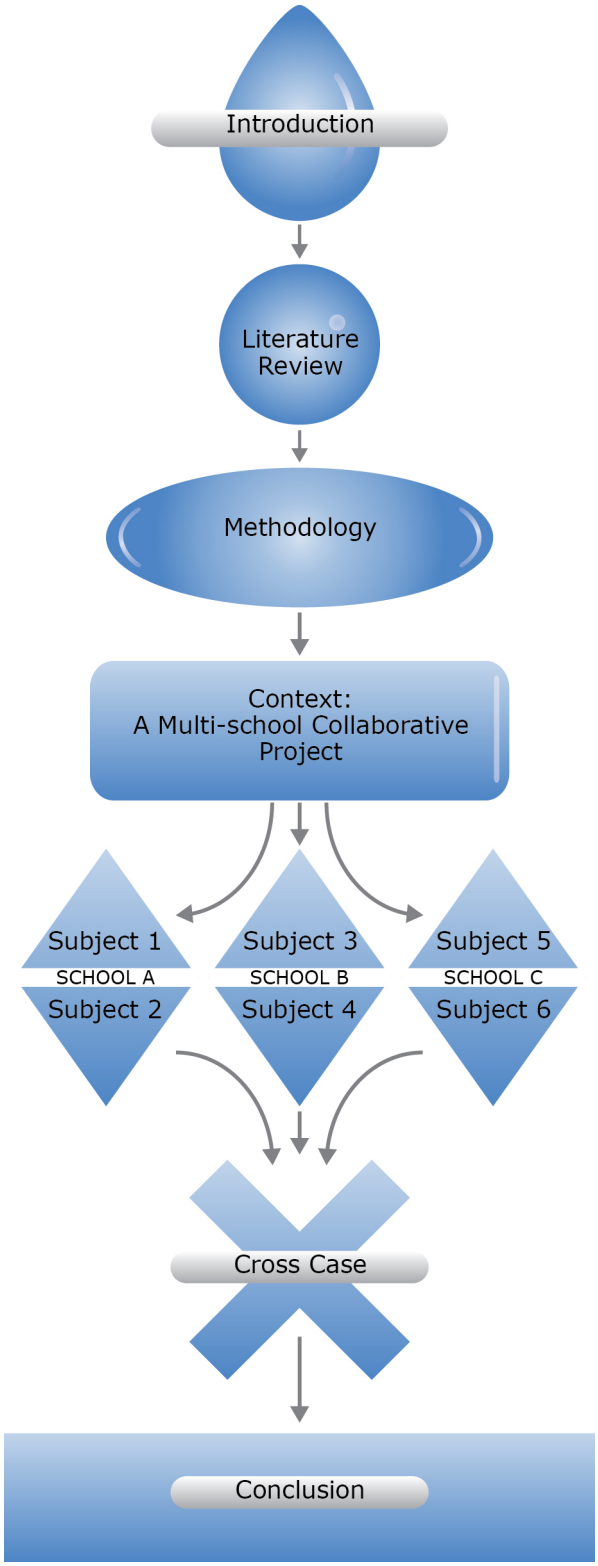
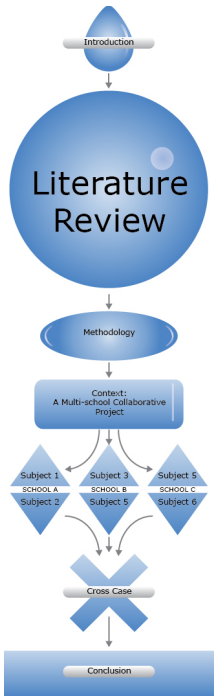


Figure 1.1. Overview of thesis structure

CHAPTER 2: LITERATURE REVIEW



The literature on reading development provides compelling evidence that effective reading instruction consists of systematic and explicit teaching of reading skills for all children (Foorman & Torgesen, 2001). It also reveals that evidence-based practices for reading instruction are not always implemented and provides some insight into why this is the case, including the impact of teachers' knowledge and beliefs on their classroom practice. This literature review concludes with an examination of the components of effective professional learning and how these components can be used to increase teachers' knowledge of effective reading instruction, and to change their practice. The conceptual framework for the research, positioned within a social constructivist paradigm, is presented as an explanation of the influences affecting teachers' engagement with the professional learning. These influences are drawn from the research highlighting that pedagogical content knowledge, beliefs, and student outcomes have an impact on teachers' practice.

2.1. The Importance of Reading

It would seem unnecessary to conduct a discussion on why reading is important. It is, after all, widely accepted that reading is a life skill and that individuals are significantly disadvantaged if they cannot read. We need, for example, to be able to read street signs, application forms and the labels on medicine bottles. It has also been asserted that the importance of reading extends beyond being merely a practical skill to being a determining factor in life outcomes

(Flesch, 1955; D. Rose, 2006), impacting on areas such as self-esteem (J. Rose, 2006), physical health and well-being (Australian Institute of Health and Welfare, 2011), mental health (Daniel et al., 2006), school retention, (Bost & Riccomini, 2006; Bynner, 2004; Lyon, 2001; Ziomek-Daigle & Andrews, 2009), and cognitive ability (Chall, 1983; Stanovich, 1986). More than five decades ago, Flesch (1955) launched a strong attack on the prevailing method of reading instruction in his book *Why Johnny Can't Read,* implying that allowing ineffective methods of teaching reading to continue was a deliberate act to disempower certain sections of society. Research into neural plasticity highlights the impact of environment and instruction on the way the brain develops (Greenough, 1976; B. A. Shaywitz et al., 2004; M Wolf, 2007) and contradicts previous beliefs that an individual is endowed with a fixed quota of intelligence. Researchers, including Chall (1983) and Stanovich (1986), have drawn attention to the link between reading and intelligence, with Chall (1983) suggesting that the "influence of the development of reading and writing -'literate intelligence'- on general cognitive development has unfortunately been underestimated. Indeed, when reading development is delayed by personal or environmental factors or both, the effects on the person, unless given special help, are too often disastrous" (pp. 2-3).

Stanovich (1986) explored the relationship between reading and cognitive development further, relating this to Walberg's notion of the 'Matthew Effect', whereby faster rates of progress occur due to early achievement (p. 381). The Matthew Effect is a biblical reference to the Gospel according to St Matthew which states: "For unto every one that hath shall be given, and he shall have abundance: but from him that hath not shall be taken away, even that which he hath" (Matthew 25:29). In layman's terms, this translates to 'the rich get richer and the poor get poorer'. So influential was his paper that the term 'Matthew Effect' is now more commonly associated with Stanovich than with Walberg. Stanovich (1986) asserts that delayed acquisition of reading skills affects vocabulary development which in turn affects skills such as language use, comprehension and written expression. While this in itself is concerning, the impact of these deficits on more global aspects of the child's development are even more significant. Stanovich (1986) contends that:

> slow reading acquisition has cognitive, behavioral, and motivational consequences that slow the development of other cognitive skills and inhibit performance on many academic tasks… [and that] the longer this developmental sequence is allowed to continue, the more generalized the deficits will become, seeping into more and more areas of cognition and behaviour (p. 390).

Stanovich and Cunningham's (1992) study demonstrate the strength of the link between the amount of reading a child does and their later cognitive ability with a recent study by Sparks, Patton and Murdoch (2014) also replicating these findings.

More recently, concerns that hark back to those of Flesch (1955) pertaining to equity of opportunity have also entered the discussion on the importance of reading, along with concerns about the impact of poor literacy skills on society generally. David Rose (2006) suggests that "the failure to teach all students the reading skills that are required at each stage of schooling, and the continual evaluation of students on their abilities to read and write and so successfully participate in class, both construct the 'ability' hierarchy in the school, and socialise children into their positions in the hierarchy" (p. 4). In discussing the inequitable nature of education, Rose also asserts that by failing to teach children to read we condemn them to either unemployment or unskilled labour as reading "becomes the primary medium for learning as we progress from primary through high school to university, as writing is the primary medium for demonstrating what we have learnt" (p. 1). Therefore, the impact of reading failure is seen not only in the individual's personal and social well-being, but also in the nation's economic competitiveness (D. Rose, 2006, p. 13).

Lyon (2001), in justifying why he considered reading failure to be a national health concern, cited the high rate of school 'drop out', criminal convictions and substance abuse among young people with reading difficulties and the disproportionately high number of children in low income areas who have reading difficulties. He went so far as to suggest that we could predict the size of the prison population in years to come based on the reading results of fourth grade students (¶ 5). Other studies have also identified lower reading levels amongst incarcerated youth (Christle & Yell, 2008; Leone, Krezmien, Mason, & Meisel, 2005). The Review of Australian Higher Education (D. Bradley, 2008) acknowledges the link between literacy and economic growth stating that "developed and developing countries alike accept there are strong links between their productivity and the proportion of the population with high-level skills" (p. xi) and yet Australia is falling behind other OECD countries in the number of people with these skills (Mullis, Martin, Foy, & Drucker, 2012; OECD, 2009, 2012).

This literature clearly establishes the importance of reading beyond its utilitarian role in everyday life: ensuring all children become proficient readers is widely accepted as being both economically and morally sound. How best to achieve this, however, is where opinions diverge, with different understandings of how children learn to read leading to widely varying notions of how reading should be taught. The next section explores these differences in some detail.

2.2. How Children Learn to Read

Different conceptualisations of the processes involved in reading acquisition have engendered vigorous debate among researchers and educators, both nationally and internationally. This debate initially divided those who advocated a meaning-emphasis approach, also referred to as a top-down or whole language approach, from those who supported the explicit teaching of the elements required for reading to occur, particularly the letter-sound knowledge (phonics) that underpins our alphabetic language. The latter was referred to as a code-emphasis, skills-based, or bottom-up approach. These approaches to reading instruction belong to different epistemologies, the meaning-emphasis approach being constructivist and the code-emphasis approach being instructivist. So polarised was the debate over teaching reading that it became known as the 'Reading Wars' and fuelled the call for rigorous research and reviews into what constitutes effective reading instruction.

Historically, reading was taught using a phonics-based approach involving teaching letter-sound relationships in alphabetic sequence, then combining those skills to read text (Engelmann & Carnine, 1982). Arguably one of the first proponents of what is now referred to as the whole language approach was philosopher John Dewey who, in advocating for more progressive education in 1896, said: "…it is one of the great mistakes of education to make reading and writing constitute the bulk of the school work [in] the first two years. The true way is to teach them incidentally as the outgrowth of the social activities at this time" (Coltheart & Prior, 2007, p. 6). While the phonics approach persisted in English speaking schools into the nineteenth century, the mid-twentieth century saw the popularity of a more holistic approach increase with the introduction of reading books that focused on children learning whole words rather than learning to decode using the sounds in words.

To many teachers the whole language approach to reading instruction was more attractive than the traditional drill and practice associated with phonics instruction and seemed more consistent with the progressive view of teachers as facilitators rather than dictators of learning (Hempenstall, 2005). Much of the literature on whole language instruction places emphasis on environmental factors, such as the scaffolding provided by parents and teachers. Goodman (1989) proposed that whole language was not simply an approach to reading instruction, but a "philosophy of curriculum, of learning, of teaching and of language" (p. 69), this philosophy being constructivism.

Shannon (1994) suggested that whole language "has human emancipation as its goal" (p. 99) and is based on the belief that learning to read is a natural process in much the same way as

learning to speak (F. Smith, 1978). It was asserted that a whole-language approach was more efficient and more consistent with the way that good readers read (Goodman, 1989) and, as the purpose of reading is to construct meaning from text, the focus in reading instruction should be on comprehending rather than on the specific components of language (Cambourne, 1988). Further, the beginning reader would learn about the structure of written language through immersion in both oral and written forms of language; for example, once whole-word recognition was established the letter-sound knowledge would naturally follow (F. Smith, 1978). Advocates of the whole language approach to reading believe that, through exposure to print alone, children will identify similarities and be able to apply these understandings to reading unknown words. Therefore, it was not until the child experienced difficulty with a word that they might be directed to attend to the smaller components of language. It has also been suggested by advocates of this approach that phonics instruction has little value because the English language is orthographically irregular, lacking one-to-one correspondence between letters and sounds. Frank Smith (1992) asserted that "The 'rules' of phonics are too complex (more than 300 correspondences between letters and sounds) and too unreliable (there is no letter that does not represent more than one sound, including silence, and no sound that cannot be represented by more than one letter) to be useful" (p. 438).

On the other hand, proponents of a phonics approach view reading as a developmental process and highlight that early instruction in the alphabetic principle is a pre-requisite (although not the only prerequisite) for independent reading to occur, even though these early skills are rarely consciously utilised by the proficient reader (Cunningham, Zibulsky, & Callahan, 2009; Hempenstall, 2005). The concern raised by those advocating more direct methods of teaching is that while many children do develop an understanding of the alphabetic principle without requiring explicit instruction, this is not the case for all children. The National Reading Panel (2000) suggested that 20% of the population had difficulty learning to read and Westwood (2001) estimated that 16% of Australian children experienced similar difficulties. In stark contrast to the view expressed by Shannon (1994), that the goal of whole language was equality and freedom, Flesch (1955) suggested that whole word method had the disempowerment of certain sectors of the community as its goal and called for a return to phonics-based teaching:

> It seems to me a plain fact that the word method consists essentially of treating children as if they were dogs ... It's the most inhuman, mean, stupid way of foisting something on a child's mind. (p. 126)

It is evident that the two approaches reflect very different beliefs about the way children acquire reading skills, and this division was the impetus for numerous studies aimed not only at identifying what skills children needed in order to read, but also the best way to teach these skills.

Research findings

Acknowledging the need to utilise instructional time effectively, Stanovich (1986) suggested that if we could identity those factors that had the greatest impact on reading ability we could "exercise parsimony elsewhere" (p. 365). Several studies were commissioned or funded by the United States government or recognised research institutes including Jean Chall's (1967) *Learning to read: The great debate*, the *Follow Through* project, Anderson, Hiebert, Scott and Wilkinson's (1985) report *Becoming a Nation of Readers,* Marilyn Jaeger Adams' (1990) *Beginning to Read: Thinking and Learning about Print*, and the report *Preventing Reading Difficulties in Young Children,* edited by Snow, Burns and Griffin (1998). The following paragraphs expand on these landmark reports with reference to other significant research that has informed our current understanding of the reading process.

In 1967 Jean Chall undertook a literature review and an evaluation of 20 reading programs, used in 300 classrooms across three countries, which were focused on teaching the core reading skills. The purpose of this study was to determine the efficacy of these approaches to reading instruction. In her review, *Learning to read: The great debate,* Chall concluded that the systematic teaching of phonics is more likely to result in better word recognition, spelling, vocabulary and comprehension for all children (Chall, 1983). A further significant piece of research from this time was Bond and Dykstra's (1967) study, which found that the major predictor of student success in reading was not intelligence, but knowledge of letters.

Another major study initiated in the USA in 1967 was the federally funded *Follow Through* project which evaluated a range of interventions to determine which methods of teaching were most effective for disadvantaged primary school students. The study involved 75,000 children in 180 communities over the first three years of their school life and the skills targeted in the study included reading, language, spelling, writing, and maths. A broad range of philosophical positions was represented in the approaches studied, which, for the purposes of reporting on the findings, were placed into three domains: academic outcomes, cognitive development, and affective development. Of the approaches investigated, the Direct Instruction model proved to be the most successful and was the only one to have a positive impact in all domains (Hempenstall, 2005; Marchand-Martella, Slocum, & Martella, 2004).

Direct Instruction emphasises the systematic teaching of basic skills, which, in reading instruction, means an emphasis on systematic instruction in phonics where letter sounds are learnt in an order that facilitates blending from the earliest stages, so students become familiar with the process that underpins reading an alphabetic language. Despite criticism about the methodology and interpretation of this study, subsequent evaluation of the same data maintained that the improvements attributed to Direct Instruction were real and significant (D. Carnine et al., 2004).

Landmark studies (Stanovich, 1988; Vellutino et al., 1996), identified that the majority of children with reading problems have difficulty with single word decoding which generally relates to an underlying difficulty with some aspect of phonological processing (L. Bradley & Bryant, 1983; Lyon, 1997; S. E. Shaywitz, 2003; Stanovich, 1988; Wagner & Torgesen, 1987). Adams (1990) argued that a key indicator of pre-readers' readiness to read was phoneme discrimination and, while all readers could hear the difference between phonemes, high-readiness readers were consciously aware of and attended to the sound structure of words. While asserting the importance of phonological awareness as a necessary skill for reading, Adams (1990) also acknowledged that it was not sufficient just to remediate these skills in developing reading competence. Knowledge of letter-sound correspondences and phonemic awareness were also identified as strong predictors of success in beginning readers (Chall, 1983; Torgesen, 2000), and Al Otaiba et al. (2008) found that students with higher initial letter naming–decoding fluency scores and stronger vocabulary demonstrated more growth in reading skills than children with weaker scores. Lack of letter knowledge, phonological awareness, grapheme-phoneme skills and oral language were evident in many unsuccessful readers (Snowling, Gallagher, & Frith, 2003). Research by Ehri (1979) also provides evidence that orthographic representations can assist with the development of phonological awareness in that they mediate the child's acquisition of letter-sound knowledge, as the child can use an understanding of the letter names to help remember the sounds.

Further, it became evident that it was not enough to simply decode the words and, while knowledge of letters and their names is important, aspects like the automaticity of recall is significant in efficient reading. In other words, familiarity and fluency are what matter. Coltheart (2006) identified two routes through which reading occurs: the lexical route, by which readers can immediately access a known word because it has been stored in their 'mental dictionary'; and the non-lexical, or sublexical, route whereby readers combine their knowledge of single letter-sound correspondences and common letter clusters to read unknown words. Wolf and Katzir-Cohen (2001) affirm that reading fluency requires the

individual to develop accuracy and automaticity in their recall of both lexical and sublexical processes and to achieve this, "explicit instruction is necessary to link phonological, orthographic, semantic, and morphological processes to sublexical and word-level subskills" (p. 229).

Research findings also converge on the fact that reading trajectories are established early in a child's school life and once established, are difficult to change (Coyne, Kame'enui, Simmons, & Harn, 2004; Juel, 1988; Torgesen, 2000). Juel (1988) found that children entering first grade with poor phonemic awareness were slow to learn spelling-sound relationships and those still experiencing difficulty by the end of fourth grade had not achieved the level of decoding that the average-to-good readers had achieved by the beginning of second grade (p. 444). Difficulties in fluent decoding were identified as impacting on the individual's ability to comprehend what they were reading; therefore, decoding difficulties became a good predictor of comprehension ability (Shankweiler et al., 1999; Simos et al., 2007; Stanovich, 1986).

Stanovich (1986) highlights the relationship between early success in reading and the development of vocabulary, syntactic knowledge, reading comprehension, general knowledge and academic achievement. This is also highlighted in studies exploring the differences in word knowledge between weak and strong readers: for example, Juel (1988) found that good readers had a much greater exposure to words than poor readers and that this difference increased each year. Specifically, good first grade readers saw an average of 18,681 words while poor readers saw 9,975 words and, by fourth grade, good readers had read around 178,000 words compared to about 80,000 read by poor readers (p. 441). An additional challenge for children with reading difficulties is the number of exposures to a word that is required before that word is retained. Children need to accurately sound out the word between 4–14 times for it to be retained (Apel & Swank, 1999) but children with reading difficulties may require many times that number (Lyon, 2001).

There is, however, evidence to suggest that appropriate interventions can compensate for poor early reading experiences. The ability to examine the brain non-invasively afforded by medical science not only provides further insight into the processes of reading, but also into the impact of specific interventions on neural processes. Lyon and Fletcher (2001) found that after 60 hours of structured intensive phonics teaching the pattern of brain activity of an individual with reading difficulties corresponded with that of good readers. Similarly, Shaywitz et al. (2004) investigated the effects of an intervention that focused on helping poor Year 2 and 3 readers to understand the alphabetic principle through explicit and systematic instruction which resulted in increased fluency, accuracy and comprehension. Neurological

assessments of the children receiving this intervention indicated that the occipito-temporal region, responsible for orthographic processing which is the key to fluent reading, became active. This research provides additional support for the theory of neural plasticity and highlights the importance of effective instruction for the development of children's reading skills. The research on how to facilitate the acquisition of reading skills led to the development of several models of reading arising from different epistemological perspectives.

Models of reading

In all models of reading the end point is fluent comprehension of written text, and both constructivist and instructivist perspectives acknowledge that this requires letter recognition and automaticity of word recognition (Coltheart, 2005; Goodman, 1967; Torgesen, 1998). The differences lie in the epistemological beliefs that underpin the models.

Whole-language approaches to reading are based on constructivist beliefs that children learn by doing. In relation to learning to read, children learn to read by coming into contact with print in meaningful contexts (F. Smith, 1992) and, in these contexts, they use a multiple-cueing system consisting of syntactic, semantic and graphophonic elements (Annandale et al., 2004; Clay, 1998; F. Smith, 1992). The Searchlights model (Figure 2.1) is based on constructivist beliefs about learning and has its origin in Reading Recovery (Clay, 1987). In this model, the reader draws on knowledge of the four 'searchlights' to make sense of the text, with the use of decoding skills being seen as a 'last resort' when other strategies have failed (Beard, 1998; Stuart, 2003). This was presented as a framework for teaching reading to in-service and pre-service teachers in the United Kingdom between 1998 and 2006.

In comparison to the constructivist nature of whole-language teaching, an approach that includes the explicit teaching of phonics is based on instructivist beliefs about learning and foregrounds knowledge of the phonological structure of language as an essential component in reading instruction. It was within this paradigm that Coltheart proposed a Dual Route theory of word recognition (Coltheart, Curtis, Atkins, & Haller, 1993), which involves two processes: a lexical route, and a non-lexical route, both of which are accessible by a proficient reader. The lexical (or visual) route is the most efficient, with the reader drawing on a mental lexicon, or dictionary, of known, and therefore instantly recognised words for rapid reading. The non-lexical route is required when readers encounter unfamiliar words, and involves drawing on their knowledge of phoneme-grapheme correspondences. This is a less efficient, but still essential, skill for independent reading. Coltheart (2006) offers the example of how the novel, *The Brothers Karamazov*, is read, to explain why the non-lexical route is still

required by proficient readers. Within its 48 chapters, many Russian names present a challenge for most readers of English. Coltheart explains that the reader must be able to use phoneme-grapheme knowledge in order to generate pronunciations of these words to assist recognition of them later in the book.

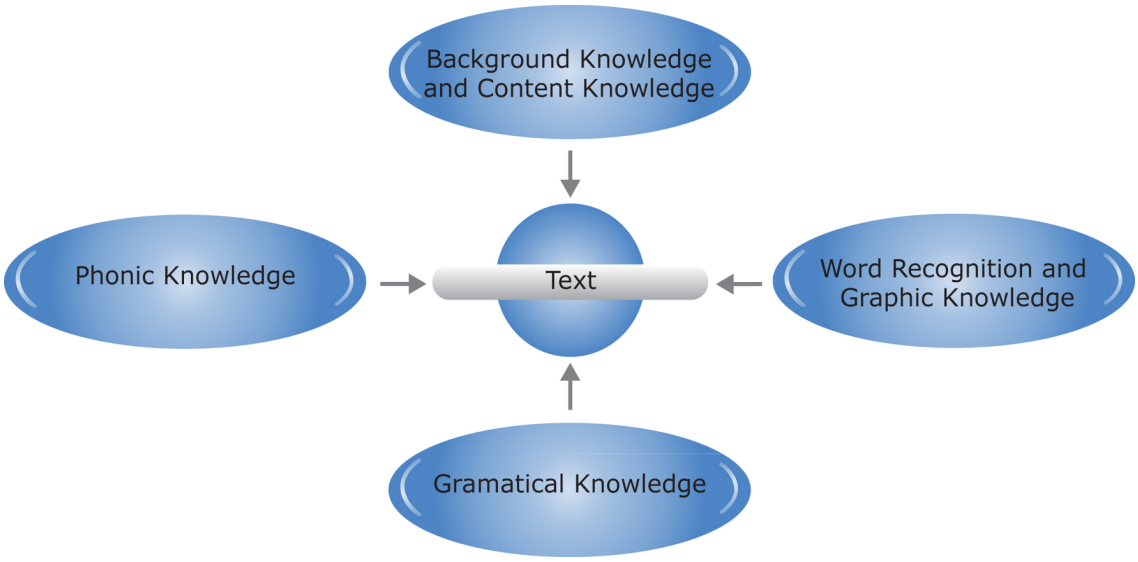


Figure 2.1. The Searchlights Model of Reading (Adapted from Beard (1998))

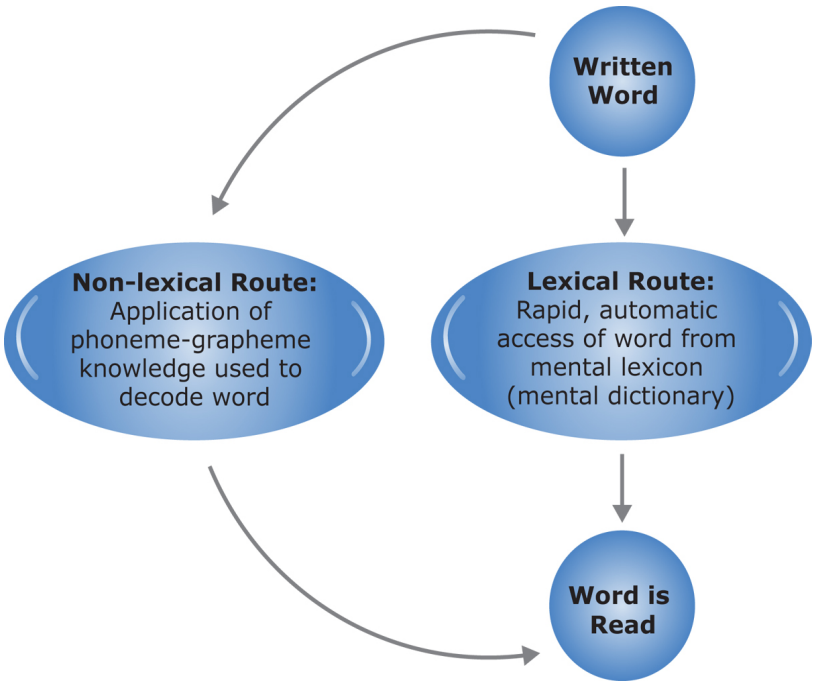


Figure 2.2. The Dual Route Model of Reading (Adapted from Coltheart et al. (1993) and Coltheart (2006))

As a reaction to some of the more extreme whole-language and explicit-phonics proponents, reading researchers began advocating for a more balanced approach to reading instruction (Biemiller, 1994; Pearson, 2004). The Simple Model of Reading, which replaced the Searchlights model in the United Kingdom and now underpins the current approach to reading instruction in the United Kingdom (J. Rose, 2006) is one example of this approach. Proposed by Gough and Tunmer (1986), the Simple Model conceptualises reading as having two broad components, decoding and comprehension (Figure 2.3), with the contribution of each component changing as the reader becomes more proficient.

Figure 2.3. The Simple View of Reading (Gough & Tunmer, 1986)

Other models of reading that incorporate explicit phonics as a component of reading development include Chall (1983), Ehri (1998), and Spear-Swerling and Sternberg's (Spear-Swerling & Sternberg, 1996) 'stage' models, which identify specific stages that readers move through towards reading proficiency. These models include phonological and phonemic awareness as precursors to reading proficiency. Chall's (1983) model, which offers an explanation of the process from birth to adulthood, identifies six stages in the development of proficient reading: (0) emergent literacy, which includes the child enacting the role of a reader for texts that have previously been read to them and recognising some letters and symbols; (1) acquisition of phonological decoding and recoding skills; (2) decoding confirmation and fluency as these skills become automatised; (3) learning the new (single viewpoint); (4) developing the capacity to consider multiple viewpoints; and finally (5), a world view where the mature reader reads for the construction and reconstruction of knowledge. Ehri (1998) posits four phases of reading: (1) pre-alphabetic, where the child does not posses any knowledge of letter-sound relationships and recognises words by their visual or sematic features; (2) partial alphabetic, in which the child has knowledge of some letters which they use to attempt pronunciation of words; (3) full alphabetic, which includes the ability to recognise letter sounds relationships as well as map graphemes to phonemes; and, (4) consolidated alphabetic, the final stage in which automaticity of recognition for commonly used letter sequences is achieved.

Spear-Swerling and Sternberg (1996) combine the work of Chall (1983) and Ehri (1998) with their understanding of the difficulties poor readers experience in their model that not only illustrates the stages of development, but also identifies points in the trajectory towards proficient reading where progress can be interrupted. They provide five descriptors of readers that identify the difficulties these readers are experiencing that prevent them from progressing to the next phase of reading development. *Non-alphabetic* readers are those readers who have not developed letter-sound knowledge, *compensatory readers* have impaired word recognition, *non-automatic readers* lack automaticity in word recognition and recall, as do *delayed readers*. The key aspect of each of these descriptors is the impact it has on reading comprehension and the final descriptor, *suboptimal readers*, relates only to reading comprehension, identifying those readers who are not able to reach the highest levels of comprehension. The stages of reading development and the progression of reading difficulties are positioned on a continuum against the impact of these difficulties on motivation, practice and expectations.

McKenna and Stahl (2009) also consolidated the research on stages of reading in their Cognitive Model of Reading (Figure 2.4). In addition to components such as phonemic and phonological awareness, their model also acknowledges the impact of early literacy experiences on reading development and further highlights that the ultimate purpose of reading is comprehension. McKenna and Stahl (2009) suggest that comprehension is dependent on a number of factors: the child's automatic recognition of words, which requires the use of lexical and sub-lexical processes; language comprehension, which is facilitated by general knowledge in conjunction with knowledge of text types and vocabulary; strategic knowledge, which includes knowledge about the purpose of reading; and, strategies that can be used to make meaning of text, such as sounding out unfamiliar words or looking at the picture to provide clues. As with Spear-Swerling and Sternberg's model, the Cognitive Model can be used as a diagnostic tool by considering in which aspect/s of the reading process the child might be experiencing difficulties. One notable omission from many of the models of reading development is the role of oral language in the development of reading, with much of the research into reading development focusing on subsequent stages of the process. Cunningham, Zilbulsky and Callahan (2009) assert that oral language development is an important precursor to reading development and a study by Al Otaiba et al. (2008) found that children with strong oral language skills may be more able to compensate for other weaknesses in reading, such as phonological awareness or decoding, than children with weaker skills in this area.

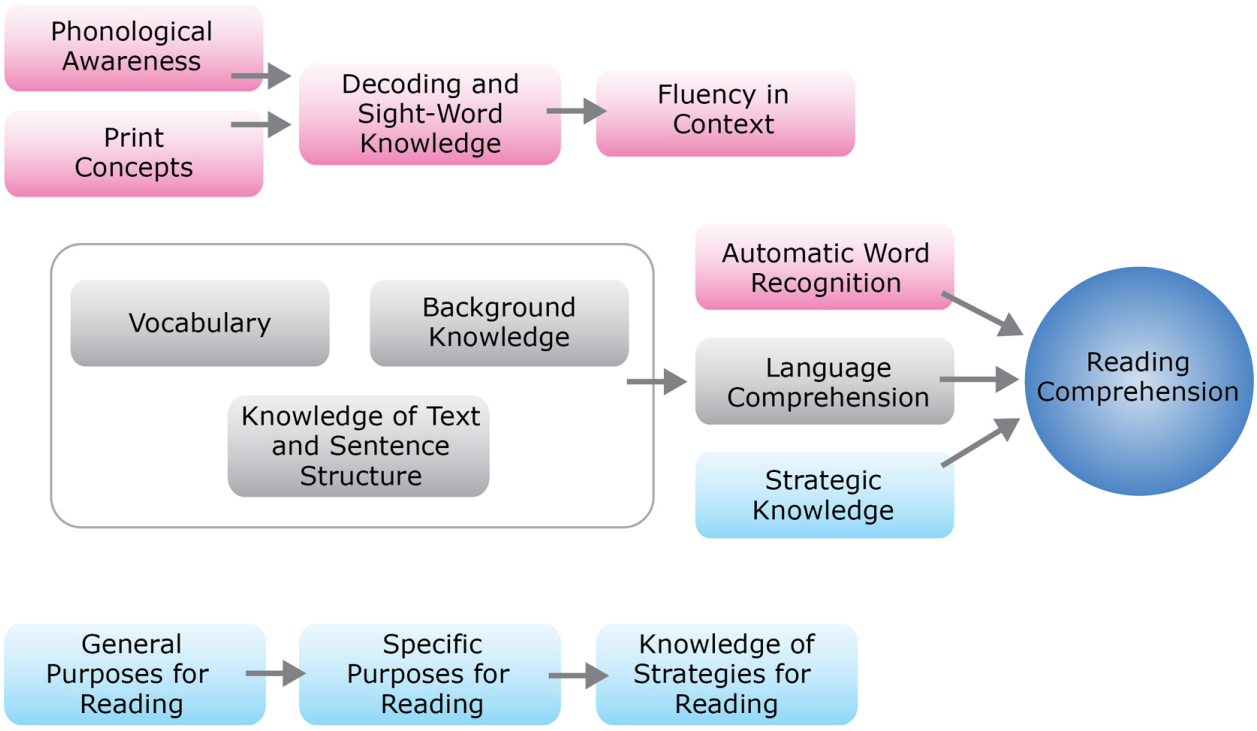


Figure 2.4. The Cognitive Model of Reading (McKenna & Stahl, 2009)

Dickinson, Golinkoff and Hirsh-Pasek (2010), in their review of literature on the impact of language development on reading skills concluded that

> ...language is *unique* among precursor abilities in its pervasiveness for both early and later reading competencies and for the duration of its effects on reading comprehension as code breaking turns into meaning making. (p. 308).

Konza's Big Six framework (Konza, 2010b) (Figure 2.5) includes oral language with the five core recommendations of the National Reading Panel (2000) to acknowledge the underlying significance of oral language in all literacy development. This framework was developed to translate a large body of research into a form that is more accessible to teachers by clearly identifying the areas of reading development that require explicit instruction:

1. Oral language development and early literacy experiences
2. Phonological awareness, especially phonemic awareness
3. Letter-sound knowledge (phonics) and word knowledge
4. Vocabulary
5. Fluency
6. Comprehension

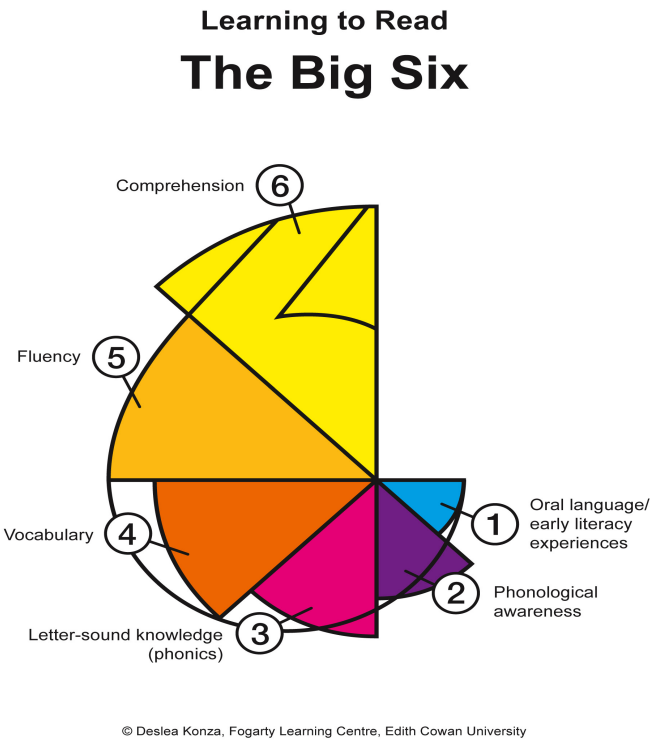


Figure 2.5. The Big Six (Konza, 2010b)

The variety of models reflects the differing beliefs about how children learn and provides some insight into why reading instruction is such a contentious issue; that is, teachers who ascribe to different beliefs about the way children acquire reading skills will endorse very different classroom practice. The use of these models as diagnostic tools could also result in differing interpretations of the cause and subsequent remediation required for children with reading difficulties.

When considered in conjunction with the research on how children learn to read, it is evident that the research points towards several key areas in the development of reading skills; oral language development, phonological awareness, letter-sound knowledge, the development of vocabulary, fluency and, subsequently, comprehension. What is also highlighted in the research is that the most effective way to teach these skills is explicitly and systematically, and while most reading researchers agree on what skills are required, many still resist the notion that these skills need to be taught explicitly, or differ in their interpretation of what constitutes explicit instruction.

The war is over but the battles continue – Not IF but HOW

Assertions such as those by Goodman (1989) that "whole language *is* whole" (p. 69) and does not require explicit instruction in phonics to make it effective, epitomises the polarisation of

the debate over reading instruction. Dr Morag Stuart, in providing evidence to a British parliamentary enquiry, reported on research she was conducting in which she "nearly lost one school because the phonics-taught children were doing better than the non-phonics taught children, and this head teacher said to me that she was ideologically opposed to taking part in a study which showed that phonics teaching worked" (Education and Skills Committee, 2004, Ev. 18).

When we consider the different theoretical beliefs that underpin the whole language and explicit-phonics approaches to reading instruction, it is easy to see why there has been such resistance to phonics instruction. The explicit phonics approach is more closely aligned to behaviourist views of learning, which have been widely criticised in contemporary educational literature, while the whole language or meaning-based approaches are aligned with constructivist beliefs of learning. However, even within the earlier discussions by advocates of phonics instruction there is an acknowledgement that reading instruction is not all about teaching phonics. Notably, Adams (1990) asserts that it was possible, but not desirable, to teach only phonics and ignore the meaning of written words. In recent times the term 'balanced' has been used to refer to instruction that incorporates both explicit-phonics and whole-language approaches (Winch, Johnston, March, Ljungdahl, & Holliday, 2006) and highlights the general acceptance that effective reading instruction requires both decoding and whole language approaches (Konza, 2006). This would appear to mark the end of hostilities; however, Moats (2000) suggests that many of the programs purporting to use 'a balanced approach' are merely whole language "wearing the fig leaf of 'balanced' instruction" (p. iii) and do not consist of the components necessary to effectively teach decoding skills. This heralds a new phase in the 'Reading Wars', one in which the conflict is not over whether or not to teach phonics, but 'how' to teach phonics (Hempenstall, 2005).

Initial discussions were around whether to teach explicitly, directly instructing children in letter-sound relationships or implicitly, by providing examples from which children could deduce the relationships. Contemporary debates revolve around whether to use analytic phonics, where children are taught all letter names and sounds and then analyse the sounds in words they know in order to work out how to read new words; or synthetic phonics, where individual letter sounds are taught in an order that facilitates early blending. Some critics of synthetic phonics focus on a perceived lack of distinction between decoding and reading in the research on reading instruction, suggesting that phonics should be taught with an emphasis on meaning and context if students are to develop good reading skills (Davis, 2013). Contemporary models of reading instruction acknowledge that decoding is only one aspect of

learning to read (for example, Konza, 2010b) but research has also identified that students who receive decoding instruction via a synthetic phonics approach, for example; Project Follow Through (W. Becker & Engelmann, 1978) and The Clackmannanshire studies (R. S. Johnston & Watson, 2005), have better outcomes in other areas of reading development.

Project Follow Through, a study examining several educational programs designed to improve academic outcomes for disadvantaged students in K- 3 across 139 communities in the United States of America, demonstrated that children undertaking the Direct Instruction Model had the best outcomes of all the students involved in the research (W. Becker & Engelmann, 1978). Children being taught using the Direct Instruction Model, a program that utilises a synthetic phonics approach to teaching decoding, improved to the point where they were achieving the same outcomes as their middle-class peers. What is also of significance is that children using this approach attained better outcomes in the areas of cognitive-conceptual skills and affective measures than students undertaking programs specifically designed to improve these skills (W. Becker & Engelmann, 1978). More recently the Clackmannanshire studies have also asserted that a synthetic phonics approach to teaching decoding supports improvements in other areas of reading development (R. S. Johnston & Watson, 2005). Proponents of analytic phonics have criticised the methodology of this study suggesting that the research design lacked rigour (Wyse & Goswami, 2008). Despite this concern, the findings have been widely accepted as indicative of the success of a synthetic phonics approach in the initial stages of reading instruction (McGeown & Medford, 2013; J. Rose, 2006).

The Clackmannanshire studies (R. S. Johnston & Watson, 2005; R. S. Johnston & Watson, 2003), describing the progress of 300 children who received instruction in synthetics phonics in the first year of formal schooling, provide insight into the efficacy of synthetic over analytic phonics approaches. In the initial study children were placed in one of three groups: one group being taught using a synthetic phonics program; another by an analytic phonics program; and, the final by a combination of analytic phonics and phonological awareness training. In reporting on the findings of this study, Johnston and Watson (2005) found that the synthetic phonics program was the most effective for developing literacy skills. In a follow-up study Johnston and Watson tracked the students' progress from Years 1 to 7 and reported that "gains made in word reading in Primary 1 had increased 6 fold by the end of Primary 7 [and the] gain in spelling was 4.5 fold" (p. 8). These results are impressive as there is generally the expectation that the effects of training programs will diminish over time. Early advantages in reading comprehension for those in the synthetic phonics group did decrease over time, but students were still above chronological age in reading comprehension by year 7 (R. S. Johnston

& Watson, 2005). The authors conclude that, "the synthetic phonics programme led to children from lower socio-economic backgrounds performing at the same level as children from advantaged backgrounds for most of their time in primary school. It also led to boys performing better than or as well as girls" (R. S. Johnston & Watson, 2005, p. 8).

Synthetic phonics programs are also designed around the pedagogy of explicit instruction; therefore, as both the content and the method of delivering has been shown to have a significant on students' performance (Adams, 1990; McGeown & Medford, 2013; B. V. Rosenshine & Stevens, 1984), clarity around terminology is essential to understanding the process for delivering this type of instruction. The term 'explicit' holds different meanings within educational circles, with some using the term to refer generically to instruction that is clearly stated and defined, while others use the term to refer to a specific approach informed by the research. The Early Years Learning Framework, for example, (Australian Government Department of Education, 2009) recommends that teachers "talk explicitly about concepts such as rhyme and letters and sounds when sharing texts with children" (p. 41), but the document does not define what is meant by 'explicit'. Mesmer and Griffith (2006) noted an increase in the number of resources purporting to provide explicit and systematic phonics instruction and investigated the meaning of these terms in order to provide clarity to reading teachers. They concluded that 'systematic' refers to the content of the program while 'explicit' refers to the way the content is delivered. They defined explicit instruction as the teacher actively conducting and monitoring the learning.

In contrast to the more general use of the term, when discussing explicit instruction, Archer and Hughes (2011) identified 16 elements drawn from the research that combine to constitute explicit instruction. These elements are: (1) focus instruction on critical content, (2) sequence skills logically, (3) break down complex skills and strategies into small instructional units, (4) design organised and focused lessons, (5) begin lessons with a clear statement of the lesson's goals and your expectations, (6) review prior skills and knowledge before beginning instruction, (7) provide step-by-step demonstrations, (8) use clear and concise language, (9) provide an adequate range of examples and non-examples, (10) provide guided and supported practice, (11) require frequent responses, (12) monitor student performance closely, (13) provide immediate affirmative and corrective feedback, (14) deliver the lesson at a brisk pace, (15) help students organise knowledge, and (16) provide distributed and cumulative practice (pp. 2-3). Rosenshine's (2012) 17 principles of effective instruction identify similar components to those in Archer and Hughes' definition of explicit instruction. To serve as a distinction between approaches that use the more generic definition of 'explicit' and those

approaches that include modelling, guided practice, a brisk pace, and the monitoring of independent practice (Archer & Hughes, 2011; B. V Rosenshine, 2012), the terms 'systematic' and 'synthetic' are often included when discussing approaches that include all of these components.

Research supports the use of explicit systematic synthetic phonics as the most effective approach to teaching decoding (Archer & Hughes, 2011; Buckingham, Wheldall, & Beaman-Wheldall, 2013; de Lemos, 2013; Engelmann & Carnine, 1991; L. C. Moats, 2000) and studies like those in the United States of America, and Clackmannanshire, Scotland, identify specific outcomes of this approach to teaching (R. S. Johnston & Watson, 2005; R. S. Johnston & Watson, 2003). Despite the consistent findings of research regarding the efficacy of explicit and systematic teaching conducted over many decades, there was little impact on educational policy until the late 20th, early 21st century when governments in the United States of America (USA), United Kingdom (UK) and Australia commissioned nationwide investigations into effective literacy practices. The major reports emanating from these investigations are discussed in the next section.

National inquiries

One of the most comprehensive of these inquiries was conducted by the National Reading Panel in the USA, which was assigned the task of assessing the research on the effectiveness of various approaches to teaching children to read. This involved a literature search in which the Panel identified approximately 100,000 studies undertaken on reading instruction since 1966, and another 15,000 published prior to that time. From this body of literature the Panel selected only experimental and quasi-experimental studies that met rigorous scientific standards for their review (National Reading Panel, 2000), identifying the following five key areas required for effective reading instruction:

1. Phonemic awareness: the ability to hear and identify individual sounds in spoken words;
2. Phonics: the relationship between the letters of written language and the sounds of spoken language;
3. Fluency: the capacity to read text accurately and quickly;
4. Vocabulary: all the words students must know to communicate effectively; and,
5. Comprehension: the ability to understand what has been read.

One of the key conclusions reached by the Panel was that teaching children explicitly and systematically to manipulate phonemes significantly improves children's reading and spelling

abilities, and that systematic phonics instruction results in the greatest improvements in reading for children from Kindergarten to Grade 6, and for children having difficulties in learning to read.

In Australia, the introduction of state and nationwide testing and the findings from agencies including the Australian Council for Educational Research evoked sufficient concern for the government to launch an inquiry into the teaching of reading in Australia. The National Inquiry into the Teaching of Literacy (NITL) undertook a consultative process and an extensive review of the literature on reading instruction, resulting in 20 recommendations aimed at improving reading instruction in Australian schools (Appendix A). Of particular relevance to this study was the emphasis on equipping teachers with evidence-based strategies for effective reading instruction. Recommendation 15 states that "schools and employing authorities, working with appropriate professional organisations and higher education institutions, provide all teachers with appropriate induction and mentoring throughout their careers, and with ongoing opportunities for evidence-based professional learning about effective literacy teaching" (Department of Education Science and Training, 2005, p. 22).

In the UK the outcome of the 2004 House of Commons Select Committee on the Teaching of Reading, was the appointment of Sir Jim Rose, a former Deputy Chief Inspector of Schools to lead an independent review to examine best practice in teaching reading. Rose stated that "it cannot be left to chance, or for children to ferret out, on their own, how the alphabetic code works" (2006, p. 19) and concluded that explicit instruction in synthetic phonics was essential for effective reading instruction. Thus, the consistent finding from the National Reading Panel, NITL, and Rose Review was that the systematic teaching of phonics is an essential part of effective reading instruction.

Essentially, what the previous discussion highlights is that there has been considerable debate over the best way to teach reading and, while much of this debate is conducted at an academic level, it has the potential to create a confusing environment for teachers. It has been suggested that teachers may be much more pragmatic in their approach to teaching reading (Hempenstall, 2005), but conflicting beliefs about how to teach reading have the potential to confuse, and reduce teachers' confidence in their ability to teach children to read. Teachers' beliefs in their ability to perform a task, a concept that Bandura (1986) referred to as self-efficacy, will impact on the way they undertake the task and their perseverance in the face of difficulties. In addition, Guskey (1988) suggests that teachers are more likely to implement new instructional approaches if they hold strong self-efficacy beliefs. Therefore, understanding

teacher beliefs is an important component of any approach that seeks to improve classroom practice, and is a core component of the current study.

2.3. The Impact of Beliefs on Practice

Kagan (1992) asserts that beliefs "lie at the very heart of teaching" (p. 85) and, in advocating that teachers are informed about why certain approaches are effective, de Lemos' (2005) acknowledges the impact of teachers' beliefs on their practice. Identifying entrenched beliefs can be problematic as they can differ from espoused beliefs (Argyris & Schon, 1974; Rokeach, 1976). The literature on teachers' beliefs indicates that they can be so strongly held that teachers are resistant to change in the content and delivery of curriculum (Slater & Nelson, 2013; M. L. Smith & Shepherd, 1988; P. Westwood, Knight, & Redden, 2005); reluctant to accept advice and support from other agents (Fields, 1995); and, disinclined to adapt their teaching approach for students with learning difficulties (P Westwood, 1995).

Beliefs are also culturally constructed (Cross, 2010) and there can be a long history to their development: for example, the 1921 Newbolt report suggested that the teacher "should be a good reader …[and] reading should be treated, not as a mechanical trick, but as a means to getting at ideas" (Board of Education, 1921, p. 80). The belief that being a good reader would make one a good teacher of reading has persisted, compelling Cunningham, Zilbulsky and Callahan (2009) to assert that "being a skilled reader is not a sufficient condition for being a skilled reading teacher" (p. 504). Furthermore, the use of the term 'mechanical trick' suggests a criticism of teaching decoding skills, which can be seen in more contemporary literature advocating whole language approaches.

In 1936 the Western Australian Education Department published a Primary Curriculum that provided specific guidelines on how to conduct reading lessons. These guidelines included a five-part lesson structure consisting of: Introduction, First Reading, Second Reading, Third Reading and Seat Work. No reference was made to explicit instruction of any component. In the introduction, new words were introduced and students were encouraged to engage with the text:

> In a short conversation the new story will be associated with the familiar experiences of the pupils, the pictures illustrating the story will be examined, and several questions will be suggested by the pictures – questions that can be solved only by reading the story. The teacher here appeals to the curiosity of the pupils. (Education Department, 1936, p. 47)

This approach to reading instruction is easily recognisable in many of today's classrooms suggesting that there has been little change in some teachers' beliefs about how to teach reading.

The impact of teacher quality on student outcomes has been well documented (Darling-Hammond, 2000; Department of Education Science and Training, 2005; J Hattie, 2003, 2009; Snow et al., 1998); therefore, the persistent research finding that educational professionals tend to identify factors other than their teaching as being responsible for students' reading failure is concerning. Alessi (1988) explored the beliefs of 50 school psychologists about the factors that influence students' academic or behavioural progress and found they identified the following five factors: curriculum, inappropriate teaching practices, school administrative practices, parent and home influences, and factors associated with the child. When Alessi examined approximately 5000 reports written by those school psychologists, 100% reported factors associated with the child as the cause of the learning difficulties. While 10-20% included references to parental and home factors, no reports indicated that the curriculum, teaching or school administration were factors in children's school success.

In a later study, Wade and Moore (1993) surveyed classroom teachers about students' lack of achievement and found that 65% attributed this to student characteristics, 32% considered home environments the primary cause and only 3% identified the education system as having a significant impact on students' performance. Evans, Moore and Strnadova (2007) also found that pre-service teachers attributed students' difficulties in learning to read to factors such as "lack of practice, home background, cultural background, and type of personality" (p. 66) rather than the teaching they received. An important implication of these beliefs is that teachers see students' failure as generally outside their control (Berliner, 2006; Chudgar & Luschei, 2009), and consequently they are unlikely to interrogate their own practice. Judge, Jackson, Shaw, Scott and Rich (2007) caution that there are other factors, such as individual differences and the complexity of a task, that will influence the predictive validity of self-efficacy. Bandura (1997) and Smylie (1988), however, assert that when teachers have a strong sense of self-efficacy, they are more willing to perceive they have influence over student outcomes and to be innovative in their practice.

Given the importance of teacher beliefs (Bandura, 1997; Pajares, 1992; Tschannen-Moran & Woolfolk-Hoy, 2001) and the inconsistencies between these and research on effective literacy instruction, it is of some concern that teachers may be resistant to adopting evidence-based approaches if they do not align with their beliefs about reading acquisition and the causes of reading difficulties. Some researchers also assert that teachers' content knowledge has an

even greater impact on instructional practices than beliefs (McCutchen et al., 2002) and that content knowledge is a significant factor in student outcomes (Schroeder, Scott, Tolson, Huang, & Lee, 2007). The models of Pedagogical Content Knowledge (PCK), discussed in the following section, highlight the interplay between knowledge and beliefs that result in the behaviours teachers exhibit when teaching a specific subject within a specific context.

2.4. The Impact of Teachers' Pedagogical Content Knowledge (PCK)

One of the paradoxes of education is that, while everyone has been to school and thus experienced classroom instruction, it remains an area largely impenetrable to researchers (Fullan, Hill, & Crévola, 2006). Shulman lamented that "richly developed portrayals of expertise in teaching are rare" (1987, p. 1) as most teaching is undertaken as a private activity in the classroom and rarely observed by peers. He argued that there is "an elaborate knowledge base for teaching" (p. 7) and that it was not only possible, but also beneficial, to examine and document the disciplinary knowledge base which enables teachers to engage in 'effective practices'. The model of teacher knowledge initially proposed by Shulman (1986) comprised three domains: subject matter knowledge, curricular knowledge and PCK.

Originally Shulman (1986) conceptualised PCK as a subcategory of content knowledge; however, in 1987 he suggested that PCK "is of special interest because it identifies the distinctive bodies of knowledge for teaching" (p. 8) and "lies at the intersection of content and pedagogy, in the capacity of a teacher to transform the content knowledge he or she possesses into forms that are pedagogically powerful and yet adaptive to the variations in ability and background presented by the students" (p. 15). Pedagogical Content Knowledge has come to be acknowledged by teacher educators and researchers as a significant knowledge domain for teaching (Cochran, DeRuiter, & King, 1993; Hashweh, 2005; L. S. Shulman & Shulman, 2004) and research in this field has explored what constitutes PCK in addition to how it relates to other forms of teacher knowledge.

Shulman (1986) presented a model of teaching incorporating the following seven knowledge bases for teaching: content knowledge; general pedagogical knowledge; curricular knowledge; pedagogical content knowledge; knowledge of learners; knowledge of educational contexts; and, knowledge of educational ends, purposes, and values in the context of philosophical and historical contributions. In this model, PCK is represented as a separate category and Shulman asserted that it was "the category most likely to distinguish the understanding of the context specialist from that of the pedagogue." (p. 8). As such, he defined PCK as "that special

amalgam of content and pedagogy that is uniquely the providence of teachers, their own special form of professional understanding" (p. 8).

Hashweh (2005) highlighted that by failing to explore the categories of knowledge fully, including the interactions between categories, Shulman left the task of clearly defining PCK to subsequent researchers. Grossman (1990), for example, identified four areas of teachers' knowledge: general pedagogical knowledge; subject-matter knowledge; pedagogical content knowledge; and knowledge of context including knowledge and beliefs about purposes and knowledge of curriculum materials as subcategories of PCK. Marks (1990) identified knowledge of subject matter as a subcategory of PCK and maintained purpose as a separate category. These models of teacher knowledge are deceptive in that there is a suggestion that PCK stands alone; however, as Shulman identified in his case study of Colleen, "the flexible and interactive teaching techniques that she uses are simply not available to her when she does not understand the topic to be taught" (1987, p. 18). Shulman reworks Bernard Shaw's aphorism 'He who can, does. He who cannot, teaches.' to "those who can, do; those who understand, teach" (1987, p. 14). Therefore, when subject-matter or content knowledge is identified as a separate component of knowledge, there is a need to make clear the links between content knowledge and pedagogical knowledge.

Viewing PCK from a constructivist perspective, Cochran et al. (1993) emphasise the dynamic nature of knowledge and use the term pedagogical content knowing (PCKg), which they define as "a teacher's integrated understanding of four components of pedagogy, subject matter content, student characteristics, and the environmental context of learning" (p. 266) and emphasised the "importance of teachers' knowing about the learning of their students and the environmental context in which learning and teaching occur" (p. 266). In addition, some researchers view PCK as general theoretical knowledge while others perceive it as subject specific. Loughran, Milroy, Berry, Gunstone and Mulhal (2001) suggest that PCK is generated through the interaction between topic-specific knowledge and other categories of knowledge and beliefs.

Hashweh (2005) asserts that PCK is a separate category of knowledge, not a subset of the subject matter knowledge, and should not be seen as part of other knowledge and beliefs categories. He offered a new conceptualisation of PCK as "a collection of teacher professional constructions, as a form of knowledge that preserves the planning and wisdom of practice that the teacher acquires when repeatedly teaching a certain topic" (p. 290). These teacher pedagogical constructions (TPCs) are closely related to the concept of pedagogical reasoning and comprise seven assertions:

> (1) PCK represents personal and private knowledge; (2) PCK is a collection of basic units called teacher pedagogical constructions; (3) teacher pedagogical constructions result mainly from planning, but also from the interactive and post-active phases of teaching; (4) pedagogical constructions result from an inventive process that is influenced by the interaction of knowledge and beliefs from different categories; (5) pedagogical constructions constitute both a generalized event-based and a story-based kind of memory; (6) pedagogical constructions are topic specific; and (7) pedagogical constructions are (or should ideally be) labeled in multiple interesting ways that connect them to other categories and subcategories of teacher knowledge and beliefs (p. 276)

What is evident within this definition is the dynamic and complex nature of teacher knowledge. Teachers' knowledge is constructed and reinforced through experience and Hashweh (2005) suggests that when teachers regularly teach the same topic they develop a script for teaching that topic. Contained within this script is the typical sequence of events in teaching the topic: what interests, understanding and knowledge students typically bring to the study of the topic; what difficulties he or she will face; how to deal with difficulties; and what and how to use knowledge representations (p. 288).

Regardless of the variations in how PCK is conceptualised, this construct highlights that teachers develop ways of teaching based on their knowledge, beliefs and experience. When we consider how to ensure teachers are implementing effective reading instruction in their classrooms it is necessary to identify what knowledge and beliefs teachers require for this to occur.

Teacher knowledge of reading instruction

Content Knowledge

As already identified, lack of letter knowledge, phonological awareness, grapheme-phoneme skills and oral language was evident in many unsuccessful readers (Snowling et al., 2003) and it is essential that teachers develop these skills in their students (R. Fielding-Barnsley & Purdie, 2005). Snow, Griffin and Burns (2005) also note that essential knowledge and skills for teachers of reading include the ability to identify, articulate, and manipulate phonemes and a good knowledge of the phonological system; that is, an understanding that sounds and letters are separate entities and that specific sounds can be mapped onto single letters or letter combinations. Research has highlighted that many teachers have limited knowledge of phonological awareness, phonics, spelling rules, and the metalanguage required to discuss language structures (Bos, Mather, Dickson, Podhajski, & Chard, 2001; Cunningham, Perry, Stanovich, & Stanovich, 2004; McCutchen et al., 2002; L. C Moats, 1999; L. C. Moats, 1994), areas considered important for effective reading instruction. McCutchen, et al. (2002) also

noted a correlation between the students' reading and the teacher's phonological knowledge, and expressed concern at the teachers' poor performance on the phonological survey they administered.

Binks-Cantrell, Washburn, Joshi and Hougen (2012) refer to the 'Peter effect' in reading instruction, whereby teachers cannot teach what they do not know. This is a biblical reference to an exchange between the apostle Peter and a beggar outside a temple, in which Peter says to the beggar that he cannot give what he does not have "but such as I have give I thee" (Peter 3:6). There is a reported lack of congruence between teachers' knowledge and skills and 'evidence-based' reading instruction (Bos et al., 2001; Buckingham et al., 2013; Department of Education Science and Training, 2005; Louden, Rohl, & Hopkins, 2008) and it has been asserted that teachers' knowledge has a significant impact on their classroom practice (Hill, Rowan, & Ball, 2005; L. S Shulman, 1986) and students' performance (Mullis et al., 2012). As such, there has been research interest in teachers' knowledge of the metalinguistic processes associated with learning to read (Bos et al., 2001; R. Fielding-Barnsley & Purdie, 2005; L. C. Moats, 2009). Cunningham, Perry, Stanovich and Stanovich (2004) expressed concern that although pedagogical practices in literacy had been extensively researched, the research into declarative knowledge in the literacy domain was still in its earliest stages. Further, there "is very little empirical data on the disciplinary (i.e. content) knowledge teachers possess in the domain of reading and how (or if) this disciplinary knowledge is linked to practice" (Cunningham et al., 2004, p. 141).

In their study, Fielding-Barnsley and Purdie (2005) found that "although teachers appeared to acknowledge the importance of metalinguistics in the process of learning to read, they did not necessarily have the requisite knowledge" (p. 73). In subsequent research it was found that while 73% of pre-service teachers were able to define a phoneme, only 22% were able to apply this knowledge to the task of counting phonemes (R Fielding-Barnsley, 2010), illustrating that knowledge alone is not enough to change practice. Cunningham, et al. (2004) also suggested that teachers either overestimate their knowledge in this domain or are not aware of what they do not know.

Pedagogical Knowledge

McCutchen, et al. (2002), suggest that teachers need the pedagogical content knowledge "that results from careful analysis of children's literate work (e.g. their spelling and decoding attempts) within the context of children's linguistic development" (p. 224). Content knowledge of English phonology would ensure teachers respond to student errors accurately

and apply the appropriate pedagogy: for example, a teacher who appreciates the potential phonemic difficulties of a child who spells 'think' as 'tik' and the phonetic accuracy of spelling 'train' as 'chran' would apply very different instructional approaches to a teacher who did not have this understanding. The link between content knowledge and pedagogical knowledge is evident in a study by Piasta and Wagner (2010) on the effects of instruction on students' word reading skills. In this study they found that explicit instruction used by more knowledgeable teachers resulted in stronger word reading skills than when less knowledgeable teachers used the same approach to instruction. The knowledge of both what and how to teach a specific concept resulted in better student outcomes.

Many studies have found that teachers do not feel adequately prepared to teach reading to children experiencing difficulties in developing the pre-requisite skills for reading (see, for example, Bos et al., 2001; Lewis et al., 1999; L. C. Moats, 2009; 2005) and it is noteworthy that 20 of the recommendations made by the National Inquiry into the Teaching of Literacy focused on preparing teachers to teach reading. Research from Australia (Louden & Rohl, 2006) and America (Sallinger et al., 2010) has also indicated that newly graduated teachers lack confidence in their ability to teach literacy skills, especially to children experiencing difficulty acquiring these skills. It has been claimed that providers of pre-service training have failed to incorporate the substantial advances made by reading researchers into their programs, and thus fail to provide adequate preparation to enable graduates to teach reading effectively (Podhajski et al., 2009; Walsh et al., 2006). The lack of knowledge about language held by Australian pre-service teachers was also identified in research by Harper and Rennie (2009).

To address this concern, de Lemos (2005) recommends that teachers not only be trained in the use of evidence-based practices and strategies but also informed about why these are effective (p. 15) thus providing teachers with the PCK required to teach reading effectively. Consistent with the National Reading Panel's acknowledgement that no single approach to teaching phonics can be used in all cases, de Lemos suggests that those educating teachers need to encourage them to think critically about the theories of reading that are presented to them so that they can utilise effective teaching strategies and practices appropriate for their students.

Where Beliefs and Knowledge Meet

Gudmundsdottir (1990) states that powerful PCK is created when values cement pedagogy and content together (p. 45). Hashweh credits Gudmundsdottir's "insistence on the value-laden and narrative nature of PCK" for his reconstruction of PCK as a repertoire of teacher

pedagogical constructions (p. 291). Values are part of an individual's belief system and Pajares (1992) suggests that values "house the evaluative, comparative, and judgmental functions of beliefs and replace predisposition with an imperative to action" (p. 314). Levitt (2001) also draws our attention to the fact that "all teachers hold beliefs, however defined and labelled, about their work, the subject matter they teach, and their roles and responsibilities" (p. 2). It is teachers' knowledge and beliefs about the educational process, incorporating the how, what and when of learning, that has the greatest impact on their actual practice.

Effective PCK for reading instruction is essential if we are to avoid the individual and societal consequences of individuals not learning to read, as identified by researchers (see, for example, Lyon, 2002). In-service professional learning provides a context in which to develop teachers' PCK for effective reading instruction but Richter, Kunter, Klusmann, Lüdtke and Baumert (2014) also highlight the necessity of considering teachers' stage of professional development when designing professional learning programs.

2.5. Consideration of Career Stages

Teacher's actions, as they pertain to career stages, have been of interest to educational researchers for many years and can be traced back to Becker's (1952) examination of the career progression of schoolteachers in Chicago. Subsequent research on teachers' professional lives has sought to identify the archetypical characteristics of teachers at different stages of their career (Fessler, 1995; M Huberman, 1989a) and to link this understanding to the development of effective professional learning for teachers (Richter et al., 2014).

Huberman (1989a) identified five sequential teacher career stages: Career Entry, Stabilisation, Experimentation, Conservatism and Disengagement. The first stage, *Career Entry*, is identified as occurring in the first three years of teaching, during which the teacher is learning classroom management skills and trialling pedagogical approaches. The second stage, *Stabilization*, occurs between the fourth and sixth year of teaching when teachers are gaining confidence in their abilities. While this stage is generally characterised as one in which teachers are comfortable with their role and developing their own teaching style, it can also be a time when some teachers experience insecurity and frustration. Huberman referred to the next stage, between seven and 25 years of teaching, as the *Experimentation* stage. During this stage teachers are likely to diversify, seeking out challenges and new ways of teaching, including applying a more creative approach to planning. They will work to motivate disengaged students and differentiate for diverse learning needs in their classroom. They can be more open to accepting and acting on criticism but they can also experience a mid-career crisis in

which they question the decision to become a teacher. The fourth stage, *Serenity and Conservatism*, usually occurs when a teacher reaches 44 to 55 years of age, or after more than 20 years of teaching. Teachers' career ambitions decrease and a phase of serenity and self-acceptance can begin. Teachers may distance themselves from students because of generational differences. In the later stages of this phase, teachers are less tolerant of younger teachers and students and can become rigid in their thinking as well as highly conservative. After more than 30 years of experience, teachers can enter the final of Huberman's phases, *Disengagement*, during which they are inclined to protect the benefits that seniority brings, such as teaching preferred classes, and may gradually withdraw from activities outside of the classroom, and spend less time at school.

Huberman's (1989a) nomenclature for the stages of teachers' careers has been widely used in educational research (Choi & Tang, 2009; Kington, Reed, & Sammons, 2013; Richter et al., 2014) although there are obvious limitations in any model that seeks to categorise groups of people. The fluid and non-linear nature of this construct is acknowledged (M. Huberman, 1989; McCormick & Barnett, 2006) and Kathie (2006) highlights that when examining teachers' career development, it is important to consider that some teachers require more time than others to develop their practice. Despite these limitations, when applying Huberman's categorisation to an examination of the impact of professional learning on teachers, Richter, Kunter, Klusmann, Lüdtke, and Baumert (2011), found that there were distinct differences in the level of application from professional learning based on teacher stages. Mid-career teachers were more likely to engage with professional learning, but teacher collaboration reduced over the course of a teacher's career. As such, examining the impact of a teacher's career stage may assist in identifying what professional learning format is most likely to achieve the best outcomes.

2.6. Effective Professional Learning

The term professional learning is often seen as being synonymous with professional development or professional learning communities; however, in this context, professional learning is used as conceptualized by Fullan, Hill and Crévola (2006), who view professional learning as involving teachers in ongoing learning both individually and collectively. Therefore, professional learning can be seen to incorporate both professional development activities, group sessions in which information is presented to participants, and involvement in professional learning communities, where participants have the opportunity to work with their peers to implement strategies and evaluate outcomes. It has been observed that teachers involved in a 'program' will often maintain the practices advocated only for as long as the

program and associated resources are in place (Levitt, 2001). Levitt asserts that professional learning provides the opportunity to develop a stronger connection between beliefs and practice in order to facilitate long-term change in practice.

Buckingham et al. (2013) suggest that classroom teachers do not have the time or expertise to engage with research in academic journals and therefore professional learning opportunities for practising teachers are seen as essential to ensuring that all teachers are cognisant of, and skilled in, evidence-based practice (Ingvarson et al., 2005). The need for professional development and training to ensure that teachers use literacy strategies for which efficacy has been established through rigorous, evidence-based research was highlighted by the National Inquiry into the Teaching of Literacy (Department of Education Science and Training, 2005). There is, indeed, no shortage of research identifying effective teaching practice generally (for example, Marzano et al., 2001) and in relation to literacy specifically (see section 2.2). The concern is how effective the professional learning is in assisting teachers to translate this knowledge into classroom practice. It has been suggested that as little as 10–15% of knowledge may be transferred from the learning environment to the working environment (Brook & Lock, 2010). Brook and Lock (2010) reported that teachers in their study were dissatisfied with conventional professional development, whether it was delivered at the school level, by external agencies or at conferences. They reported that the latter two approaches were unrelated to their actual classroom practice and consequently had limited impact on it.

Fullan et al. (2006) suggest that interventions often fail as they do not focus on the aspects of instruction that need to change, thus highlighting the importance of aligning professional learning with the needs of the participants. It has been suggested that the Response to Intervention (RTI) model (Appendix B), currently being implemented in American public schools, might provide a useful structure for professional learning programs (Cunningham, Zibulsky, & Callahan, 2009). This three-tier model represents the type of instruction required to support children with learning difficulties, dependant on need. The first level represents the use of effective pedagogy for all students, while the second and third levels offer more intensive instruction based on need. Cunningham, Zibulsky, and Callahan (2009) suggest that a professional learning program based on this model would provide the opportunity to tailor learning to teachers' needs, acknowledging existing strengths and identifying areas for development.

Individualisation, or differentiation, of instruction is not a new concept in education (Tomlinson, 1999, 2003) but there is limited reference to this in the literature on the

professional development component of professional learning. One aspect of differentiation that is highlighted by Hall and Hord (2001) is the impact of teachers' concerns on the success or otherwise of the professional learning. Hall and Loucks (1978) developed the Concerns-Based Adoption Model (CBAM) "to ease the problems [of] diagnosing group and individual needs during the adoption process" (p. 36). This model identifies seven stages of concern that teachers experience when they are expected to implement changes to their practice. Stage 0, the *Awareness* stage, reflects teachers who have limited knowledge of the changes and no interest in changing their current practice. Stage 1, I*nformational*, sees teachers showing willingness to learn about the changes but expressing concern over what is required to implement them. Stage 2, *Personal*, is characterised by teachers' concerns about the impact of the changes on their time and their skills for implementation. In Stage 3, *Management*, the teachers' focus has shifted to the challenges of implementation within their teaching context, including available time and resources. Stage 4, *Consequences*, is characterised by the teachers' concerns about whether they are seeing positive outcomes for their students. If outcomes for students are positive, teachers are more likely to consolidate the changes into their practice and move to Stage 5, *Collaboration*, where they are interested in sharing their new practice with colleagues. The final stage, *Refocussing*, is the point at which teachers evaluate the impact of the changes to their practice and consider whether to maintain or change these new practices.

The CBAM model focuses on the impact of teachers' concerns on the progression towards changes in practice; however, Straub (2009) suggests that the CBAM is based on a top-down approach to change and "sells teachers short" (p. 637) by positioning them as resistant to change. The tendency to assume that there is no value in existing systems in top-down approaches to professional learning has also been criticised by Abrahamson (2004) who suggests that this has a number of negative effects on those involved and results in a focus on managing the change rather than focusing on those for whom the change is intended to benefit. Despite this, Straub (2009) acknowledges that this model does alert the developers of professional learning to the potential differences in beliefs about the benefit of change. Research has also supported the premise that a teacher's experience can impact on the focus of his or her concerns, with Christou, Eliophotou-Menon, and Philippou (2004) finding that early career teacher concerns related predominantly to the *Informational, Personal* and *Management* stages, while experienced teachers' concerns were concentrated within the *Consequences, Collaboration* and *Refocussing* stages.

The literature on effective professional learning also reveals a number of other factors for consideration when designing learning experiences for teachers, including a focus on content, follow-up, active learning, feedback, and collaborative examination of student outcomes (Fishman, Marx, Best, & Tal, 2003; Ingvarson et al., 2005; Timperley, 2011). Consistent with a focus on active learning, Bransford, Brown and Cocking (2000) contend that effective professional learning should challenge and support teachers to explicitly examine their knowledge and beliefs; and Kise (2006) asserts that effective professional learning helps teachers identify beliefs that bind them to ineffective teaching practices. These factors are linked to Knowles, Holton and Swanson's (2012) six core Adult Learning Principles, referred to as Andragogy, and comprising the learners' need to know, their self-concept, prior experience, readiness to learn, orientation to learning, and motivation to learn. Brook and Lock (2010) found that the professional learning features that participants found most beneficial were the use of a peer group learning model, immediate responses from the university staff supporting the Project, personal visits by university academics throughout the course of the year and academic credit for completing the professional learning. Of these, school staff reported that the visits from the academic staff were crucial to sustaining their involvement in the Project. The participants also reported that the explicit link between the program and their teaching roles ensured that the learning transferred to their practice.

Shulman and Shulman (2004) present a model of professional learning that advocates teachers becoming part of a learning community in which they learn from their own experiences and those of others. They suggest that becoming an accomplished teacher requires "Vision, Motivation, Understanding, Practice, Reflection, and Community" (p. 259). To achieve this, teachers require knowledge of the "complex forms of pedagogical and organizational practice needed to transform their visions, motives and understandings into a functioning, pragmatic reality" (p. 259). In other words, teachers need to develop their PCK in specific areas if they are to teach these areas effectively. Further, they argue that there are several more layers to effective teacher learning which, much like Bronfenbrenner's ecological systems model (Bronfenbrenner, 1994), sees teachers involved in collaboration with, and being influenced by, their teaching community and the broader context of policy and resources.

Research reporting on professional learning programs provides further support for these components. Hackling, Peers and Prain (2007), for example, identified an approach to professional learning that incorporated ongoing knowledge acquisition through professional development sessions, the provision of curriculum resources, reflection, and opportunities to practise, which involved teachers in collaborative and individual learning (Figure 2.6).

Teachers' confidence and self-efficacy increased as a result of their involvement in the program and, more importantly, student performance also improved. Teachers' increased understanding of the key concepts of the subject and the supporting resources provided by the program improved their PCK.

Timperley's research on professional learning in New Zealand led to the development of her model for professional learning which also emphasises the ongoing nature of learning (Figure 2.7) and positions students at the centre of the process. The teacher is actively engaged in identifying the students' and their own professional needs, implementing their learning and assessing the impact on students.

Clarke and Hollingsworth (2002) highlight that it is through enactment and reflection that changes to beliefs, and therefore practice, occurs. Moon (2008) notes that reflection is not a simple process, but Timperley's (2011) model attempts to address this by incorporating several action learning cycles whereby teachers have the opportunity to act on information, modifying and then re-assessing their practice within the timeframe of the professional learning.

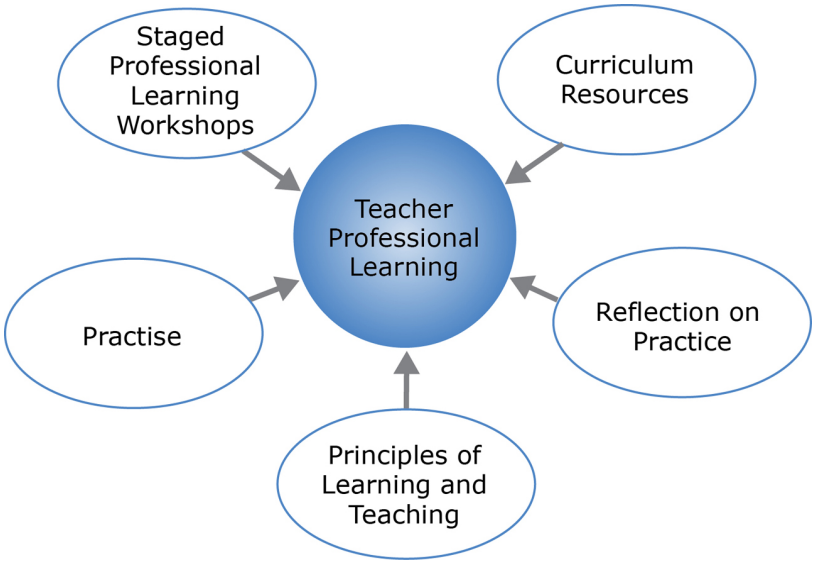


Figure 2.6. The Primary Connections Professional Learning Model (Hackling & Prain, 2005)

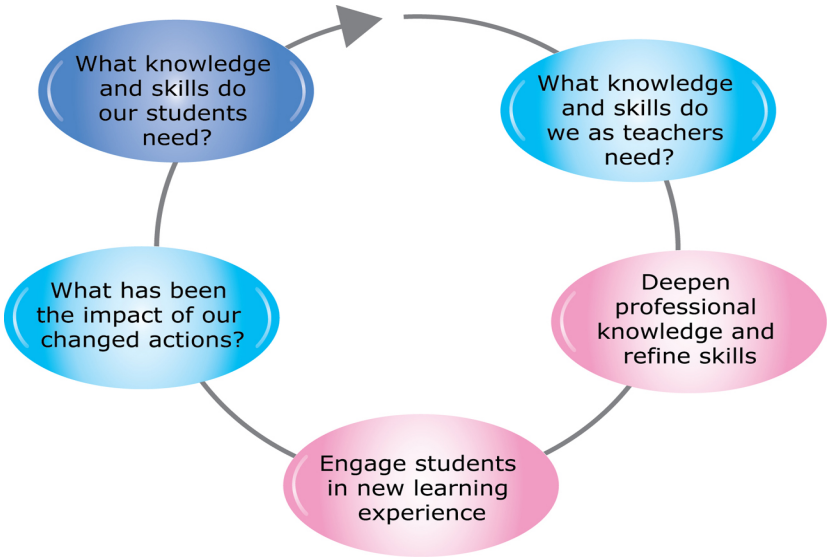


Figure 2.7. Teacher Inquiry and Knowledge-Building Cycle (Timperley, 2011)

The elements of ongoing learning are also evident in Fullen, et al.'s (2006) *Breakthrough model of educational change* (Figure 2.8), which positions professional learning within the context of the school communities and has moral purpose at its core. Similar to Shulman and Shulman's (2004) 'vision', it is supported by "synergistically interconnected" (p. 16) elements of personalization, precision and, professional learning. Fullan, et al. (2006) refer to these components as the 'Triple P' and define them in the following way: Personalisation, which involves using approaches that work for individual students; Precision, which relates to the use of assessment to design instruction that builds on students' current knowledge to extend them beyond this level and, Professional Learning, which refers to focused, ongoing learning for all teachers. The outer circle of the model identifies other components of effective professional learning, including the presence of a professional learning community. Fullan, et al. also state that "some of the most powerful learning (and enhanced moral commitment) that we have witnessed has come from lateral capacity building relationships among clusters of schools working together over time" (p. 95).

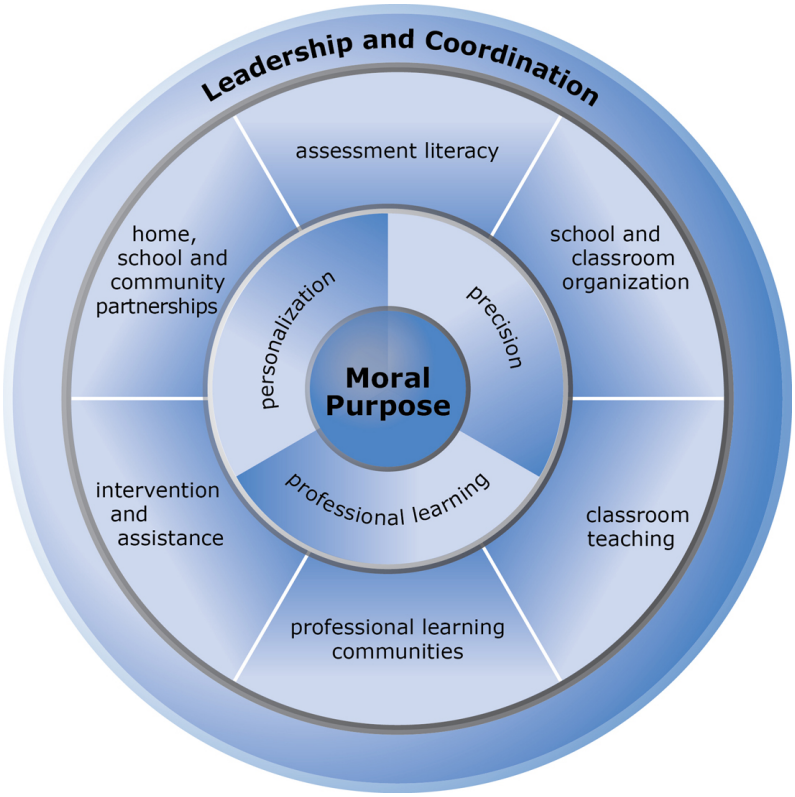


Figure 2.8. Breakthrough Model (Fullan et al., 2006)

The models of professional learning discussed thus far (Fullan et al., 2006; Hackling & Prain, 2005; Timperley, 2011) reflect a constructivist epistemology and active engagement with the content through ongoing contact with the presenters of the professional learning, a professional learning community, the ability to apply learning, and the opportunity to reflect on this application.

What makes professional learning effective in relation to reading?

While a number of key features associated with effective professional learning have been presented, Fullan et al. (2006) alert us to another significant consideration:

> There is nothing more difficult to address than the case where people think that they are doing something when in reality they are not. It is not a case of deceiving others but rather of unwittingly deceiving oneself. When you don't know what you don't know, it is difficult to see what needs to be done. (p. 6).

This has been referred to as the Dunning-Kruger effect (Kruger & Dunning, 1999). In commenting on involvement in a professional learning programme to improve the teaching of reading in Australian schools, one principal reported "'a realisation of just how much we did not know what we did not know'; and in another school, the staff had to '…accept the

challenge to unlearn and relearn what quality practice actually was'" (Konza, Fried, & McKennariery, 2013, p. 28).

Teachers' knowledge calibration – their awareness of what they do and do not know – needs to be accurate if they are to benefit from professional learning experiences. Cunningham et al. (2004) assert that learning is more efficient when an individual is aware of what they need to know and what they already know, and therefore incorporating some measure of teacher knowledge into professional learning programs is recommended. Westwood et al. (2005) also suggest that "a more subtle (but no less important) component of the evaluation of an in-service programme should be the measurement of change occurring in the attitudes and beliefs held by teachers undertaking the programme" (p. 77). Cunningham et al. (2009) caution that the results from these measures need to be shared in such as way as to ensure it does not decrease motivation and enthusiasm for the program.

In their Knowledge Application Information System (KAIS) theory of professional development, Ramey and Ramey (2008) highlight the need to consider more than the knowledge and skills of the person involved in the professional learning, and to take into account the threats and supports within the system in which they operate. Opfer, Pedder and Lavicza (2011) come to a similar conclusion, suggesting that "learning is a dynamic process and cannot be understood by separating the professional development of teachers from the environments in which teachers undertake their learning" (p. 209). Given the differing beliefs about teaching reading, defining the knowledge and skills necessary for effective reading instruction and how teachers acquire this knowledge is an essential component of effective professional learning (Cunningham et al., 2004). Potentially, one of the key understandings required by teachers is that all children can learn to read if instructed properly (D. Carnine et al., 2004). Providing teachers with knowledge of language structure and how it can be taught has been shown to result in positive outcomes for students (McCutchen & Berninger, 1999) as teachers are more able to respond instructively to student errors (Cunningham, Zibulsky, & Callahan, 2009). Ultimately the goal of any professional learning is to improve outcomes for students and therefore assessment of student performance is an essential component of professional learning programs (Fullan et al., 2006; P Westwood, 2001). Indeed Timperley (2011) asserts that it is improvements in student outcomes that will sustain teacher involvement in professional learning.

Shulman (1986) suggests that "perhaps the most enduring and powerful influences on teachers are those that enrich their images of the possible: their visions of what constitutes good education, or what a well-educated youngster might look like if provided with appropriate opportunities and stimulation" (p. 10). Arguably, the most powerful image that

teachers can have is that all children are capable of learning when they are provided with appropriate instruction (Engelmann & Carnine, 1991). Effective professional learning in reading instruction can support the development of this image.

2.7. Conceptual Framework

The literature reviewed in this chapter provides information on effective reading instruction and the features considered necessary to design a professional learning experience that will support teachers in using these practices. This review has also addressed different theoretical perspectives that underpin effective reading instruction and effective professional learning. The evidence supports the contention that for reading instruction to be effective, decoding skills need to be taught explicitly, which requires elements of an instructivist approach. However, as the purpose of reading extends beyond decoding into the comprehension and construction of knowledge, reading instruction must incorporate constructivist approaches when utilising these decoding skills. In contrast to the research on learning to decode, successful professional learning is generally centred on a social constructivist approach (Fullan et al., 2006; Timperley, 2011) on the basis that individuals construct meaning through their interactions with others and therefore learning is a function of the activity, context and culture in which it occurs (Rogoff, 2003; Vygotsky, 1962). Although instructivist and constructivist epistemologies are often perceived to be incompatible (Merriënboer & Bruin, 2014) this Researcher contends that, like learning to read, teachers require explicit instruction in how to teach reading before applying this knowledge and reflecting on the outcomes. Learning opportunities based on constructivist principles, such as scaffolding by more knowledgeable others to facilitate learning (Vygotsky, 1962) are seen as necessary in consolidating and extending teachers' knowledge of reading Instruction. Therefore, elements of both instructivist and constructivist epistemologies appear in the professional learning and inform the conceptual framework for this research.

The purpose of this research was to investigate how effectively a professional learning experience impacted on teachers' classroom practice, beliefs, pedagogical content knowledge, and student performance in relation to reading instruction. The components of the professional learning included several professional development sessions in which information was presented about current research on effective reading instruction, including the Big Six framework (Konza, 2010b), and the use of assessment tools to identify specific areas of difficulty in reading acquisition. These sessions were constructed around delivering content and thus included an instructivist component. Other components of the professional learning were sessions that provided teachers with the opportunity to discuss their progress in using

this information to support children with reading difficulties as well as request information on strategies and resources for teaching reading. These sessions were aimed at supporting the development of a professional learning community across, as well as within, schools and were constructivist in nature. The conceptual framework for this research also borrows from Bronfenbrenner's ecological model (1994) in that it positions the individual, in this case the teacher, at the centre of the process and aims to identify how different factors influence the individual (Figure 2.6). In the context of the professional learning, significant influences on teachers' classroom practice were identified as the professional development sessions, teachers' beliefs, teachers' PCK, and the evidence of the reading performance of the children.

It has been asserted that both beliefs and PCK have a significant influence on teachers' practice (Gudmundsdottir, 1990; Hashweh, 2005; Levitt, 2001; Pajares, 1992) and the Researcher posited that there are reciprocal relationships between and among teachers' pedagogical content knowledge about reading instruction, their beliefs about how children learn to read, and how they respond to the content of the professional development. In this conceptualisation, professional development, as part of the professional learning process, has the potential to examine beliefs directly, but beliefs also have the potential to influence if and how teachers engage with the professional development. Similarly, teachers' existing PCK can influence how they interpret the information in the professional development but can also be altered by the information presented. The interplay between a teacher's beliefs and PCK can be seen in classroom practice and it is through classroom practice that PCK is further developed. Children's performance is also seen as an influential factor in professional learning (Timperley, 2011) and, in this research, evidence of children's reading performance was seen as a result of classroom practice which gave it the potential to influence a teacher's beliefs and PCK.

What is suggestive in this interplay of factors is that professional learning is a dynamic process influenced by the context in which it occurs, including the social interactions around the learning. As Raskin (2002) states, "knowledge is a compilation of human-made constructions" (p. 4) Therefore, a conceptual model based on social constructivism was identified as the most effective way to examine the impact of the professional learning on teachers' knowledge, beliefs and practice. The subsequent chapter outlines how this epistemology informed the methodology used in this study.

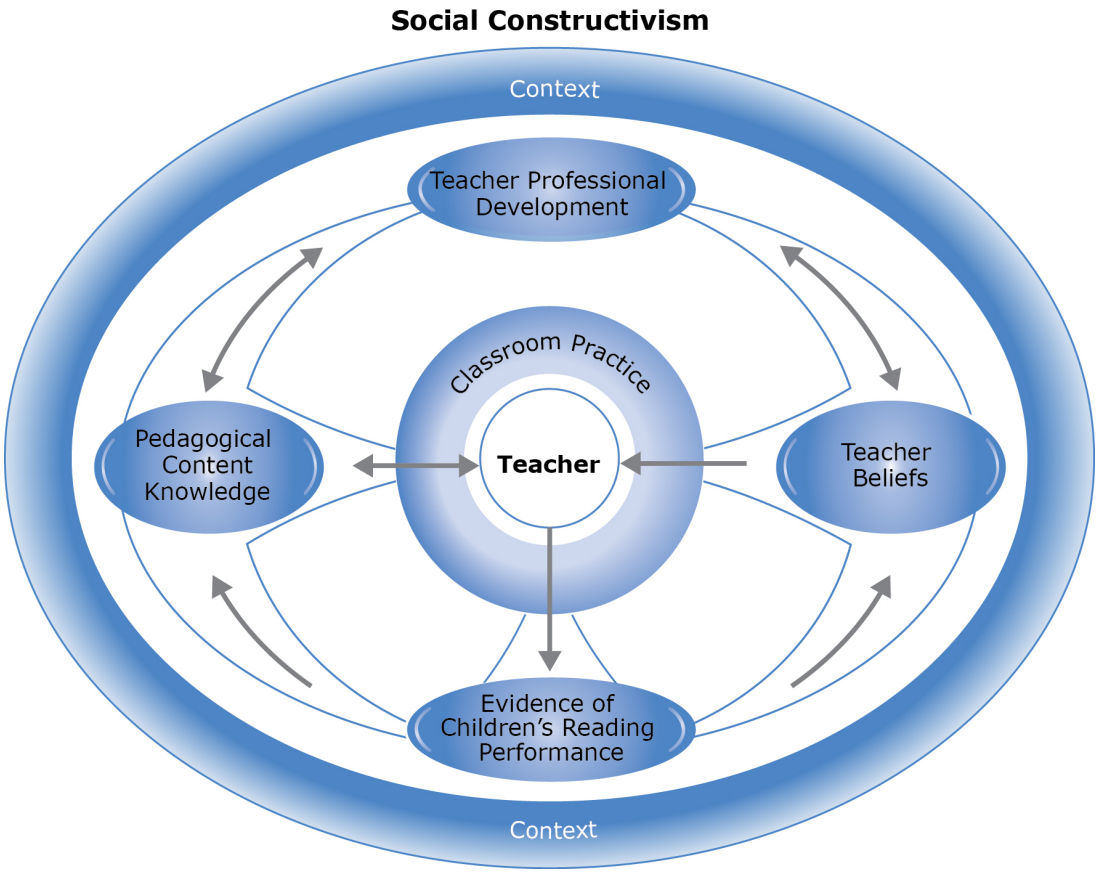
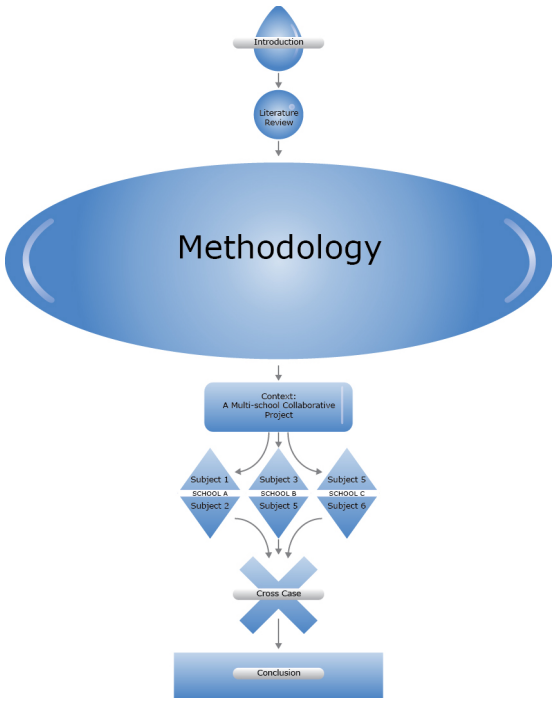


Figure 2.9. Conceptual framework

CHAPTER 3: METHODOLOGY



The methodology selected for this study was centred on a constructivist epistemology in which "meaning is not discovered but constructed" (Crotty, 1998, p. 42) and used a case study research design to investigate how participation in a professional learning experience, focused on effective reading instruction, impacted on teachers' beliefs, literacy pedagogical content knowledge and classroom practice. The following sections elaborate on the Researcher's epistemological beliefs and theoretical perspectives as well as the research methodology. This includes the research procedures, selection of participants, the data collection instruments, and data analysis procedures. Questions of validity, reliability and ethics are also addressed.

3.1. Epistemology and Theoretical Perspective

Wiersma and Jurs (2009) explain epistemology as the assumptions and beliefs about how we come to know. Researchers' epistemological beliefs, their theory of knowledge, informs the way in which they conduct research. Therefore, it is important that these beliefs are made explicit to ensure that beliefs and actions are aligned (Figure 3.1). Inherent in constructivist epistemology is the notion of intentionality: there is an active relationship between our consciousness and the object that is the focus of this consciousness and, Crotty suggests, it is "in and out of this interplay that meaning is born" (p. 45). The ontological assumption that informs a constructivist epistemology is that reality can be defined in terms of the meaning that is created from experiences within a specific context (Guba & Lincoln, 1994).

In defining constructivism, emphasis is often placed on the development of subjective understandings (Creswell, 2009), however, Crotty suggests that it is simultaneously objective and subjective. In relation to this study, the Researcher sought to identify how teachers engage with the professional learning opportunities associated with the Project. The research is constructivist in that it sought to construct a new understanding of how professional learning experiences influence teachers' behaviour by exploring the interplay between these experiences and the contexts in which they took place.

Lévi-Strauss describes constructivist researchers as 'bricoleur': those who engage in a dialogue with their materials to determine what they might potentially communicate and, therefore, contribute to a new understanding (Crotty, 1998). It is also generally acknowledged that this dialogue takes place in the context of historical and cultural factors. Therefore, in order to develop these understandings, research needs to focus on individuals' interactions with each other and the context in which these occur (Creswell, 2009).

Ecological systems theory, as defined by Bronfenbrenner (1994), can be used to explore the different layers in which these interactions take place. Bronfenbrenner provides a model of human development consisting of five subsystems that exert influence over an individual's development. At the centre of this model is the *microsystem* that includes those elements with which the individual has direct contact. In the context of this study the microsystem includes the teachers and their interactions with the school environment, peers, and members of the research team. The next layer, the *mesosystem*, relates to the linkage between different settings in which the individual plays a direct part, such as the interaction between the research team and the school, the school and the staff and the staff and their peers. The *exosystem*, which is the third layer, also includes interactions that exert an influence on individuals, even though the individuals are not directly involved, such as the interactions between the school and educational authorities.

The fourth layer is the *macrosystem*, which includes the overreaching patterns from the other systems such as dominant epistemologies, cultural influences, life-style and resources. For the teachers in this research, this may relate to their beliefs about how knowledge is attained, the dominant beliefs about teaching reading, and how resources are allocated within their teaching environments. Finally, there is the *chronosystem*, which, as the name suggests, relates to the passage of time and the influence that this exerts on the individual. The professional learning experience that this research was linked to occurred over a 12 month period and, within this time frame, there were specific deadlines that teachers were expected to meet. The *chronosystem* also includes an understanding of how individuals are influenced

by their historical position so there is the need to consider how teachers' understanding of effective reading pedagogy has changed over time and how this influences teachers' current practices.

While Bronfenbrenner originally posited this theory as a way of exploring children's development, it lends itself to the interpretivist paradigm applied to the methodology in this study, as this theoretical perspective emphasises the search for "culturally derived and historically situated interpretations of the social life-world" (Crotty, 1998, p. 67). The interaction between the elements in an individual's environment is particularly significant here as the Researcher's aim was also to go beyond describing an individual phenomenon to identifying key elements that contribute to outcomes and may be applied to other situations. Crotty's description of Weber's (1962) empirical approach to interpretivism, in which Weber is "ready to consider an interpretation of a sequence of events to be *causally adequate*, if on the basis of past experience it appears probably that it will always occur in the same way" (1998, p. 69), seems most appropriate here.

This study employed an interpretivist approach to explore both written and non-written forms of communication to construct the knowledge to answer the research questions. Bogdan and Biklen (1992) highlight the value of studying an individual's experience and Crotty asserts that "the texts humans write, the speech they utter, the art they create and the actions they perform are all expressions of meaning" (p. 94). This aligns with hermeneutic interpretivism, which originated in the study of biblical texts and established guidelines by which those studying these texts could interpret them in order to develop an objective understanding of their meaning. Contemporary hermeneutics has broadened the definition of text to include non-written forms of communication such as actions, phenomenon and context. Crotty suggests that "hermeneutics is to exegesis what grammar is to language or logic is to reasoning" (1998, p. 87), which is to say that hermeneutics provides the principles by which the activity is carried out. Within this study a range of sources were explored, including survey responses, planning documents, teacher dialogue, and practice in order to understand the impact of the professional learning program.

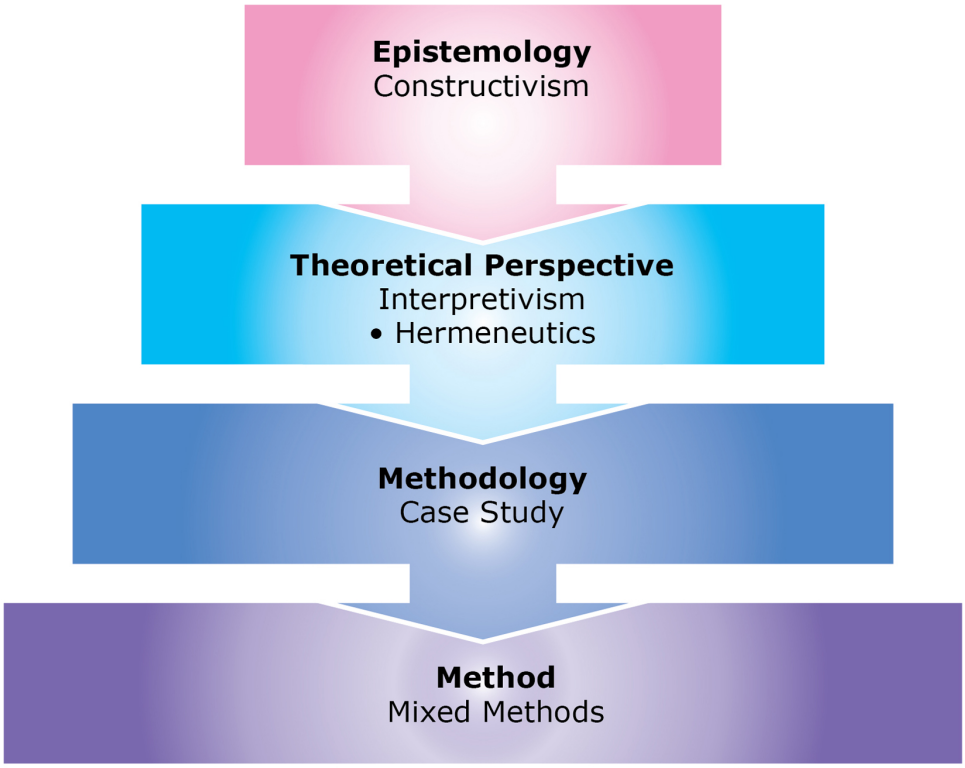


Figure 3.1. Four Research Elements based on Crotty (1998, p. 4)

3.2. Methodology and Method

Case study

The epistemological and theoretical perspective so far discussed led the Researcher to select a case study methodology for this study, which was both the process and the product of this inquiry (Stake, 2005). Additionally, Yin (2009) suggests that if the research questions seek to answer the 'how' and 'why' of a social phenomenon then a case study methodology would be an appropriate choice. Lincoln and Guba (2002) assert the advantages of case study in providing what Geertz (1973) described as 'thick description'. Lincoln and Guba also suggest that case studies "provide the information and sophistication needed to challenge the reader's current construction and enable its reconstruction" (2002, p. 206). As identified in Bronfenbrenner's ecological model, individuals are influenced by the real-life contexts in which they are situated and a case study approach enabled the Researcher to explore those contexts in detail (Merriam, 1988; Yin, 2009). As the interactions within educational settings are complex and influenced by many factors, case studies provide a richness of detail and a depth of understanding (Merriam, 1988) that quantitative studies of these environments often lack.

Criticism of case study research often includes assertions about their value which Flyvbjerg (2006) categorises into five common misunderstandings:

> Theoretical knowledge is more valuable than practical knowledge; (2) One cannot generalize from a single case, therefore the single case study cannot contribute to scientific development; (3) The case study is most useful for generating hypotheses, while other methods are more suitable for hypotheses testing and theory building; (4) The case study contains a bias toward verification; and (5) It is often difficult to summarize specific case studies (p. 219).

He addressed these statements and makes a number of points about the value of case studies.

In the first instance he suggests that at the core of expert practice is context-dependent knowledge and experience, and that "proof is hard to come by in social science because of the absence of 'hard' theory, whereas learning is certainly possible" (Flyvbjerg, 2006, p. 225). Issues of generalisability and hypothesis testing are considered in relation to the verification or falsification of a proposition through the careful selection of 'most likely' or 'least likely' cases. That is, cases provide the opportunity to test a hypothesis by providing evidence or lack of evidence to support it. Concerns about researcher bias are also contested on the basis that case study processes are just as rigorous as other forms of research and provide more opportunities to interrogate this bias than quantitative research, in which the researcher decides categories and variables for investigation. Finally, Flyvbjerg (2006) highlights the importance of the narrative to understanding the human condition and rejects the need to summarise this into formulae or standard cases.

Although the way in which case studies are utilised varies according to the epistemological beliefs of the researcher and the context of the study, the case study is a 'bounded system', that is, it has a definable boundary between itself and the 'other'; what is part of it and what is not. Some researchers approach case studies as a descriptive exercise in which a specific situation is laid out in detail for the reader. In this iteration "a case might provide a sense of vicarious, 'déjà vu' experience…, a reader can 'learn' from the experience, and, as is the case with all learnings, make applications even in situations that do not appear on their faces to be similar" (Lincoln & Guba, 2002, p. 212). Other researchers suggest that case studies can be a theory-testing or theory-building exercise (Eisenhardt, 2002). While both approaches require that the data lead the researcher, in the latter instance a researcher may specify *a priori* constructs when shaping the design.

Whatever the approach, Stake (2005, p. 448) suggests that "The major conceptual responsibilities of the qualitative case researcher are the following:

1. Bounding the case, conceptualizing the object of the study;
2. Selecting the phenomena, themes, or issues – that is, the research questions – to emphasize;

3. Seeking patterns of data to develop issues;
4. Triangulating key observations and bases of interpretation;
5. Selecting interpretations to pursue;
6. Developing assertions or generalizations about the case."

The objects of this study were several teachers' cases and these individual case studies were bounded by their immediate context, being the schools in which they were working and the broader context of the professional learning intervention. The phenomenon was how participation in a professional learning intervention impacted on teachers' beliefs, reading pedagogical content knowledge and classroom practice. Methods of data collection are discussed in more detail in the following section, but the Researcher drew theoretical generalisations from the data by carrying out multiple case studies with data gathered from multiple sources and incorporating cross-case analysis (Miles & Huberman, 1994).

Mixed methods

Yin (2009) asserts that "the case study's unique strength is its ability to deal with a full variety of evidence" (p. 11) and despite often being seen as a form of qualitative research, case studies can incorporate both qualitative and quantitative data collection methods. Denzin and Lincoln (2005) concur that this approach contributes to the depth and thoroughness of the case study. This Researcher believes that a mixed methods approach to data collection provides for a more comprehensive exploration of the research questions. A mixed methods approach is useful if a researcher aims to "develop a detailed view of the meaning of a phenomenon or concept for individuals" (Creswell, 2009, p. 18). Mixed methods studies are a relatively new approach to research, which is generally attributed to Campbell and Fiske's (1959) pioneering article *Convergent and discriminant validation by the multitrait-multimethod matrix.* This article established the use of both qualitative and quantitative measures as a way or triangulating data and validating findings. Johnson, Onwuegbuzie and Turner (2007) suggest that the use of mixed methods research is primarily a pragmatic approach to knowledge "that attempts to consider multiple viewpoints, perspectives, positions, and standpoints" (p. 113).

Wiersma and Jurs (2009) identified a number of strengths of a mixed-methods approach including its appeal to a wider audience (from both positivist and constructivist epistemologies), the avoidance of the bias that can be associated with single methodological approaches, and the incorporation of the strengths of both methods. They suggest that "perhaps the greatest advantage of mixed methods research is that it addresses multiple questions" (p. 309) dealing with both variables and processes. In terms of this study, mixed

methods approach enabled the Researcher to examine the variable of teacher knowledge against the process of how teachers engage with the professional learning experiences and what they implement as practice.

Creswell (2009) identified six mixed methods strategies: sequential explanatory, sequential exploratory, sequential transformative, concurrent triangulation, concurrent embedded and concurrent transformative. These procedural strategies relate to the key elements of mixed methods research, including the timing or sequence in which the qualitative and quantitative data are collected, the weighting that the qualitative and quantitative components have at each of these phases, and how and when the data are mixed. This study employed a concurrent triangulation design, represented in Figure 3.2, with an emphasis on qualitative data consistent with the constructivist epistemology of the research. In this figure, boxes without shading indicate that less emphasis was placed on this form of data collection during this phase. Qualitative and quantitative data are collected concurrently then compared "to determine if there is a convergence, difference, or some combination" (Creswell, 2009, p. 213). The design of this study varied slightly from that described by Creswell as the collection of qualitative and quantitative data occurred concurrently at the beginning and end of the Project, but only qualitative data were collected during the Project.

3.3. Participant Selection

The selection of participants is significant in all research, but arguably more so in case study research if the researcher wishes to present a valuable insight into the phenomenon being explored (Yin, 2009). The aim of the professional learning intervention was to provide teachers with skills to incorporate targeted reading instruction for those students who were not acquiring the necessary skills under the current approach. To achieve this, the Project focused on identifying Year 2 students who were experiencing difficulty in the development of reading skills and assisting teachers to embed explicit teaching of early reading skills in the broader approach to reading instruction currently being employed in their schools. The Project involved 49 teachers from 10 schools in an Australian metropolitan area. From this cohort, teachers were invited to participate in case studies involving more extensive data collections.

Initially the Researcher asked teachers interested in being part of the study to provide their email details at the first professional learning day. These teachers were then contacted and the Researcher outlined the requirements of involvement in the research. This included providing information on the commitment required, the potential impact on their classrooms

and the type of data collection that was to be undertaken. Specifically, the Researcher would be present in their classroom observing and recording their practice, interviewing them about their practice and their impressions of the professional learning experience as well as collecting classroom artefacts such as programs and students' work samples. This resulted in further self-selection of participants.

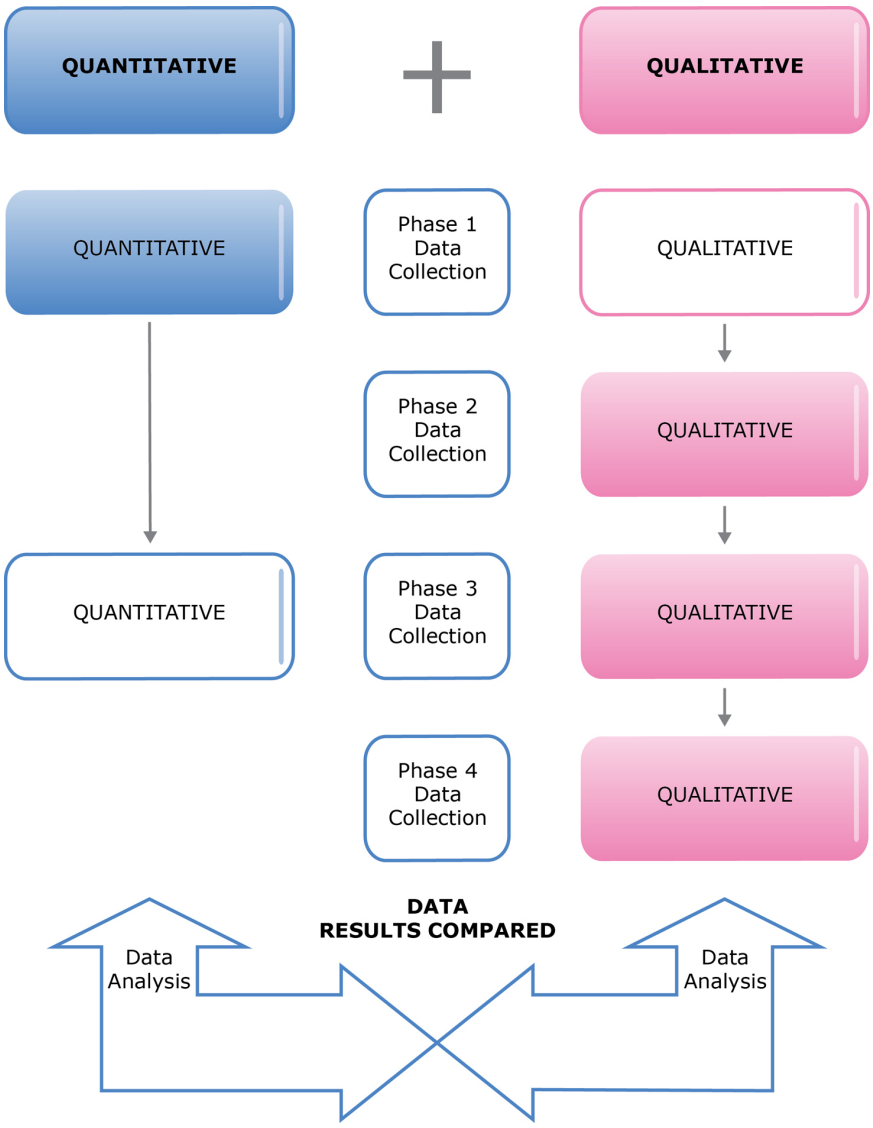


Figure 3.2. Concurrent Triangulation Design (Adapted from Creswell (2009))

Denzin (2002) proposes that "a researcher is led to seek out subjects who have experienced the types of experiences the researcher seeks to understand" (p. 350). Stake (2005) also suggests that while "balance and variety are important; opportunity to learn is of primary importance" (p. 447) when selecting a case study. By their nature, case studies are dependent on willing volunteers and this can limit a researcher's potential for purposeful selection. Eisenhardt (2002) suggests that there is no ideal number of subjects in case studies, but

between four and 10 cases is generally recommended. In this instance six teachers volunteered to take part in the study and it was decided to utilise all of these subjects in the research.

3.4. Data Sources

As outlined previously, this study used mixed methods and interpretive approaches to develop an understanding of how participation in a professional learning intervention impacted on teachers' beliefs, reading PCK, and classroom practice. In order to address concerns that case study research is a 'soft' form of research, and criticism of the reliability of self-report measures (Barker, Pistrang, & Elliott, 2005; Gess-Newsome, 2002; Lam & Bengo, 2003; Onafowora, 2005), the Researcher used both qualitative and quantitative data from multiple sources (Yin, 2009). Convergence of data from a variety of sources incorporated redundancy within the data gathering and reduced the likelihood of data being misinterpreted. In summary, different methods were incorporated to investigate the same phenomena and data were triangulated to clarify meaning (Stake, 2005, p. 443).

Whilst case studies cannot provide statistical generalisations, that is, the researcher should not draw inferences about a population on the basis of what the data reveal, case studies can provide theoretical or "analytic" generalisations (Yin, 2009, p. 38). Analytic generalisations can be made when a case study supports a previously developed theory. This research explored the relationship between knowledge and practice and compared this with existing theory in this domain. The Researcher combined data from the whole cohort of teachers involved in the Project, which included pre- and post-intervention surveys, questionnaires and student assessment data, with specific classroom observations and interviews of case study teachers, field notes, observations of target students engaged in instruction, and the collection of classroom artefacts.

Yin (2009) suggests there are six main sources of data used in case studies; "documents, archival records, interviews, direct observation, participant-observations, and physical artefacts" (p. 98). Within this study, the Researcher used documents, interviews, direct observation, physical artefacts and student assessment data. The type of documents examined included whole school literacy plans, participant teachers' literacy planning documents, and reports from the professional learning intervention Project. Interviews were both structured and unstructured, incorporating direct interviews in the form of "guided conversations" (Yin, 2009, p. 106) in which the interviewer asked questions following the flow of the conversation at the same time as maintaining the line of inquiry. Qualitative and

quantitative questionnaires and surveys were included under the heading of structured interviews as they provide information directly from the participant. Direct observations of teaching were undertaken with the assistance of observation guides, audio recordings and field notes, while students' work samples and teaching resources formed the basis of the physical artefacts collected. Student assessment data consisted of standardised tests administered at the beginning and end of the Project to those students identified by teachers as falling behind their peers in the acquisition of reading skills.

Data collection was undertaken throughout the professional learning and into the first semester of the following year, the phases of which are summarised in Figure 3.3. Appendix C provides an overview of the data collection and how this is linked to the research questions.

3.5. Research Instruments and Analysis

Yin (2009) notes that one of both the advantages and challenges of case studies is the quantity and variety of data they can provide. In this study, where there were multiple case study subjects, the Researcher's goal was two-fold. The Researcher needed to determine whether there were common outcomes across the cases that pointed to the main impacts of the professional learning, as well as differences between cases highlighting the impact of contextual factors that enabled or constrained impacts.

Questionnaires and surveys

Pre- and post-intervention questionnaires and surveys were used to compare changes in teachers' beliefs, attitudes and practices pertaining to teaching reading. These measures included the DeFord (1985) *Theoretical Orientation to Reading Profile* (TORP), The *Survey of Literacy Constructs Related to Literacy Acquisition* (Joshi et al., 2009), and a self-efficacy scale. Since these questionnaires were administered to all Project participants, the data sets were analysed and are reported in Chapter 4 to provide additional contextual information for the case studies.

The TORP uses a Likert scale 1-5 response system to determine the teachers' theoretical orientation to teaching reading (Appendix D). It contains 28 questions, generating a score of between 28 and 140, and categorises teachers' responses into three broad approaches to reading instruction, a decoding perspective, a skills perspective and a whole-language perspective.

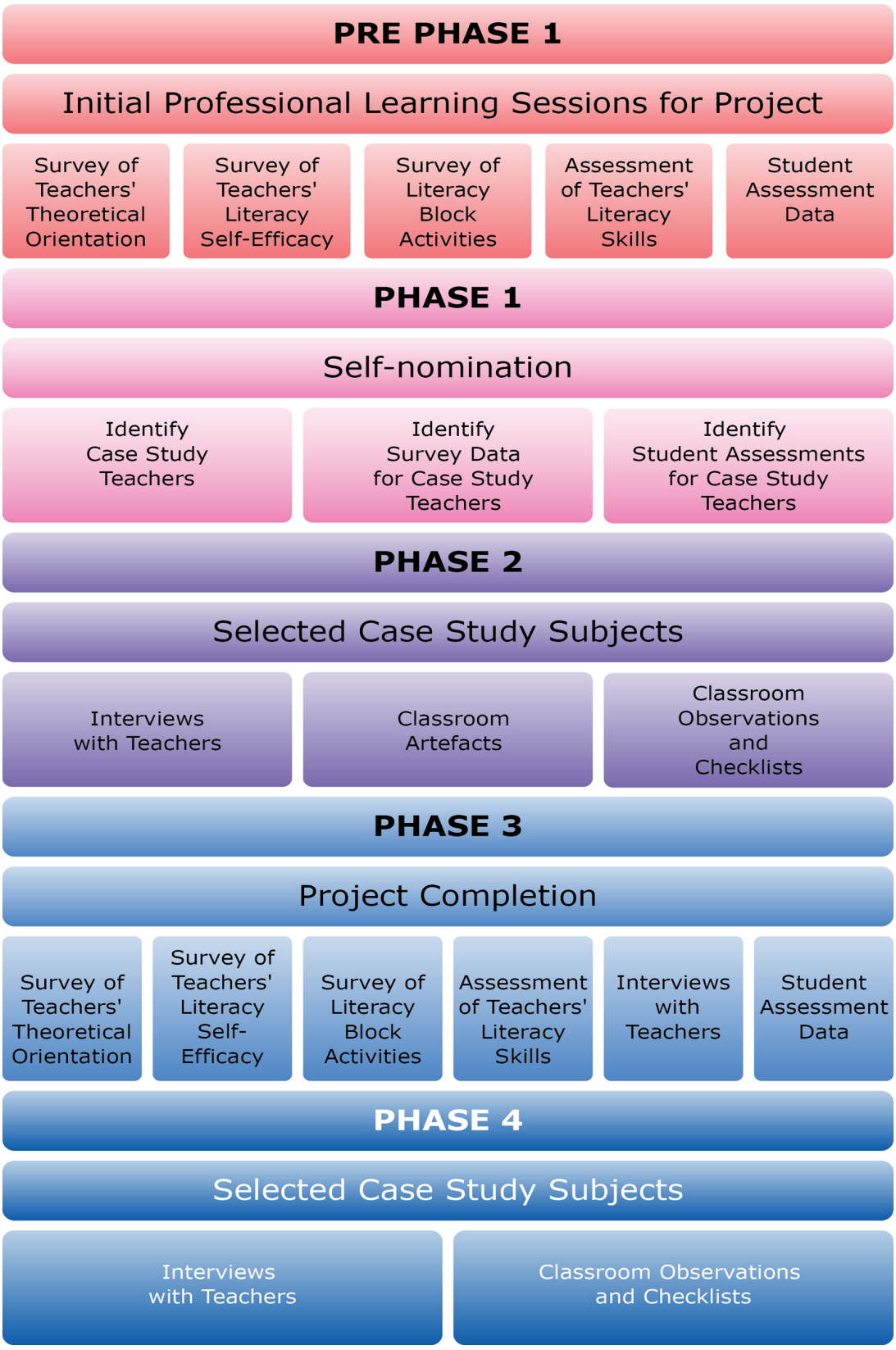


Figure 3.3. Research phases

Scores between 0[2] - 65 points indicates a decoding perspective, 66 - 110 points indicates a skills perspective and 111 - 140 points indicates a whole-language perspective. DeFord (1985) described the decoding perspective as systematic and controlled for phonemic consistency. Considerable time is allocated in this approach to decoding single letters and letter combinations prior to studying word units and comprehension (DeFord, 1985), thus it is aligned to a synthetic approach. In a skills perspective there is also instruction in letter/sound correspondence; however, this tends to be based on the vocabulary that was being introduced and is less systematic (DeFord, 1985), and is therefore more closely associated with an analytic approach. Vocabulary items are introduced in context and the emphasis is on sight vocabulary and word attack skills for reading. The whole language perspective focuses on quality literature through which students develop an understanding of texts (DeFord, 1985). Student writing and shared reading experiences are fundamental to this approach.

The TORP's currency and validity have been questioned (Cunningham, Zibulsky, Stanovich, et al., 2009; Richardson, Anders, Tidwell, & Lloyd, 1991)[3] not in the least because teachers may respond to questions on the basis of approaches currently being promoted rather than their actual practice. Nevertheless, it continues to be used in studies (Bos et al., 2001; McCutchen et al., 2002) as it provides a measure of theoretical orientation from which to compare classroom practice. Classroom observations and interviews with teachers (described in the following section) were used to elicit information about their actual practice (Cunningham, Zibulsky, Stanovich, et al., 2009) and address concerns about the validity of the TORP by providing the opportunity to compare teacher's responses with reported and observed practice. The Researcher was able to compare data from the different sources to explore any inconsistencies between the theoretical orientation they espoused and the theoretical orientation of the activities they undertook in the classroom.

Two self-efficacy scales were used to provide an insight into teachers' confidence and beliefs about their ability to be effective reading teachers. Self-efficacy is conceptualised as the individual's belief in his or her ability to undertake the actions required to successfully accomplish a specific task in a specific context (Bandura, 1986) and has been shown to bear a significant relationship to instructional behaviour and student outcomes (Tschannen-Moran &

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[2] Scores are identified as starting at 0 in the literature (DeFord, 1985); however, the lowest possible score for the 28 questions using a scale of 1 – 5 would be 28.

[3] Citing of the surnames of the first authors and of as many of the subsequent authors as necessary to distinguish between references complies with APA 6th, 6.12.

Woolfolk-Hoy, 2001). Further, Smylie (1988) found that when teachers' personal teaching efficacy was high, they were more likely to be interested in seeking innovations to their practice. One of the first measures of teachers' self-efficacy was the incorporation of two questions in an extensive questionnaire developed by the Rand researchers for their Change Agents study (Berman & McLaughlin, 1977). The first item asked teachers to respond to the statement, ''When it comes right down to it, a teacher really can't do much because most of a student's motivation and performance depends on his or her home environment." While the second item stated ''If I really try hard, I can get through to even the most difficult or unmotivated students.''

Bandura (2006) identifies the need for the items in a self-efficacy scale to reflect the construct and as such they "should be phrased in terms of *can do* rather than *will do*. *Can* is a judgment of capability; *will* is a statement of intention" (p. 308). Schwarzer and Hallum (2008) also make recommendations regarding the semantic structure of self-efficacy items suggesting that, as the purpose is to assess an individual's subjective beliefs, questions include the subject "I" and the verbs "can" and "able" to indicate that success is a result of the individual's actions. Further, Bandura suggests that a thorough understanding of the domain being measured is required to develop sound efficacy scales and "perceived efficacy should be measured against levels of task demands that represent gradations of challenges or impediments to successful performance" (p. 311). That is, if there are no factors that might interfere with the individual's performance of the task then everyone can perform it effectively.

The self-efficacy survey developed by the Researcher for this study contained six items using a Likert scale from 1 to 5 and was based on these recommendations to enable identification of teachers' beliefs about their success in teaching reading (Appendix E). The wording of the questions are domain specific, incorporating the recommendations regarding the semantic structure, and potential conditions that might affect the response are incorporated; for example, *I can teach students to read even if they are not interested in learning*. The reliability of .782 on this scale was determined by ascertaining the Cronbach Alpha on the self-efficacy surveys completed by the 49 teachers involved in the Project. The second self-efficacy measure was a sub-scale of the *Survey of Literacy Constructs Related to Literacy Acquisition* (SLCRLA), (Joshi et al., 2009) (Appendix F) which is described in detail below. In summary, it contains eight questions asking teachers to rate their ability to teach specific aspects of reading on a four-point scale from a. minimal, b. moderate, c. very good to d. expert.

The *Survey of Literacy Constructs Related to Literacy Acquisition* (SLCRLA) (Joshi et al., 2009) measures linguistic knowledge and was based on a measure developed by Moats (1994) and

later modified by others (for example, McCutchen et al., 2002). The Joshi survey consists of 68 items, which include questions relating to self-efficacy in teaching reading, to both typical and struggling readers, as well as questions designed to ascertain the respondents' metalinguistic knowledge and attainment of the skills necessary to read effectively. The reliability of the instrument, assessed using Cronbach's alpha, was reported as .918 (Joshi et al., 2009) however, when isolated, the self-efficacy scale on this study data was .644. As such, the Researcher-developed scale, at .782, was more reliable.

The DeFord *Theoretical Orientation to Reading Profile* (TORP), the self-efficacy scale, and the *Survey of Literacy Constructs Related to Literacy* (Joshi et al., 2009) contain scaled items, therefore, they were scored and descriptive statistics calculated. The responses on the literacy block activity surveys were examined to identify the items related to reading and repeatedly examined until responses could be categorised and coded. The frequencies of these categories both within cases and across cases were calculated and pre- and post-intervention responses explored using non-parametric statistics.

Analysis

SPSS (v 21) was used to interrogate the data and generate descriptive statistics (e.g. frequencies, percentages, medians, means, standard deviations) and, where appropriate, inferential statistics such as t-tests. For the data based on all Project participants, checks were also run to ensure that assumptions of normality were met before conducting parametric statistical tests based on the normal distribution. Where data did meet the assumption of normality, paired-sample t-tests (also known as dependent t-tests) were conducted to determine whether any observed changes in teachers' practices and knowledge from pre- to post test were statistically significant - and therefore generalisable to the population - for each of the survey instruments (TORP, SLCRLA and self-efficacy). Where the assumption of normality was not met, for example when isolating specific skills within the SLCRLA survey, the Wilcoxon signed-rank test was used instead since this is the non-parametric equivalent of the paired-sample t-test.

For the case studies, tests of statistical significance (such as paired-sample t-tests or Wilcoxon signed-rank tests) are not reported since with very small sample sizes it is inappropriate to make generalisations about the population from which the sample was drawn. Effect sizes (which is a descriptive statistic) are reported for both the Project and case study data as a means of illustrating the magnitude and practical importance of observed changes. Researchers highlight the importance of reporting effect sizes and the potential pitfalls of

relying on statistical significance alone, since the latter is directly influenced by the sample size (Coe, 2002; Hojat & Xu, 2004) This means that although the effect of a research intervention involving a relatively small sample may struggle to attain statistical significance, the size of that effect may still be large and of considerable practical importance in the context of that sample. Conversely, where large samples are involved, even very small effects can be statistically significant yet have little or no practical importance.

Where appropriate, the Cohen's *d* statistic is reported as the effect-size measure since this is commonly used where differences in the effect of a treatment or intervention are being considered (McGrath & Meyer, 2006). It is also somewhat more intuitive to interpret when used in conjunction with results generated from the paired-sample t-test. Cohen's *d* is a standardised measure that expresses the size of the mean difference (i.e. from pre-test to post-test) in terms of standard deviations and directly relates to the 'Z' score of a normal distribution. Hence, a *d* value of 1 would indicate that, on average, teachers' post-test scores were one standard deviation higher than their pre-test scores. The 'rule of thumb' that Cohen proposed, and which has been widely adopted for interpreting the magnitude of the effect size, is that a *d* value of .2 is a small effect, .5 a moderate effect, and .8 a large effect (Field, 2010; Hojat & Xu, 2004).

In reporting results derived from all Project participants for which it was necessary to use the Wilcoxon's signed-rank test because of violations of the normality assumption, effect size is reported using the Pearson's correlation coefficient *r* rather than Cohen's *d.* Pearson's *r* is the most commonly reported effect size used in conjunction with the Wilcoxon signed-rank test and is easily calculated from the Wilcoxon '*z*' value (i.e. $r = z/\sqrt{N}$). The absolute value of the Pearson's *r* coefficient can range from 0 (no effect) to 1 (perfect effect), with negative or positive values indicating the direction of the relationship. As Field (2010) points out, "[Pearson's] *r* is not measured on a linear scale so an effect with *r* = .6 isn't twice as big as one with *r* = .3" (p.33) and the commonly accepted interpretation is that an *r* value of .1 is a small effect, .3 a moderate effect and .5 a large effect (p.32).

Classroom observations, field notes and interviews

Checklists and audio recordings were used in classroom observations to provide information about the literacy-learning environment, type of instruction being carried out by the teacher, and the language of instruction that teachers used, including the *Literacy Practices Guide* (Konza, 2012a) (Appendix G). Field notes, recorded after observation sessions, provided additional information including 'hunches' that the Researcher wanted to explore and

information provided by the teacher before or after the classroom observations. Eisenhardt (2002) suggests that field notes "are an important means of accomplishing this overlap" between data analysis and data collection and describes them as "an on-going stream of consciousness commentary about what is happening in the research, involving both observation and analysis" (p. 15).

Semi-structured interviews, or guided conversations, were conducted with the teachers regarding their classroom practice and the impact of the professional learning intervention on their instructional practices. As Bell (2005) suggested, interviews have the advantage of allowing a researcher to "follow up ideas, probe responses and investigate motives and feelings" (p. 157). A digital voice recorder was used and digital audio recordings from interviews were imported into a personal computer, so that they could be transcribed and analysed. This analysis utilised the grounded theory approach described in the previous section.

Analysis

Whereas case study and grounded theory approaches differ in their explanation of how theory is developed, they share similar characteristics in relation to the handling of data. Both approaches advocate the ongoing exploration of data from the moment it is first collected (Corbin & Strauss, 1990; Yin, 2009). The purpose of analysis in both these approaches is to identify concepts or themes present or absent in the data. In grounded theory approaches these concepts form the basis from which the theory will develop. Corbin and Strauss (1990) explain that a "concept earns its way into the theory by *repeatedly* being present in interviews, documents, and observations in one form or another-or by being significantly absent" (p. 7). The observations, field notes and interviews collected in the study were subject to repeated reading and constant comparisons in order to identify emergent themes.

Student assessment data

Assessments of student performance were conducted pre- and post-Project. The assessment tools were used to identify students struggling with reading and the specific learning needs of these target students. The tools also served the purpose of monitoring student progress over the course of the Project. In addition, fine-grained monitoring was achieved through recording progress on monitoring sheets. Participating teachers were provided with, and trained in the use of the assessment tools which included the Astronaut Invented Spelling Test (AIST) (Neilson, 2003a) and the Sutherland Phonological Awareness Test–Revised (SPAT-R) (Neilson, 2003), as well as the Educheck (Neal, 1988).

The AIST is a test of students' invented spelling, a strong indicator of phonological awareness. In particular the AIST investigates a student's ability to segment phonemes. The AIST, which has strong reliability and validity characteristics, uses real words, rather than non-words as used in other tests and therefore is a realistic task for young children. The AIST can be administered to groups and acts as a screener for identification of students needing intervention. Phonetic spellings are marked correct with extra points gained for spelling pattern knowledge.

The Sutherland Phonological Awareness Test-Revised (SPAT-R: Neilson, 2003) is an individually administered standardised test that provides a diagnostic overview of students' phonological awareness skills (sound identification, blending, segmenting, manipulation, non-word reading and spelling) necessary for early literacy development. It can be used with students in the first to fourth years of schooling and alternate forms are available for pre- and post-testing. The Educheck was developed by Dagmar Neal in 1988 and is a non-standardised assessment that gauges the reader's use of phonological and letter sound knowledge.

Analysis

Using the approaches described for the analysis of teacher skills, knowledge and self-efficacy, the pre- and post-Project data for student assessments were compared to determine whether there were improvements in students' decoding skills over the course of the Project. Data are reported on all students involved in the project by school, and for each of the case study teachers' focus students. As described earlier, where inferential statistics are appropriate to compare changes from pre- to post-Project but the assumption of normality is violated, the Wilcoxon signed-rank test (the non-parametric equivalent of the paired-sample t-test) has been used to determine statistical significance and Pearson's *r* is reported for the effect size. When reporting on small numbers of students for each of the case study teachers, inferential statistics have not been applied but effect sizes are reported using Pearson's *r*.

3.6. Validity, Reliability, Generalisability and Ethics

In establishing the value of any research in contributing to society's knowledge base it is important that the researcher establish why the reader should have confidence in the findings that are presented. The present study used a multiple-case study design as findings from this type of study are generally considered more compelling and robust. Yin (2009) also suggests that "case study designs need to maximize their quality through four critical conditions related to design quality: (a) construct validity, (b) internal validity, (c) external validity, and (d) reliability" (p. 24).

While terms like validity, reliability and generalisabilty were traditionally only applied to quantitative research, as the value of qualitative research became more widely accepted, procedures for addressing these issues in qualitative research have been developed (Mills, 2007). Despite this, there are distinct differences in the connotations and relationships of validity, reliability and generalisability in qualitative and quantitative research. The following sections explore these issues and outline how the Researcher ensured the validity, reliability and generalisabilty of the findings.

In addition, ethical considerations are of paramount importance in a study of people in real contexts and Yin (2009) suggests that the researcher is obligated to conduct "ethical practices akin to those followed in medical research" (p. 73). As such, ethical concerns and the processes that were employed to address them, are explained.

Validity

In quantitative studies, validity relates to whether a test measures what it is supposed to measure (R. B. Burns, 2000); however, in qualitative studies, validity is judged on whether the research has trustworthiness, authenticity and credibility (Creswell, 2005). The validity of qualitative studies has been criticized for the subjective nature of the data collection, but Creswell (2009) contests this, suggesting that validity "is one of the strengths of qualitative research" (p. 191). He recommends a number of strategies to ensure the validity of qualitative studies including: (a) the use of triangulation, comparing different data sources for evidence of converging themes, (b) participant checking, having participants review the report or specific aspects of it for accuracy, (c) the use of rich, thick descriptions so that the description is realistic to the reader and immerses them in the setting, (d) clarifying the researcher's bias by providing the reader with details of the researcher's background and professional interests, and (e) prolonged time in the field (p. 192).

Yin (2009) also recommends a number of approaches to ensuring the validity of case study research and considers construct, internal and external forms of validity.

Construct validity

Construct validity requires the researcher to select the correct operational measure for the concepts to be studied and Yin (2009) recommends the use of multiple sources of evidence, establishing a chain of evidence and having key informants review draft case study reports. As already outlined, a range of sources was used to provide evidence in the proposed study and findings were confirmed through the triangulation of these data (Merriam, 1998). Establishing

a chain of evidence contributes to both the construct validity and the reliability of a study as it enables the reader to follow the investigative process from the research questions, through the various stages of data collection to the conclusion, and to follow this chain in reverse. Yin (2009) compares this to forensic information in a criminal case where evidence is meticulously gathered and recorded so that the facts of the case are available to anyone reviewing it. Figure 3.3 provides an overview of the data collection for the study and a framework on which to present the information. The final element of construct validity is having key informants in the study review the relevant sections of the report to verify their accuracy. This process was undertaken during Phases 2, 3 and 4 of the data collection process (see Figure 3.3).

Internal validity

In the search for causal relationships, whereby certain conditions are believed to lead to other conditions, the internal validity of a case study hinges on how well the researcher captures the "holistic and meaningful characteristics of real-life events" (Yin, 2009, p. 4). A number of strategies are recommended (Creswell, 2009; Yin, 2009) to ensure the internal validity of a study. Pattern-matching logic is an approach to data analysis that compares predicted outcomes with actual outcomes to determine if the patterns coincide. In previous research, teachers' beliefs and PCK have been shown to impact on their practice and student outcomes; therefore, the Researcher explored the data to determine if this pattern was present in the current study. Another form of pattern matching is explanation building, whereby the case study data are analysed by building an explanation of the causal links.

Yin (2009) suggests that this is likely to be an iterative process involving making an initial theoretical statement followed by a comparison between this and the findings of an initial case, revision of the statement, comparison to other case details and, finally, comparisons to the facts of subsequent case studies. This was accomplished in the current study by a detailed writing up of case information in order to generate explanations of teachers' classroom practices, beliefs and PCK. This narrative text included rich, thick description as recommended by Creswell (2009) to establish internal validity. Specific procedures for coding these narratives were used and, to ensure that coding remained consistent, codes were constantly compared to the data.

A further element of this process was to identify and rule out rival explanations. Yin (2009) also recommends the use of logic models, which set out a sequence of theoretically predicted events that the researcher compares to the empirically observed sequence of events as a way of determining how well the theory is supported by the data. Two additional elements for

establishing the internal validity of qualitative research identified by Creswell (2009) are to clarify researcher bias and spend a prolonged time in the field. In terms of time in the field, the Researcher was involved with the participants for 18 months, initially in the capacity of a researcher on the professional intervention Project and, in the final stages of the Project, as a doctoral student. This adds another dimension to the potential bias that the Researcher may bring to her interpretation of the research findings. Not only must the Researcher recognise the potential bias that her epistemological beliefs and values system could bring to the interpretation of the research findings but also her investment in the professional learning intervention. For this Researcher, there was the need to be aware that her experience of working with children who have learning difficulties and disabilities could influence her interpretation of the research findings. The Researcher needed to set aside any preconceived ideas of how classroom teachers should engage with the task of teaching reading. Further, the Researcher had to isolate her analysis of the impact of the program from what her beliefs about what the program should achieve.

External validity

External validity requires defining the domain to which a study's findings can be generalised and is generally considered to be limited in qualitative research. As already discussed, Creswell (2009) suggests that "the value of qualitative research lies in the particular description and themes developed in context of a specific site" (p. 193). Yin (2009) and Flyvberg (2006) contest this, suggesting that while case studies may not be generalisable to populations and universes, they are generalisable to theoretical positions. Qualitative research is generally characterised by the development of theory from the research findings, with findings being shaped by the writing process (Hatch, 2002). However, as Yin (2009) notes, the difference between case studies and other related methods of inquiry is that, in case studies "theory development as part of the design phase is essential, whether the ensuing case study's purpose is to develop or test theory" (p. 35). Further, Yin highlights the significance of theory in case study design stating that "theory development does not only facilitate the data collection phase … appropriately developed theory also is the level at which the generalization of the case study results will occur" (p. 38).

Achieving this generalisabilty requires that the Researcher follow a number of the procedures already outlined to ensure a well conducted case study and thorough data analysis. This is further supported by the use of multiple case studies as occurred in the current research. In a case-comparison method the explanations from each case are taken and compared with the explanations from the other cases. The use of replication logic contributes to the external

validity of the study (Yin, 2009) as the theory is tested by replicating the findings in different settings.

Reliability

Reliability, as it pertains to case study research, refers to the dependability or consistency of the results (Lincoln & Guba, 2002) and Yin (2009) suggests that reliability is established "by demonstrating that the operations of a study – such as the data collection procedures – can be repeated, with the same results" (p. 40). To this end, Yin (2009) recommends the use of a case study protocol and the development of a study database. The case study protocol sets out the key phases of the study and the procedures that will be undertaken at each of these phases. The database contains all of the documents collected during the study organised in a manner that makes them accessible for later inspection. Eisenhardt (2002) concurs, suggesting that researchers should "fully display the evidence and procedures when the findings are published, so that readers may apply their own standards" (p. 24). In addition, a researcher should provide full disclosure of personal beliefs and experiences that may influence how they present and interpret the data.

Ethics

The nature of case study research creates a unique relationship between the researcher and the participants. Researchers are interested in participants' personal stories and therefore a high standard of ethical conduct is required. Stake (2005) suggests that "something of a contract exists between researcher and the researched" (p. 447) and as such the researcher should be respectful of the participants and follow a strict code of ethics. This Researcher was careful to address concerns such as privacy, informed consent and anonymity as well as being mindful of minimising disruption to the physical setting and to the teachers' work. Respect for the participants was also crucial and therefore the Researcher involved the participant in checking the accuracy of the reporting, attempting to anticipate any repercussions of the research, and ensuring results did not advantage one group over another (Creswell, 2009). A further consideration is reciprocity, that is, in what ways do the participants benefit? In this study the Researcher 'paid back' the time that the teachers gave to individual interviews and completing surveys by volunteering her time to support classroom instruction as well as providing resources the teachers requested.

Anonymity and confidentiality

No teacher, school or student was identified in any research reports and audio data collected were coded so that only the Researcher is aware of the participant's identity. As per university requirements, all research data are confidential and transcripts, observational notes and electronic files are stored securely and will be destroyed no earlier than five years after publication of papers based of this study in the case of the teacher data; and until the participants are 25 years old for the student data.

Informed consent

Informed consent is based on participants having a clear understanding of the purpose of the research and their role in this research. To ensure that this was the case for all participants, separate letters were sent to principals, teachers, parents and students informing them of the type of data to be collected, analysed, and reported, as well as of the potential uses of these data. These letters also outlined the management of potential risks such as the need to erase audio files if these contain material that the teacher is uncomfortable having on record. In addition, the Researcher contacted participants by email to outline the focus of the study, the types of observations the Researcher would be undertaking and the involvement of the participants. This involvement included both time commitment and supplying artefacts that the Researcher requested such as planning documents and student work samples.

Withdrawal rights

Consent letters contained the following paragraph so that participants were aware that they could choose not to participate in the study.

> Participation in this project is voluntary. Refusal to give your consent to be a participant in this study will be respected, no explanation or justification would be required and this decision will not disadvantage you or involve any penalty. If you choose to participate in this research project you are free to withdraw from further participation at any time without giving a reason and with no negative consequences.

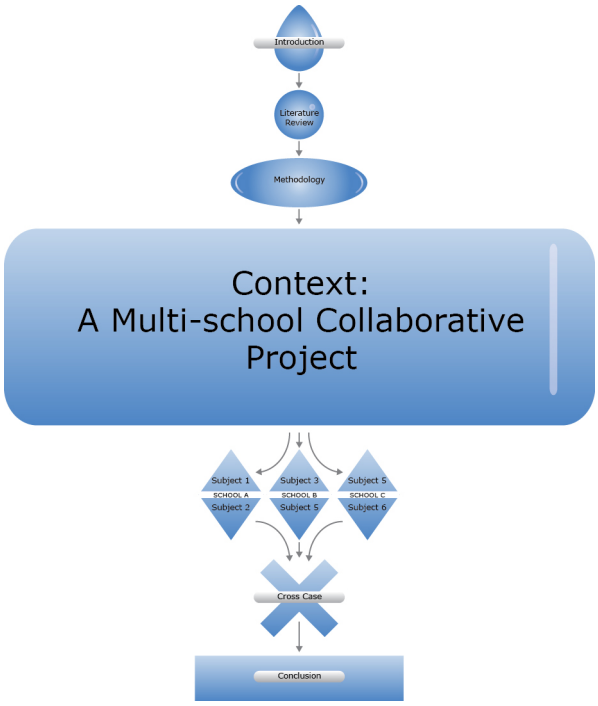
Participants who chose to withdraw from the research were asked whether their withdrawal meant that any existing observation and interview data could be used, or whether they would like to completely withdraw any data involving or depicting them from the study.

3.7. Summary

The methodology employed in this study sought to gather data from a range of sources and incorporated both quantitative and qualitative measures. A case study approach was utilised

as this enabled the Researcher to explore in detail the factors that impacted on the teacher's PCK and practice. Creswell (2009) notes the importance of the context in which a study takes place when exploring the data and, as such, the following chapter discusses the multi-school collaborative Project in which the case study teachers were involved.

CHAPTER 4: CONTEXT - A MULTI-SCHOOL COLLABORATIVE PROJECT



The case studies presented in this thesis were drawn from a larger multi-school collaborative project, referred to as the Project. This chapter discusses the development of the Project and presents data that were collected on the outcomes for all of the teachers and students who were part of the Project. This includes the case study teachers and their students and, therefore, this chapter provides contextual information that is useful when examining how the six case study subjects responded to the professional learning in the Project. Key Findings for the Project are reported at relevant points in this section, and relate to Key Findings for the case study subjects in the cross-case analysis.

4.1. Project Development

The larger Project developed from meetings between senior Department of Education staff and University Academics. The discussions centred on the NAPLAN results of the participating schools, which revealed that some students were not acquiring appropriate reading skills. As a result of these discussions it was decided that a collaborative project, which embedded professional learning sessions in the school timetables, would be the best approach. The emphasis on the collaborative nature of this process originated in Fullan, Hill and Crévola's (2006) assertion that powerful learning can result from building relationships among clusters

of schools. Sessions that combined participants from all schools involved in the Project were envisaged to encourage greater collaboration and sharing of knowledge between teachers within schools and across the schools in that region.

Year 2 students and their teachers were targeted for this Project as differences in reading achievement become more evident in Year 2 (D Carnine, 1982), and intervention at this stage requires a more individualised approach that classroom teachers perceive as challenging (Ashman & Elkins, 2009). The Project was planned around the involvement of Year 2 teachers, principals, deputies and specialist teachers from five schools; however, just prior to implementation, senior regional personnel requested that five more schools be included in the Project. Thus the number of participants at the start of the project was 60, with 49 of these being Year 2 teachers.

4.2. Project Aims

The Project sought to improve the PCK of teachers within a cluster of schools in a metropolitan area. This aim was based on literature that highlights the significant impact a teacher's knowledge has on classroom practice (Hill et al., 2005; L. S Shulman, 1986) and the subsequent impact this has on student performance (Budin, Mather, & Cheesman, 2010; Piasta & Wagner, 2010).

In the state where the Project was conducted, a commercially available program, *First Steps* (Annandale et al., 2004), was promoted through the Education Department as the basis for literacy instruction in the state's primary schools, and was supported by extensive professional learning. This program provides teachers with information on the different stages of reading development, identifies the different roles of the reader and includes strategies to teach reading skills such as developing fluency (Annandale et al., 2004). A recent review of literacy interventions was not able to locate any assessments of the impact or cost effectiveness of this program (Australian Council for Educational Research, 2013). When compared to the characteristics of effective reading instruction, that is, explicit instruction in phonics, letter-sound knowledge, vocabulary, fluency, and comprehension (Adams, 1990; Archer & Hughes, 2011; Biemiller, 1994; Chall, 1983; Louden et al., 2008; Rose, 2009; B. V Rosenshine, 2012), *First Steps* lacks a number of key components. However, Abrahamson (2004) criticises the tendency to assume that there is no value in existing systems and that these need to be replaced with an entirely new approach. The aim of the Project was to value-add to this program, acknowledging the schools' long-term investment in it, and the resources it contained, but also providing teachers with the knowledge and skills to identify and cater for

those students who needed more explicit and sequenced instruction in the letter-sound relationships that underpin early reading acquisition.

The Project was designed with two key objectives in mind: first, to improve teachers' PCK and self-efficacy in teaching reading; and, second, as a consequence of enhanced PCK, to improve the reading skills of 'at risk' children. The second objective was addressed through three stages:

- The identification of students not achieving key reading milestones through the use of standardised assessment tools.
- The use of this assessment data to plan and implement targeted strategies to address individual areas of need.
- Ongoing monitoring of student progress to facilitate adjustments in programming and instruction.

These objectives were to be achieved simultaneously though a three phase participatory action research model (see Table 4.1).

4.3. Project Model

The professional learning structure of the Project was informed by the literature on effective professional learning (Fullan et al., 2006) and commenced with an initial full-day session in which participants were introduced to the Project and provided with information on effective practice for children with reading difficulties. This included the *Big Six* Framework, a synthesis of the research on the reading process identifying the six major components required for the effective acquisition of reading skills (Konza, 2010b). The second session occurred a week later after school hours and provided the participants with training in how to use fine grained assessment tools to identify the specific reading difficulties students were experiencing.

Initially, separate monthly 'expert sessions' had been planned with each school's literacy facilitator (see Appendix H for Project plan). In these sessions, research-based approaches to reading instruction for children not attaining the milestones and ways to integrate these approaches with existing strategies would be discussed with the five key literacy facilitators. These school-based personnel would then deliver the material to the teachers involved at their individual schools. This was to be followed by workshops for all teachers involved, who would come with some familiarity with the material, and prepared for follow-up activities. It eventuated that, with the addition of five extra schools, and notwithstanding information that had been supplied, not all schools had literacy support staff involved in the Project, and the

best way to ensure that all participants received accurate information was to combine the two sessions and conduct the workshops with the whole group. The need to change the model for professional learning to accommodate schools without literacy support teachers had ramifications for the way in which material was delivered, with all workshops now needing to accommodate over 50 participants (Konza, Fried, Michael, & Main, 2011).

Table 4.1. *Overview of the Project Phases*

Initial Phases		**Action Phases**			**Final Phases**	
Session 1	**Session 2**	**Session 3**	**Session 4**	**Session 5**	**Session 6**	**Session 7**
Introduction to the Project and The Big Six	*How to use Diagnostic Assessment*	*Investigating Collected Data*	*Designing an Intervention*	*Strategies for Intervention*	*Progress Discussions*	*Final outcomes and Celebration*

The late addition of five schools also changed the level of support available to the schools in the Project. Literacy coaching was seen as an integral part of the Project as it provided the opportunity to build relationships within the schools (Hathaway, 2009) and it has also been shown to increase the effectiveness of professional learning and teacher practice (Neuman & Cunningham, 2009). Carlisle, Cortina and Katz (2011) argue that effective reading professional learning incorporates literacy coaching to support teachers to enact their learning into classroom practice. This coaching provides teachers with the opportunity to view someone else delivering the advocated instructional processes and to discuss this approach with someone who has demonstrated competence. The university researchers were not able to visit all schools on a regular basis to provide support and modelling as originally planned, so they made themselves available to visit schools and tailor support to individual needs on request. Of the 10 schools, six chose to use the individual support sessions to varying degrees. This ranged from delivering one-off workshops, a single visit to discuss student assessment data, to a series of visits over an extended period for the case study teachers. Many of the teachers involved in the broader study made no requests for support of any kind. The experience of the research team was that many of the suggested strategies are initially difficult to implement when unfamiliar with them, and the lack of requests for support unfortunately suggested that few were even being attempted. In most cases, follow-up emails and telephone calls from the Project team failed to elicit responses. This was perhaps the most serious consequence of doubling the numbers involved, and reflected a lack of 'buy-in' for those schools that were directed with little notice to join the project. There appeared to be a level of disengagement on the part of some participants, which the research team was unable

to breach. In addition, a difference in philosophical beliefs about reading instruction led one of the schools that joined shortly before commencement, to withdraw from the Project.

Another factor in the implementation of the Project that warrants mention is the change of leadership that occurred shortly after the initial phase of the Project. One of the key drivers from the Education Department retired, while another accepted a promotion to a regional school and was no longer involved in the Project. Another Departmental member subsequently moved into the role and attended several of the sessions, but had not been involved in the Project's early development and was understandably not as strongly connected to it. Thus much of the energy and momentum from the school sector that led to the initiation of the Project dissipated. Without strong and overt system leadership, it was difficult to maintain the engagement of some schools, particularly those that had been 'drafted' and were not part of the early discussions and orientation to the Project's aims. By the time that final data collection took place, two of these schools had withdrawn from the Project leaving seven schools.

Key Finding – All Project Participants 4.1
Changes driven from outside of the research team had a significant impact on the fidelity of program implementation.

4.4. Project Outcomes

Teacher outcomes

An understanding of the current knowledge and practices of the teachers, and the areas of need for the students who were the focus of this Project, were considered important, thus data were collected at the initial professional learning session through surveys, described in the previous chapter, and again during the final session at the end of the year. The instruments used were the *Theoretical Orientation to Reading Profile* (TORP) (DeFord, 1985), *Literacy Activities Survey*, the *Survey of Language Constructs Related to Literacy* (SLCRLA) (Joshi et al., 2009), and a self-efficacy scale developed for the Project. Paired-sample t-tests were conducted on these data to determine whether changes in teachers' practices and knowledge were statistically significant. Effect sizes were also calculated using the Cohen's *d* statistic. As noted earlier, a *d* value of .2 is considered to be a small effect, .5 a moderate effect, and .8 a large effect.

Teacher Beliefs

The TORP indicated that the majority (86%) of the 49 teachers in the Project had a theoretical orientation to reading instruction that was skills based, with only 14% identifying their practices as being from a decoding perspective and none from a whole language perspective. This was similar to the teachers' responses on the *Literacy Activities Survey* with 79% describing activities aligned with the skills perspective, 15% aligned to the decoding perspective and 6% listing whole-language strategies. As described in the previous chapter, DeFord (1985) defines the skills perspective as an analytic approach to phonics instruction and, given the emphasis on explicit instruction and synthetic phonics approaches in the professional learning material, it would be reasonable to expect that the percentage of participants in the decoding perspective would increase in the post-survey.

Although taken from a smaller sample in the post-Project survey, the majority of the respondents, 89%, identified with the skills perspective and 11% with the decoding perspective. Of the 20 respondents who completed both the pre- and post-Project survey, only two changed from a skills perspective in their pre-Project survey to a decoding perspective post-Project while five changed from a decoding perspective pre-Project to a skills perspective. The range for a decoding perspective is 0 to 65[4] while a skills perspective is 66 to 110 (DeFord, 1985); therefore, the average response on both pre- and post-Project measures indicates that respondents were closer to the explicit phonics than the whole language perspective (pre mean 75.38, post mean 74.80). As might be expected given the similarity of these means, the paired-samples t-test showed there was no statistically significant difference between the pre-Project responses and post-Project responses ($t(19) = -.256$, $p = .801$) and the effect size was very small ($d = .06$).

Key Finding – All Project Participants 4.2
The surveys did not indicate a statistically significant change in overall teacher theoretical orientation to reading instruction after their participation in the Project.

Approaches Selected as a Result of Involvement in the Project

During the delivery of the professional learning, no particular program was recommended and teachers were encouraged to select or develop an approach that was appropriate for their students and context. Figure 4.1 presents the type of programs that teachers had incorporated

[4] Note that although DeFord referred to a range of 0 to 65, in reality the minimum score attainable is 28.

into their teaching as a result of their involvement in the Project. These can be categorised into four approaches: the use of a specific program/s based on synthetic phonics; the use of a specific program/s based on analytic phonics; reference to the use of more explicit/systematic approaches without mention of specific program; and, teaching strategies identified by the Project team to reinforce specific skills. The majority of teachers indicated that they used specific programs as a result of their involvement in the Project. So, while there appeared to be little change in their theoretical orientation on the TORP, teachers were selecting approaches that would be considered to belong to a decoding perspective on the TORP.

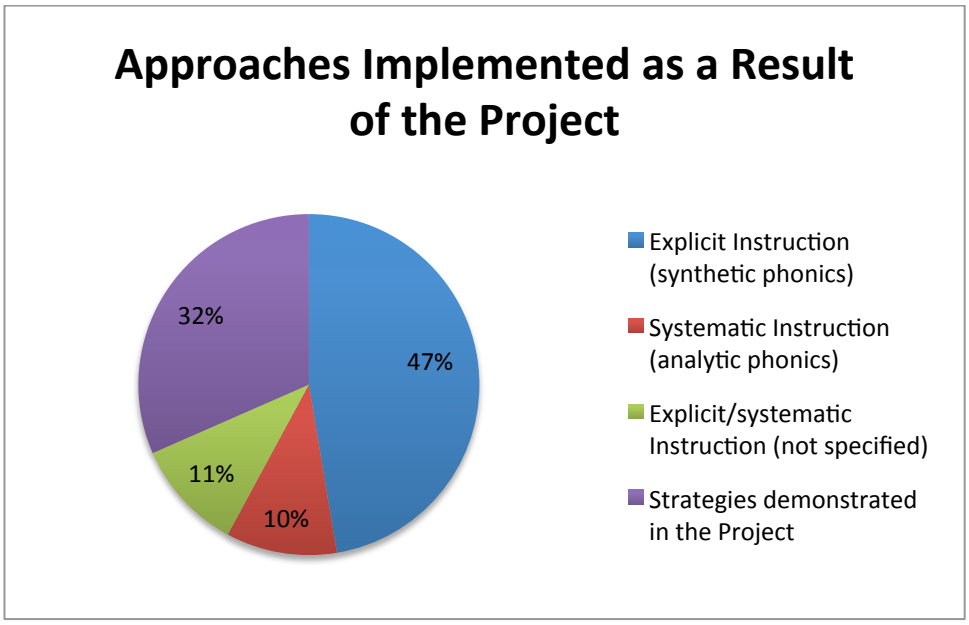


Figure 4.1. Teaching approaches implemented as a result of the Project, as reported by participants (n = 20)

Key Finding – All Project Participants 4.3

The approaches that teachers reported using, in response to the Project, were strongly aligned with an explicit phonics approach to reading instruction.

Teacher Knowledge

The SLCRLA (Joshi et al., 2009) was used to identify teachers' metalinguistic knowledge and attainment of the skills necessary to read effectively. Joshi et al. divided the responses from this survey into nine categories: phonemic knowledge, phonemic ability, phonological knowledge, phonological ability, phonics knowledge, phonics ability, morphological knowledge, morphological ability and comprehension knowledge (see Figure 4.2). Item by item analysis indicated that teachers performed poorly on items concerned with understanding terminology. In discussion with the teachers about their responses to these

survey items it became evident that some of the terminology, such as 'etymology' and 'morphology', was not commonly used in schools, while other terms were quite common and related to important concepts in reading instruction (e.g., phonemic awareness). The Project report on these data indicated particular areas of weakness in phonics, morphological knowledge and morphological ability with teachers scoring below 44% in each of these areas.

Teachers' lack of understanding of the term 'morphology' would have impacted on their ability scores in this area in the initial surveys, and therefore it would be reasonable to expect that both knowledge and ability would increase once understanding of the concept increased. It was relevant to note, however, that in the post-testing the knowledge increased by 40 percentage points, but the ability only increased by 5 percentage points. In the categorised scores there was a reduction in correct responses to the question pertaining to phonological knowledge. This was a single question that asked participants to define phonological awareness. A participant-by-participant comparison of this item was conducted and it was found that 22% of the respondents answered correctly when they first completed the survey and incorrectly when it was re-administered to them at the end of the year. Specifically, these respondents changed their response to the question of what phonological awareness was from, *the understanding of how spoken language is broken down and manipulated* to either *the ability to use letter-sound correspondences to decode* or *a teaching method for decoding skills*. This could suggest that some confusion over terminology resulted from the strong emphasis on a decoding approach throughout the project. This confusion over terminology does not appear to have impacted on the teachers' phonological ability. Due to the unequal distribution of questions across each of the nine categories, these data are represented as mean percentages for responses to enable them to be graphed on the same scale (Figure 4.2). While percentages indicate that there were improvements in eight of the nine categories, pre and post test comparison of the total scores (ranging from 0 – 53) indicated that the overall change was not statistically significant (pre mean = 32.54, post mean = 32.92; $t(25) = .448$, $p = .658$), and the effect size ($d = .09$) was small.

A key factor for consideration of these results was the conditions under which the end-of-Project surveys were completed. For the teachers, the final meeting was the culmination of a great deal of hard work and they were looking forward to the promised celebration; whereas for the researchers, this was the final data collection point. Unfortunately, and unnoticed by the researchers as they set up for the final session, wine intended for the later celebration was open on the tables as the teachers arrived, and the celebrations began immediately. While the light-hearted spirit in which the teachers engaged in the discussion throughout the session

reflected the development of the relationship and their appreciation of the work that had gone on, focused attention on the SLCRLA was necessary to provide an accurate measure of changes in knowledge. It was clear that the SLCRLA did not receive the attention required for such a complicated instrument, with one teacher noting on her SLCRLA, "too late in the day, too much wine". Konza (2012b) highlights the different understanding of the importance of data between teachers and researchers as one of the areas that need to be considered when conducting research in schools. Despite these factors and the lack of overall improvement on the SLCRLA, the Wilcoxon signed-rank test[5] showed there was a statistically significant improvement in *morphological knowledge*, where the possible maximum score is 3 (means - pre/post, 1.46/2.31; medians - pre/post, 1.50/2.50; Wilcoxon: z = -3.470, p = .001, r = .48), and also in *phonemic ability,* where the possible maximum score is 17 (means - pre/post, 7.73/8.69; medians - pre/post, 8.0/9.0; Wilcoxon: z = -2.753, p = .006, r = .35). As shown by the Pearson's r values, the effect size for both morphological knowledge and phonemic ability was moderate, hence these results do suggest some impact on teacher knowledge and skills.

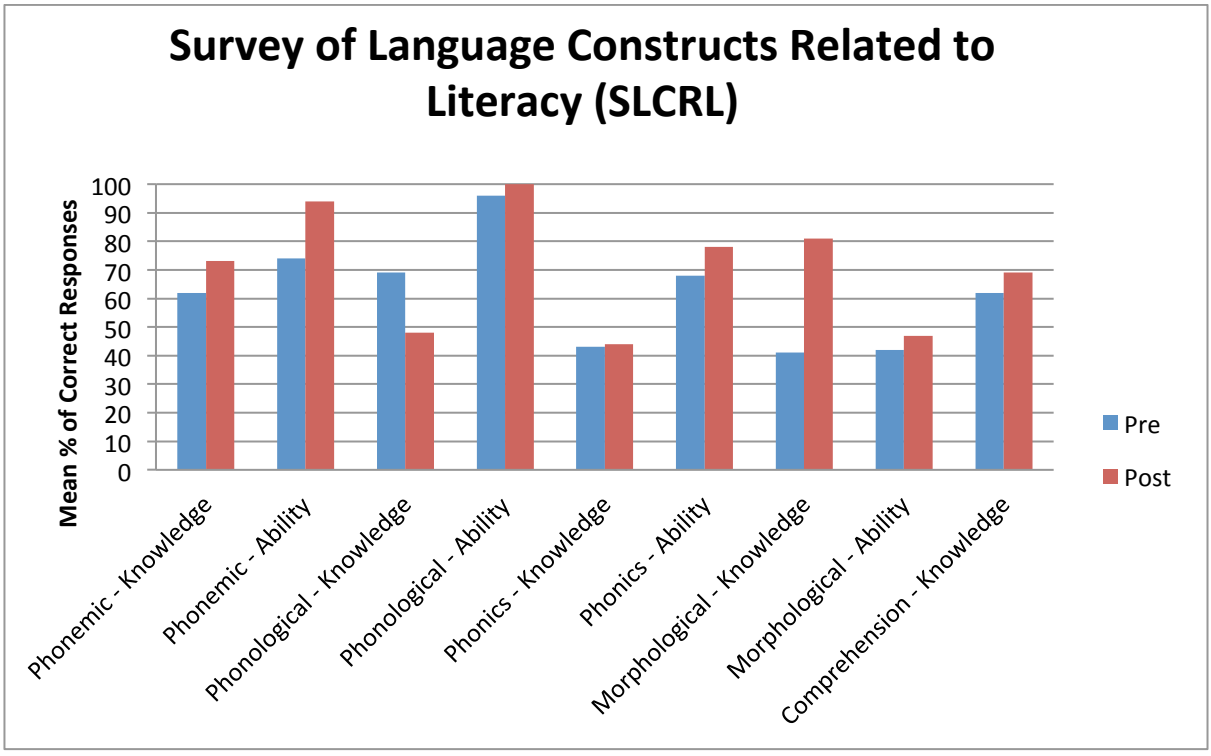


Figure 4.2. Pre- and post-Project SLCRLA results (n = 20)

[5] The non-parametric equivalent of the paired-sample t-test was used because the data violated the assumption of normality when broken down by skill category. Note that both means and medians are provided for comparison, since the latter are more appropriate when reporting non-parametric tests.

Key Finding – All Project Participants 4.4
While there was no statistically significant change in overall teacher skills and knowledge on the SLCRLA after their participation in the Project, there were statistically significant improvements in teachers' morphological knowledge and phonemic ability.

Teacher self-efficacy

As already discussed, teacher self-efficacy has been shown to have a significant influence on teaching performance. In the Project, teacher self-efficacy in relation to reading instruction was gauged using two scales: the self-efficacy subscale from the SLCRLA and *The Teaching Reading Self-Efficacy Survey* (TRSES) developed for this study by the Researcher.

The findings from these surveys indicated a statistically significant improvement in sense of self-efficacy for the 28 teachers who completed both measures pre- and post-Project. On the self-efficacy component of the SLRCL, which contains eight items with a four-point Likert scale (a. minimal to d. expert; total scores range from 8 to 32), there was a significant difference between the pre- and post-Project responses (means - pre/post, 19.87/22.12; medians - pre/post, 20/23; Wilcoxon: z = -3.382, p = .001) with a moderate effect size (r = .469). There was also significant difference in self efficacy (means - pre/post, 20.37/22.29; medians - pre/post, 20/22; Wilcoxon: z = -3.792, p < .001) as indicated by the TRSES, which uses a scale of 1 to 5 to rate the teacher's level of agreement with each statement (1 = strongly disagree, 5 = strongly agree; total scores range from 6 to 30) and the size of the effect was large (r = .536.). In the SLRCL self-efficacy questions, all means were above a 'moderate' level of confidence (Joshi et al., 2009) with teacher confidence in their ability to teach phonics showing the highest mean pre- and post-Project. Using assessment to inform reading instruction was the second lowest ranked item at the start of the Project, but gained the most of all items with a four point difference between the pre- and post test scores.

On the TRSES five point scale the majority of items showed a mean response between *agree* and *somewhat agree*; however, in the last statement *If a child isn't learning to read it is because I haven't taught him/her properly,* responses ranged from *disagree* to *somewhat agree*. This last item also showed the least movement in the post-test mean. The greatest improvement was in the 5th item *I am confident enough in my own reading instruction that I can support colleagues who are experiencing difficulties in teaching reading*.

Key Finding – All Project Participants 4.5
There was a statistically significant difference between teachers' sense of self-efficacy at the commencement and completion of the Project on both self-efficacy scales. The item on the SLCRLA that made the greatest gains related to the use of assessment to inform reading instruction. On the TRSES the item that made the greatest gain was the teachers' confidence in supporting colleagues to teach reading and the item that made the least gain was teachers' belief that they were responsible for children's reading development.

Teacher Evaluation

A *Program Evaluation Questionnaire*, based on Ingvarson, Meiers and Beavis' (2005) instrument, included factors related to the impact of professional development programs and also targeted the level of confidence teachers had at the end of the Project. This questionnaire asked teachers to rate the impact of the Project on their capacity to teach literacy using a five-point scale (ranging from 1 = *strongly disagree* to 5 = *strongly agree*) for each of the items. Responses from the 27 teachers who completed this questionnaire, shown in Table 4.3 indicate that, overall, teachers felt the Project had improved their teaching of literacy, although this was not felt strongly as shown by a mean score of 3.5 (where the possible maximum is 5). Responses in which teachers were less confident related to whether their involvement in the Project had resulted in improved student outcomes with a mean of 3.2 for these questions (Konza et al., 2011).

Table 4.2. *Project Teachers' Responses to the Program Evaluation Questionnaire (n = 20)*

QUESTIONNAIRE ITEM	Mean (Aggregate Mean)
As a result of the professional learning (PL), you are able to:	**(3.5)**
1. Make clearer links between your teaching goals and classroom activities in relation to literacy	3.7
2. Use more effective teaching and learning strategies appropriate to the literacy content you teach	3.7
3. Use teaching and learning strategies that are more challenging and engaging	3.3
4. Better meet the individual literacy needs of your students	3.6
5. Link assessment into the teaching and learning cycle more effectively	3.8
6. Provide more effective feedback to your students to support their learning	3.3
7. Access and use literacy materials and resources more effectively	3.4
As a result of the PL, your students:	**(3.2)**
8. Have fewer difficulties in understanding what they are being taught in relation to literacy	3.1
9. Learn more purposely	3.2

10. Engage more actively in literacy learning activities	3.2
11. Demonstrate enhanced literacy learning outcomes	3.2
12. Access and use literacy materials and resources more effectively	3.1
As a result of the PL:	**(3.6)**
13. My ability to meet the literacy learning needs of my students has expanded	3.6
14. My confidence in teaching literacy has increased	3.6

Note: Item rated 1 = strongly disagree, 2 = disagree, 3 = somewhat agree, 4 = agree, 5 = strongly agree

Key Finding – All Project Participants 4.6

Teachers reported that their involvement in the Project improved their teaching of literacy and their ability to link assessment with teaching and learning, but they were not quite as confident about the impact this had on student performance.

Student outcomes

Fullan et al. (2006) argue that teachers need to use assessment data when designing instruction if they wish to gain the best outcomes for their students. At the initial introduction session to the Project, focus group data indicated that only 23% of the teachers were using fine-grained assessment tools to identify the areas of reading where students were experiencing difficulty. Most of the participants identified *First Steps*, running records, have-a-go pads and *Literacy Net* as tools for identifying students' area of difficulty in reading. These tools provide general information about students' performance but are not fine-grained; that is, they do not provide information on specific areas of need. When using the *Literacy Net* with students in semester 1 of Year 2, teachers are asked to indicate whether a student identifies all letter names by responding 'yes' or 'not yet'. This is useful information, but without the teacher conducting further testing to identify which letter names the child knows the instruction cannot be targeted to the student's needs.

The Project required that teachers have a clear idea of the areas of difficulty that students were experiencing; therefore, at the second session, teachers were trained in the use of more fine grained assessment tools such as the *Astronaut Invented Spelling Test* (AIST), the *Sutherland Phonological Awareness Test–Revised* (SPAT-R) and *Educheck* assessments. Teachers used the AIST (Neilson, 2003a) to screen all Year 2 students to identify those students who were experiencing phonological or graphophonic difficulties. Subsequently, students who were identified as having difficulty segmenting words (for example Figure 4.3) were administered the SPAT-R (Neilson, 2003b) in order to identify more specific areas of need. The *Educheck* (Neal, 1988) assessment was also used with some students within the identified

group who had some graphophonic knowledge (Konza et al., 2011) (As no students in the case studies completed the *Educheck,* this measure is not reported on in this section).

Overall Assessment Results

The individual subscales of the AIST indicated that some students were struggling with letter sound knowledge that would normally be secure in Year 2 students. The student represented in Figure 4.3 experienced significant difficulties with these tasks, only being able to correctly represent the sounds of the consonants in 11% of the names, the vowels in 10% and the consonant blends for 17%. He did not score any marks on the orthographic bonus, which awards points for using more complex spelling patterns to represent the sounds, such as 'kle' in *twinkle* and 'ea' in *head*.

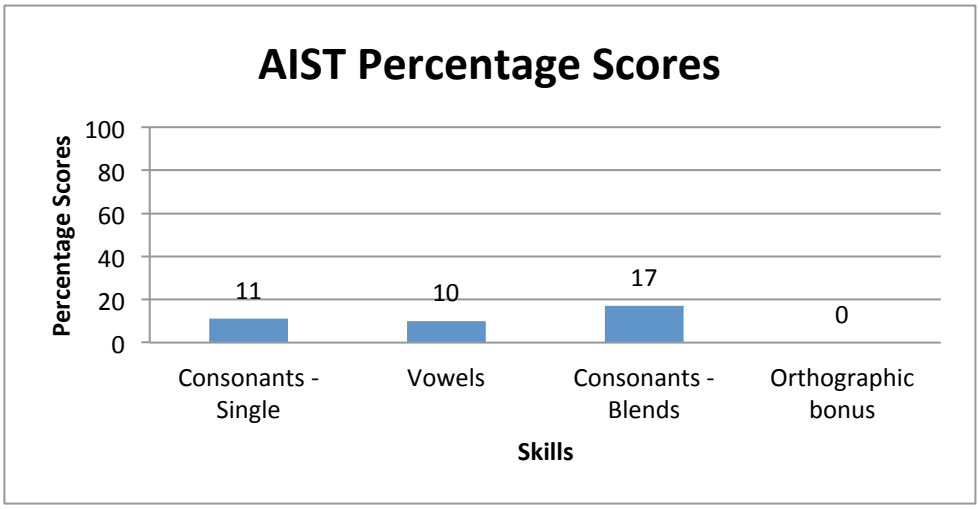


Figure 4.3. AIST scores for MChi03

Subsequently, the student was administered the SPAT-R to provide more specific data on the areas of need. Figure 4.4 represents the same student's scores on the SPAT-R and illustrates the profile common to many of the students involved in the Project. The skills on the vertical axis progress from those that are generally considered easier, such as syllabification, up to the more complex tasks requiring students to delete specific phonemes from words (Neilson, 2003b). The maximum total for non-word reading and spelling is eight while the remaining subtests have a maximum score of four. This student had a number of important skills, such as the ability to count syllables, identify and produce rhyming words and segment consonant-vowel-consonant (cvc) words. However, he lacked proficiency in manipulating phonemes orally and had limited knowledge of common letter-sound relationships. Thus, this student's profile indicated that he needed targeted support in order to succeed at reading.

Based on student results, teachers were encouraged to choose, or develop, a program that was based on the effective intervention principles as identified in the literature. The fourth session in the Project provided participants with information on what constituted effective intervention for reading difficulties with some commercial programs being demonstrated. Teachers were encouraged to select or develop an intervention that was appropriate for their students and context.

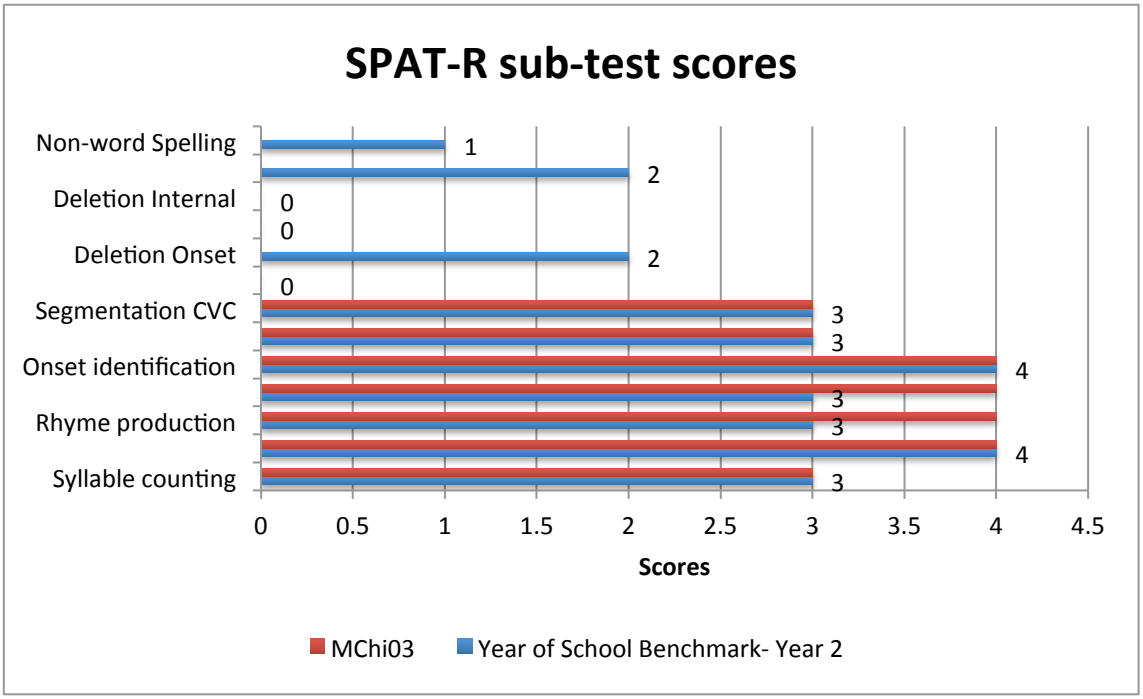


Figure 4.4. SPAT-R indicating profile of a student with phonological awareness difficulties

Pre- and post-intervention testing of the AIST and SPAT-R showed improved outcomes for a high proportion of the targeted students (Konza et al., 2011) as shown in Figures 4.5 through to 4.8. Post-intervention percentiles for the SPAT-R total and non-word assessments were calculated on the third year of schooling on the basis that the tests were administered towards the end of the students' second year of schooling. The Project data indicated (see Table 4.4) that there was a statistically significant improvement in student performance between March and September on the SPAT-R (Wilcoxon signed-rank test: z = -5.256, $p < .001$) and AIST (z = -6.847, $p<.001$) with moderate effect size for the SPAT-R (r = .44) and large effect size for the AIST (r = .57). A small number of students performed more poorly on the post-testing; however, when considering test scores, it is important to be cognisant of the factors that can impact on a student's performance such as the physical and mental state of the student at the time of testing and the environmental factors including time of day and temperature. Data were only collected from the classes of teachers involved in the Project and from the target students; therefore, there is no comparison possible with other classes in the same school or

students in the same class as the target student. This limitation in the research design of the Project means that it is not possible to demonstrate that the explicit approach is more effective than other approaches to reading instruction; however, overall results were encouraging. Table 4.5 indicates that the number of students in the lowest quartile for the total SPAT-R percentile rank and non-word spelling percentile rank fell considerably over the intervention period. This suggests that the pedagogy being used had been effective in promoting learning.

Table 4.3. *Comparison of Students' Pre/Post Performance on the SPAT-R (Percentile) and AIST (Percentage)*

			Pre		Post		Wilcoxon signed-rank		Effect size
		N	*M*	*Mdn*	*M*	*Mdn*	*z*	*p*	*r*
SPAT-R	Total	71	36.15	25	54.07	55	-5.256	<.001	.44*
	NWS	71	24.19	15	37.46	38	-3.787	<.001	.32*
AIST		73	38.86	45	60.83	70	-6.847	<.001	.57**

Note: *M* = mean. *Mdn* = median, NWS = Non-word Spelling
* = moderate effect size; ** = large effect size

Table 4.4. *Number of Students in the Lowest Quartile Pre- and Post-Project (n=61)*

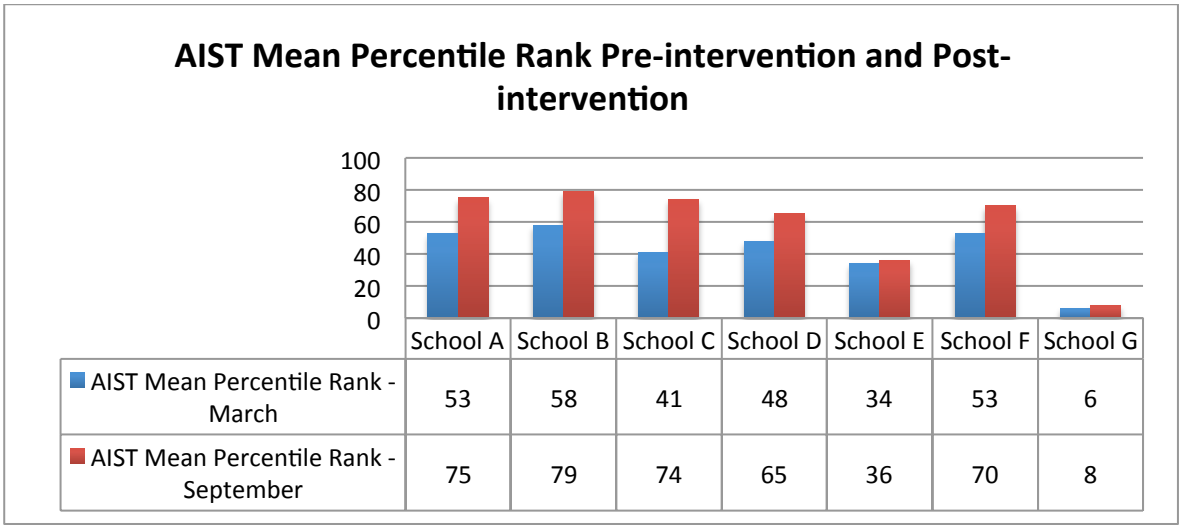
	Number of students in the lowest quartile pre-Project	Number of students in the lowest quartile post-Project
Total SPAT-R percentile rank	21	6
Non-word spelling percentile rank	37	19

Assessment Results by School

Results for each school are provided below (Figures 4.5-4.8), including significance levels and effect sizes, which indicate a moderate to large effect on student performance from initial testing in March to the final testing in September.

Mean percentile ranks for the AIST indicate that students in all schools made some progress over the course of the year, although this appears to be small for Schools E and G (Figure 4.4). A similar pattern is identified in the AIST subtests with the exception of School E (Figure 4.5).

All students in School E made gains in each area with the exception of the vowel subtest. Additionally, no students in School E scored any orthographic bonus points for correct spelling of the more complex letter-sound patterns in either the pre- or post-intervention tests.



	School A	School B	School C	School D	School E	School F	School G
AIST Mean Percentile Rank - March	53	58	41	48	34	53	6
AIST Mean Percentile Rank - September	75	79	74	65	36	70	8

Figure 4.5. AIST mean percentages for pre-Project and post-Project scores (n = 51)

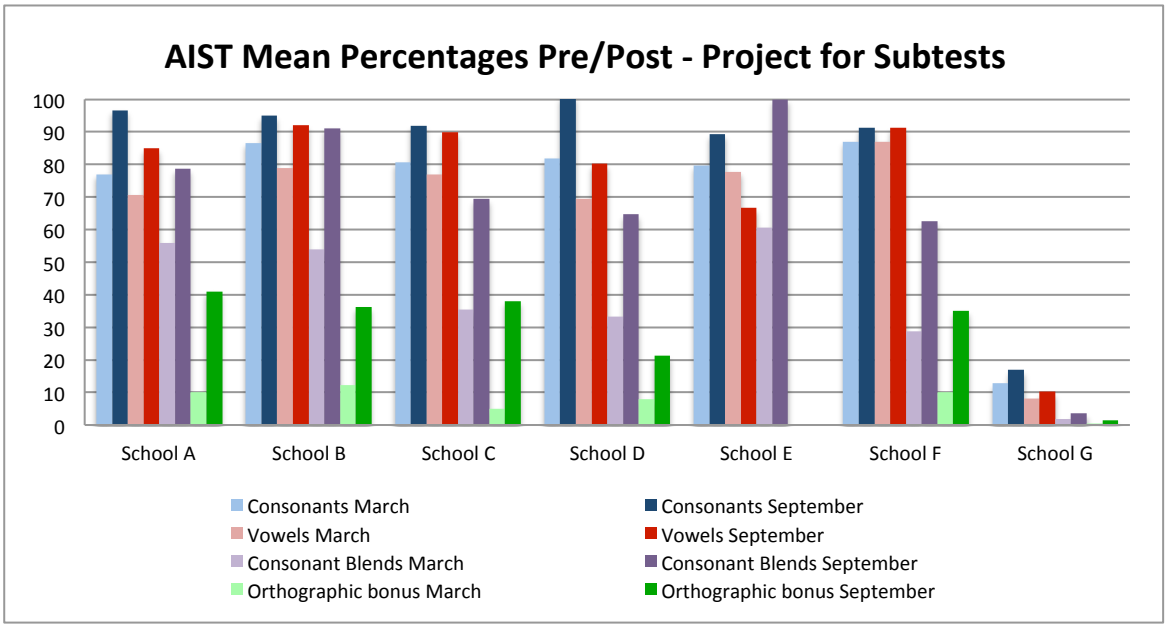
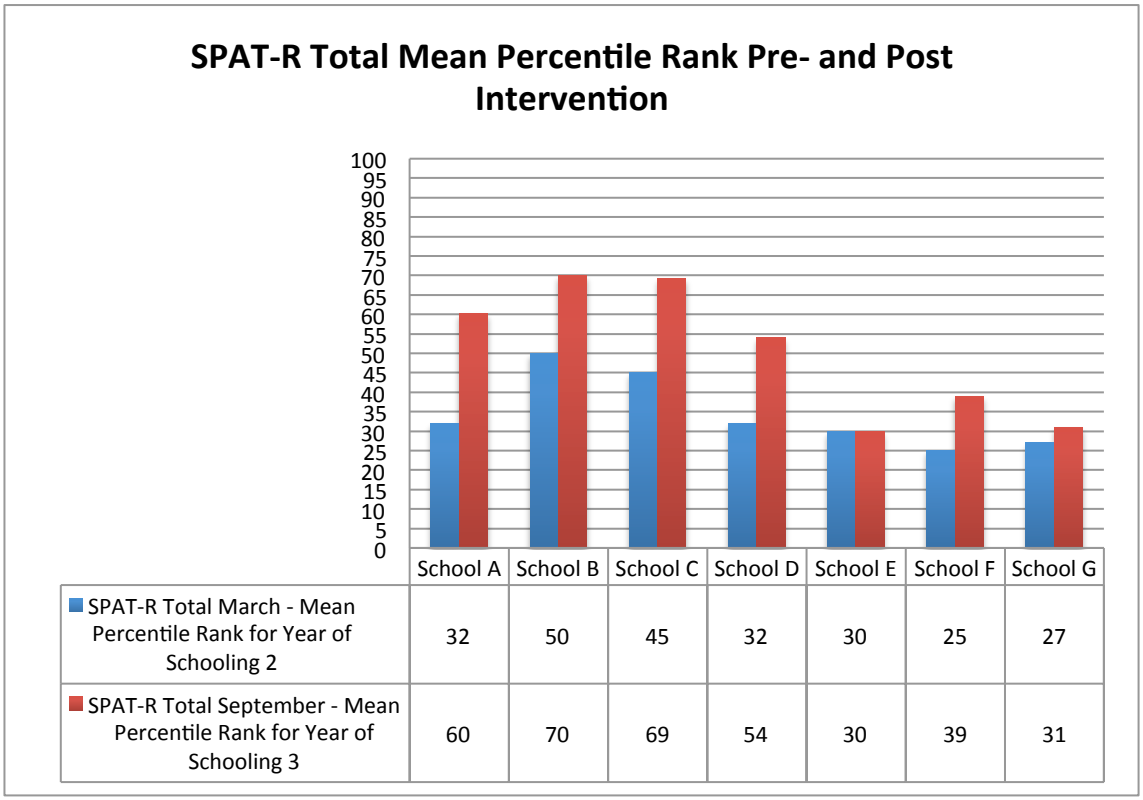


Figure 4.6. Pre and post-Project percentages for subtests in the AIST (n = 51)

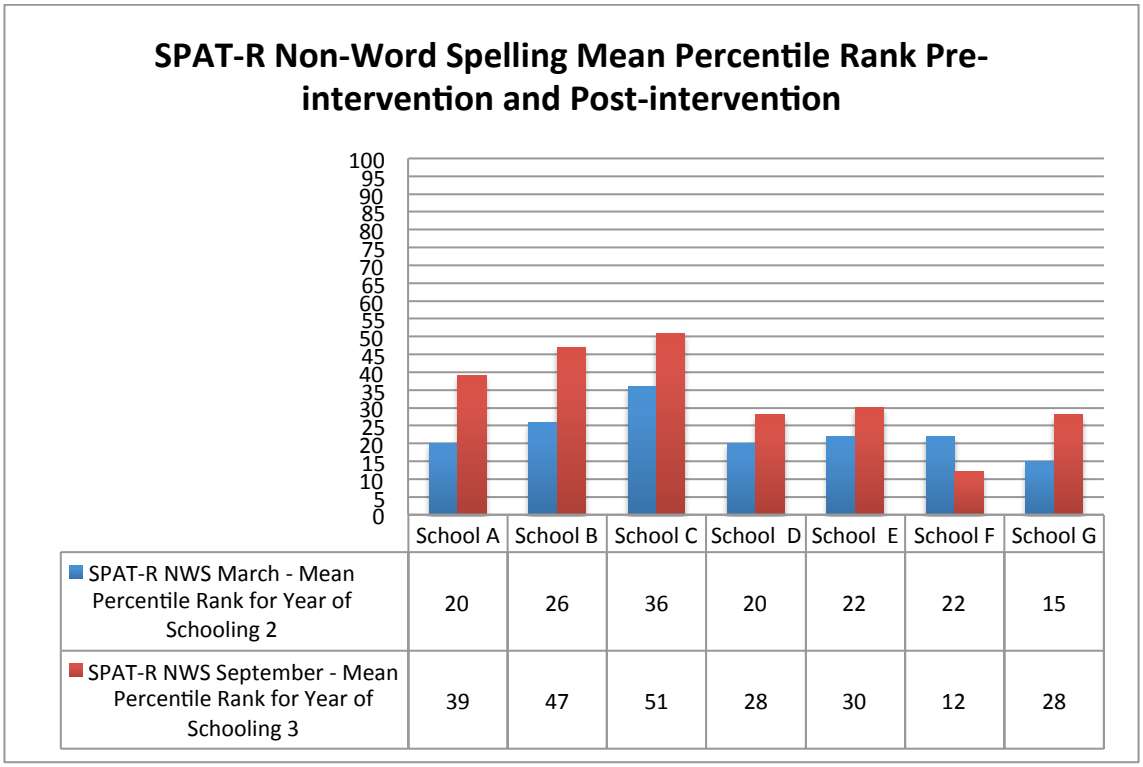
As the post-intervention scores were calculated on the percentiles for the third year of schooling, these results indicate that students in schools A, B, C, D, F and G for the SPAT-R total (Figure 4.7) and A, B, C, D, E and G for the SPAT-R Non-word reading (Figure 4.8) were performing better in September against the percentiles for Year of Schooling 3 than they were in March against the percentiles for Year of Schooling 2. The effect sizes for the SPAT-R and the AIST were moderate to large (Table 4.4).



	School A	School B	School C	School D	School E	School F	School G
SPAT-R Total March - Mean Percentile Rank for Year of Schooling 2	32	50	45	32	30	25	27
SPAT-R Total September - Mean Percentile Rank for Year of Schooling 3	60	70	69	54	30	39	31

Figure 4.7. SPAT-R total percentile rank scores pre- and post-Project (n = 71)

* The middle two quartiles (one standard deviation either side of the mean) for students in their 3rd Year of Schooling = 25 – 72%.
\# The middle two quartiles (one standard deviation either side of the mean) for students in their 2nd Year of Schooling = 26 – 74%.



	School A	School B	School C	School D	School E	School F	School G
SPAT-R NWS March - Mean Percentile Rank for Year of Schooling 2	20	26	36	20	22	22	15
SPAT-R NWS September - Mean Percentile Rank for Year of Schooling 3	39	47	51	28	30	12	28

Figure 4.8. Non-word spelling mean percentile rank scores (n = 71)

*The middle two quartiles (one standard deviation either side of the mean) for students in their 3rd Year of Schooling = 25 – 68%.
The middle two quartiles (one standard deviation either side of the mean) for students in their 2nd Year of Schooling = 27 – 70%.

Any evaluation of student progress over time without a matched control group is problematic as there are numerous variables, such as additional support provided outside of school, which are impossible to control. Therefore, while there was a statistically significant improvement in students' overall post-test scores on the SPAT-R and the AIST (see Table 4.4) these could not be ascribed only to the Project. This may explain the teachers' responses on the *Program Evaluation Questionnaire* indicating that they were somewhat ambivalent regarding the extent to which the professional learning had had an impact on their students' performance (see Table 4.3).

Key Finding – All Project Participants 4.7
Improvements in test scores for the SPAT-R and AIST were statistically significant, with a moderate to large effect size. Despite this, teachers were not overly confident that this improvement was a result of the professional learning.

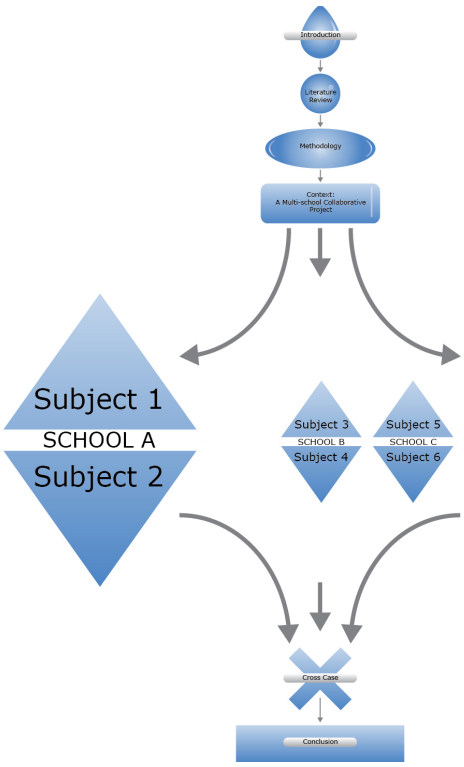
4.5. Summary

In the words of Robert Burns: The best-laid schemes o' mice an 'men Gang aft agley (R. Burns, 1759-1796). This is a common theme in educational research where the complexities of the environment often result in changes to the way that professional learning is delivered (Konza, 2012b), subsequently influencing fidelity of program implementation and the ability to accurately determine its impact. A number of issues were identified in relation to the success of the Project overall. These included an unexpected doubling of the number of schools involved and incomplete information about the schools' contexts prior to the commencement of the Project (Konza et al., 2011) resulting in the need to change the Project model without sufficient time to plan for these changes. These difficulties may account for the Project's failure to impact positively on teachers' beliefs, as indicated by the TORP, and knowledge, based on the SLCRLA and the TPPA. Positive outcomes for the Project did, however, include teachers' reported use of more explicit approaches to reading instruction, overall improvement in student outcomes and teachers' increased sense of self-efficacy in teaching reading, although the precise extent to which these can be ascribed to the Project was difficult to ascertain.

The following three chapters (5 to 7) record the experiences of six teachers from three schools over the year in which they participated in the Project, and into first semester of the following year, to determine the impact of the Project on their practice. These case studies, A, B and C, provide the opportunity to explore the factors that impacted on the outcome of the Project in greater detail. The case study observations began prior to the commencement of the monthly

Project meetings. All observations of teachers' literacy learning experiences took place first thing in the morning, when literacy blocks were scheduled and explicit instruction of reading skills ideally occurs. Interviews were conducted after each of these observations with additional, more in-depth interviews being conducted in June of the Project year and July the following year. An important initial observation that can be made from the whole Project data is that student progress in some schools was better than others with students from schools A, B and C performing better than those in the other schools (Figures 4.8 – 4.11). This does not imply causality, but rather highlights the need to examine more than survey and assessment data in determining the factors that influence outcomes.

CHAPTER 5: SCHOOL A



This chapter explores the beliefs and practice of the two teachers at School A and examines the outcomes for the target students in their classes. The whole school context is presented, followed by specific information about the case study teachers and their classrooms, beliefs, classroom practice and student outcomes. The teachers have been given the pseudonyms Abby and Alexis.

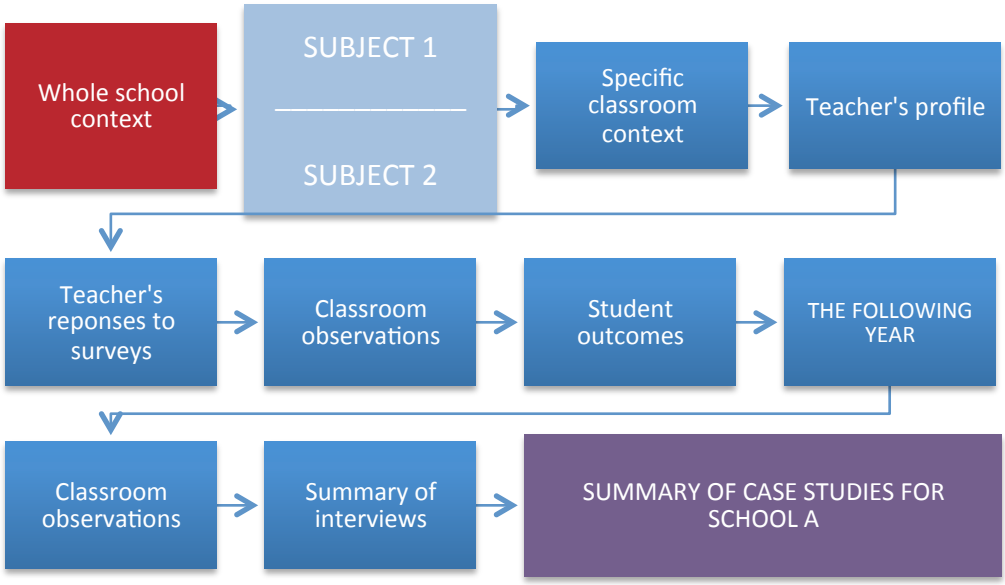


Figure 5.1. Organisation of chapter 5

5.1. The Setting

School A is a government primary school in a metropolitan area catering for students from Kindergarten to Year 7 (K-7). The 2010 school report foregrounded the School's commitment to the Arts, Sports and Community Engagement. The *My School* website (ACARA, n.d.) provides a profile of the school indicating that, at the time of the research, there were 750 students enrolled, 381 girls and 369 boys, of whom 1% were Indigenous and 9% were from a language background other than English. There were 49 teaching staff members equivalent to 40.5 full time staff members and 23 non-teaching staff equating to 13.8 full time positions. The total net recurrent income for the school was listed as $6,234,757.

The ICSEA[6] rating for School A was 1064. The distribution of students in School A compared to Australian distribution figures is represented in Table 5.1. Overall, this indicates that students in this school were more advantaged than the Australian average with 89% in the middle and top quarter compared to the overall Australian distribution of 75%.

Table 5.1. *Index of Community Socio-Educational Advantage (ICSEA) Indicating the Distribution of Students in School A Compared to Overall Distribution in Australia (ACARA, n.d.)*

Distribution of students	Bottom quarter	Middle quarters		Top quarter
School distribution	11%	22%	37%	30%
Australian distribution	25%	25%	25%	25%

Note. Percentages are rounded and may not add up to 100

The School's NAPLAN data for reading in 2008, 2009 and 2010 indicated that School A's results in this area had been improving since 2008. In that year, School A's performance was below the average for Australian schools serving students from statistically similar backgrounds, but in 2009 and 2010 it was close to both of these averages (ACARA, n.d.).

[6] The Australian Curriculum Assessment and Reporting Authority (ACARA) provides a rating for each school in relation to projected performance. The Index of Community Socio-Educational Advantage (ICSEA) was developed as a means of comparing the average potential performance of all students in a particular school against other schools in Australia. ICSEA is intended to measure the educational advantage of the students in a school. The ICSEA formula includes: parent occupation and level of education, percentage of Aboriginal and Torres Strait Islander students and students with language backgrounds other than English, Accessibility/Remoteness index, as well as Australian Bureau of Statistics census data. The average score for Australian schools is 1000 with schools having an ICSEA greater than 100 considered to be educationally advantaged. Either delete or summarise and put as footnote(s) in next chapter – too much detail here. First sentence isn't needed at all as you reference the information in next chapter. Next paragraph also belongs in next chapter.

The School Report highlighted that, at the time of data collection, the School was part of the National Partnership Program, and therefore had significant funding to develop teachers' skills in the area of reading instruction. Interviews with teachers indicated that, in addition to *First Steps* training, the School invested in additional professional development that supported a decoding approach to literacy instruction such as *Promoting Literacy Development* provided by Diana Rigg (2009). The literacy programs for each year were developed in conjunction with the literacy support staff and the teachers.

The Teachers and Their Classes

The two teachers from this School who volunteered to be involved, Abby and Alexis, were unique participants in this research as they shared a double demountable building, with their classrooms open to each other. They were observed and reported working effectively together, team teaching as well as planning and sharing resources. This provided the opportunity for different groupings of students and enabled Abby and Alexis to provide a more differentiated program for their students. During the literacy block Abby took the larger group of more able students, allowing Alexis to provide greater support for the less able students.

There were two students in the classes that Abby and Alexis identified as having very low literacy levels. These students were withdrawn for the first part of the literacy lesson and parent helpers, library staff or Education Assistants were rostered to work on reading skills with them. These students completed a different program from the rest of the class during this time, but were reintegrated for other literacy activities. As one of the literacy support teachers at the School, Alexis prepared the program and resources for these students. This program included activities such as an alphabet chart, sound bag, sight word folder, *Reading Eggs* (an online reading support program developed by the Australian Broadcasting Commission, http://readingeggs.com.au), signs for sounds, Fitzroy readers and activity sheets, Dianna Rigg matching cards, and spelling activities including 'Look, Say, Cover, Write, Check'. While there was evidence of some appropriate support materials at the beginning of the year, as the year progressed, additional resources were incorporated which reflected the material discussed in the Project meetings: for example, testing was used to identify students' existing knowledge so that programs could be developed around these. The sequence in which letters were introduced changed from alphabetic to the SATPIN order (the name reflects the sequence of the initial six letters to be presented) and activities using these letters were included. Alexis reported making many of the resources demonstrated during the Project such as 'match to sample' grids to support these students. Both students came from Abby's class

and are represented in the data for her students, but due to the collaborative nature of their teaching, student outcomes cannot be ascribed to one teacher.

Key Finding 5.1

The material developed for the students in the literacy support program in School A, over the course of the Project, became more explicit and systematic. This is consistent with the Project's emphasis on synthetic phonics and indicates a change in PCK and beliefs.

Case study 1: Progression through the Project

Profile of the teacher – Abby

Abby was between 26 and 35 years old and had been teaching between three and five years after receiving her Graduate Diploma in Education (Primary). According to Huberman's (1989a) stage model of teachers' professional lives, this would place her in the *Stabilization* phase, which is characterised by confidence, independence and mastery over instructional practices. She was enthusiastic about her classroom environment ensuring that it was aesthetically pleasing including a reading 'corner' with beanbags and bright sheer curtains. Students' work and photographs were displayed around the room, as were charts to support students to work independently. Computers with educational software and Internet access were shared between the two classes.

Abby's responses to the survey instruments administered as part of the Project provided an overview of her progression through the Project in relation to her perception of herself as a teacher, her knowledge of reading skills, and her approach to teaching reading. These surveys indicated that Abby had a moderate to very high level of confidence in her ability to teach literacy related skills with an average pre-Project response of 2.4 out of 4 on the self-efficacy scale for the SLCRLA and 3.3 out of 5 on the TRSES. The overall score on the SLCRLA did not change between the start and end of the Project but there was a three-point difference on the TRSES, increasing the average response to 3.7 out of 4. Abby became more confident in her ability to teach reading even when there was a lack of support for students from home and students were not interested in learning to read.

Key Finding 5.2

Abby's increased confidence in her ability to teach a child to read even when the conditions were not ideal, such as lack of support from home and students who were not interested in learning to read, suggests a change in her belief about her influence on children's reading development.

Abby's score on the TORP at the start of the Project indicated that she favoured a decoding perspective, although, at 64 this was only two points outside of the skills perspective. On the *Literacy Activities Survey* the strategies Abby listed were also consistent with a skills perspective. By the end of the Project Abby placed herself in the skills perspective with a score of 74 which was still towards the decoding end of the continuum (DeFord, 1985). In terms of her literacy knowledge and ability, Abby scored 60% on the TPAA and 70% on the SLCRLA, on both administrations, indicating her level of skills in relation to literacy instruction were average for the Project participants, although indicating some gaps in knowledge and skills. In the TPAA, specific areas of difficulty for Abby were in identifying the second sounds in words and identifying the number of phonemes in a word. A breakdown of the assessment areas and scores in the SLCRLA appears in Table 5.2. While Abby scored lower on the post-survey, it is worth noting the conditions under which this survey was administered, as outlined in the previous chapter.

Table 5.2. *Abby's Performance on the SLCRLA*

SLCRLA	Pre-	Post-
Phonemic – Knowledge	4/4	4/4
Phonemic – Ability	9/10	9/10
Phonological – Knowledge	1/1	1/1
Phonological – Ability	7/7	7/7
Phonics – Knowledge	4/8	2/8
Phonics – Ability	2/2	1/2
Morphological – Knowledge	1/3	3/3
Morphological – Ability	6/15	8/15
Comprehension – Knowledge	8/10	6/10
TOTAL	42/60	41/60

Abby's responses to the *Program Evaluation Questionnaire* indicated that overall she felt that the experience had improved her confidence and somewhat improved her instructional practices in meeting the literacy needs of her students (Table 5.3). She was less confident about the impact that the Project had on the outcomes for her students, which was consistent with evaluation of the whole cohort of participants in the Project. Abby's overall mean for the evaluation was 3.6 making it slightly higher than the mean for all participants, which was 3.4.

Table 5.3. *Abby's Responses to the Program Evaluation Questionnaire*

QUESTIONNAIRE ITEM	Mean - all participants/ (Aggregate Mean)	Abby's responses/ (Aggregate Mean)
As a result of the professional development, you are able to:	**(3.5)**	**(3.9)**
1. Make clearer links between your teaching goals and classroom activities in relation to literacy	3.7	4
2. Use more effective teaching and learning strategies appropriate to the literacy content you teach	3.7	4
3. Use teaching and learning strategies that are more challenging and engaging	3.3	3
4. Better meet the individual literacy needs of your students	3.6	4
5. Link assessment into the teaching and learning cycle more effectively	3.8	4
6. Provide more effective feedback to your students to support their learning	3.3	4
7. Access and use literacy materials and resources more effectively	3.4	4
As a result of the PD, your students:	**(3.2)**	**(3.2)**
8. Have fewer difficulties in understanding what they are being taught in relation to literacy	3.1	3
9. Learn more purposely	3.2	4
10. Engage more actively in literacy learning activities	3.2	3
11. Demonstrate enhanced literacy learning outcomes	3.2	3
12. Access and use literacy materials and resources more effectively	3.1	3
As a result of the PD:	**(3.6)**	**(4)**
13. My ability to meet the literacy learning needs of my students has expanded	3.6	4
14. My confidence in teaching literacy has increased	3.6	4

Note: Item rated 1 = strongly disagree, 2 = disagree, 3 = somewhat agree, 4 = agree, 5 = strongly agree

Key Finding 5.3

Quantitative measures, TORP and SLCRLA, did not indicate any significant changes in Abby's beliefs and knowledge at the conclusion of the Project; however, changes were noted during classroom observations and Abby reported both improved confidence and improved instructional practices in the *Program Evaluation Questionnaire*.

The teaching actions

The *Literacy Practices Guide* (Konza, 2012a) was used as the framework to evaluate the classroom environment, student work, literacy planning documents and reading instruction. Under each of these criteria are listed key indicators of effective literacy practices. The following classroom features were evident in Abby's classroom:

- Room design supported whole group, small group and individual instruction
- Comfortable, well-organised informal reading area
- Alphabet displayed
- Word walls
- High-interest fiction and non-fiction books available at variety of reading levels
- Take home books
- Books on tape

The charts on the wall included those from Jenny Johnston's (2002) *Sounds to Learn* phonics program, which is used across the School to teach the sounds of letters. In addition, each child had a desk mat which displayed the alphabet, high frequency words and sentence starters. Overall, the classroom environment was attractive within the confines of what is possible in demountable classrooms. There were photographs of the students and students' work samples displayed around the room. A document analysis indicated that when Abby provided feedback to students it was positive and targeted with specific recommendations about how students could improve their work. Rubrics were used for portfolio pieces and these included space for students to comment on their work.

In the first observation of Abby's literacy block activities, prior to the commencement of the monthly Project meetings, the focus of the lesson was on character traits. The first task involved students reading a set piece of text with expression, and this was followed by a discussion on character traits. A 'Sound Hunter' task, where students scanned the text to find letters that make a specific sound, and a writing task concluded the literacy block.

The observed literacy activities have been categorised using a table format, and phonics instruction classified on the basis of whether it was embedded, analytic or synthetic (Tables 5.4, 5.5 and 5.6). When using an embedded phonics approach the teacher may interrupt the reading if they notice a child/children experiencing difficulty with a reading task and provide instruction at the point of need. Analytic and synthetic phonics are both explicit and systematic, but in an analytic phonics approach the teacher directs students to focus on a particular sound in the word whereas, in a synthetic phonics approach, the students are taught

recognise the sounds that letters make and combine these to make words. The Project team advocated a synthetic phonics approach to support the target students.

Table 5.4. *First Observation of Abby's Teaching*

Activity	**Emphasis**
Students reading text aloud	Fluency
Students struggling to read a word were directed to look at the sounds in the word to help them decode it	Phonics (embedded)
Abby used the Interactive Whiteboard (IWB) to talk about character traits and highlight that actions tell us about people's personalities	Oral Comprehension
Students brainstormed the traits of characters in the story	Vocabulary
Incidental teaching of hyphens to join words together: for example, hard-working	Grammar
'Sound Hunters' involved the students scanning the text to find words with the /k/ sound. Students were reminded that the sounds could be spelt in different ways and could be in different positions in the word: for example, cat, king, duck	Phonics (analytic)
This was followed by a writing lesson based on the character traits discussed in the first part of the literacy block	Writing

In subsequent observations it was evident that the lessons followed a similar structure to the initial observation, but these lessons included considerably more explicit instruction in identifying and manipulating letter sounds. This was consistent with the information presented to the Project participants on the need to incorporate explicit instruction in sounds and blends when teaching these skills. The following example illustrates the approach used in these lessons. The literacy block commenced with the majority of the students in the group doing 'Buddy Bump' reading, which involves students working in pairs to read a piece of text aloud. Each student read about a paragraph and would then 'bump' their partner when it was their turn to read. Pairs were encouraged to help each other when necessary (Annandale et al., 2004). While most students were doing Buddy Bump reading, Abby worked with small groups on the mat focusing on speed-reading, aiming to beat their previous times for reading the same piece of text.

Once this was completed the whole class moved to the mat to do 'Sound Hunter' work in which students had to find certain graphemes in a piece of text. To make this more engaging Abby called this 'Sound Detective Work', and provided the students with magnifying glasses. Students were directed to find the answers to a number of questions; for example, "Can you find two words in the text that have the /a/ [as in part] sound with the letter 'a'?" (see Appendix I for International Phonetic Alphabet). Abby then clarified this instruction by explaining how this was different from the usual 'ar' spelling of the /a/ sound and asking what other sounds the letter 'a' can make in different words. Other tasks involved finding the suffix 'ed', the 'oo' spelling of /ʊ/ as in book, 'ee' spelling of /i/ as in tree, 'a' spelling of /ei/ as in cake, rhyming words, opposites, and specific terms such as the word that means *rounded up the sheep*. Abby provided additional instruction for these tasks such as explaining long vowel sounds by illustrating what the difference was between the names of two students in the class, Jake and Jak, and reminding students of the words antonym and synonym.

In explaining the rhyming task, Abby said, "Take away the onset and find a different blend or sound". Students had difficulty with this task until she explained about removing the first letter from the word and finding different letters in the text to replace it. When explained in these terms students were able to do the task, although the opportunity to explicitly teach the term 'onset' was not utilised. Abby moved around the class during the lesson providing additional support, such as reminding a student "i before e except after c" and discussing with the whole class what happens to words like "'grade'; when you add 'ed'": that is, making it past tense. One student offered 'knitted' as an example of a word ending in 'ed', and Abby, returning to the initial task of removing the onset, asked what the silent letter at the beginning of the word 'knitted' was. After a student offered the letter 'k' Abby explained that you would take away the first *sound* of the word not just the letter 'k' when finding rhyming words. This word also offered Abby the opportunity to extend the teaching point into doubling consonants at the end of one-syllable words with a short vowel. She asked students why the extra 't' was added before 'ed'. A student offered "because of the vowel…the 'e' can reach over the vowel and make it into an 'i'[aɪ]". At this point, and without responding directly to the student offering the incorrect response, Abby provided the answer by stating that you double the consonant to keep the 'i' a short sound. This illustrated Abby's use of direct teaching to complete the incidental teaching point quickly in order to return to the focus of the lesson.

The follow-up writing activity also provided students with practice in isolating sounds within words as they looked for rhyming words to construct a poem. The literacy block for this day concluded with spelling for 10 minutes using 'Look, Say, Cover, Write, Check' and Word Shapes

(in which students guess words from their spelling list based on the word's 'envelope' or outline shape).

Table 5.5. *Second Observation of Abby's Teaching*

Activity	**Emphasis**
Buddy Bump reading	Fluency
Speed-reading	Fluency
Sound Detective (Hunter) - students search for specific sounds in a piece of text	Phonics (analytic)
Rhyming words	Phonological awareness
Opposites and specific terms	Vocabulary (explicit)
Recalling prior knowledge of spelling rules	Grammar (embedded)
Writing poem	Phonics
Spelling, 'Look, Say, Cover, Write, Check'	Graphophonic knowledge

The final observation in the Project year was in September and revealed the continued use of more explicit instructional strategies during the literacy block. The structure of the learning experience followed the same sequence as other lessons observed throughout the year. The 'Word Detective' activity in this lesson required students to identify words of different syllable length, adjectives, and plurals using 's' and 'es'. Prior to commencing this activity, Abby explained each of these tasks including having students clap out the syllables in the words, and explaining the difference between the sounds and the syllables as "a syllable has a vowel in it so bread has four sounds but only one syllable". She also included incidental teaching in reminding students about the 'ea' spelling of /ɛ/ as in bread, and how to make a plural for a word that ends in 'y'. While most students were working on this task, Abby worked with a smaller groups of students on comprehension activities, including recognising the different types of questions (*right there*, *think and search*, and *on your own*) and using subheadings to help find information.

All of the observed lessons included the following features from the *Literacy Practices Guide* (Konza, 2012a):

- Purpose of lesson stated.
- Activating prior knowledge of content.
- Modelling of good oral reading practices (fluency, use of expression).
- Whole-class and targeted individual assistance.

- Explicit instruction of strategies to decipher multi-syllabic words, specifically focusing on known sounds.

However, in the second and third observations (Table 5.5 and 5.6), there was a greater emphasis on explicit instruction of strategies to decipher words.

Table 5.6. *Third Observation of Abby's Teaching*

Activity	**Emphasis**
Syllable clapping	Phonological awareness (explicit)
Difference between syllables and sounds	Phonological awareness (explicit)
'Sound Hunter' - syllables	Phonological awareness
'Sound Hunter' - adjectives	Vocabulary
'Sound Hunter' - plurals	Grammar
Recalling prior knowledge of 'ea' spelling of the /ɛ/ sound	Phonics (embedded)
Question types and headings	Comprehension

A document analysis at the time of the third observation did not indicate any significant changes to the feedback provided to students. It continued to be positive and targeted with specific recommendations about how students could improve their work.

Key Finding 5.4

Abby's teaching included a greater emphasis on explicit instruction with the whole class as the year progressed; however, the content of this instruction was still largely determined by the themes and texts selected rather than being determined by a specific sequence of skills.

The Students' Performance

As acknowledged previously, any evaluation of student progress over time is problematic because of the number of variables in schools, including the sporadic availability of the volunteers and paraprofessionals who were scheduled to provide small group instruction to these students. Nevertheless, it is worth noting that the focus students in Abby's class did show improvements in their reading skills from their initial assessments in March to the final assessment in September. All of her students' scores increased on the overall AIST and SPAT-R

assessments (see Figures 5.2, 5.4 and 5.5). Scores for subtests of the AIST elaborate on the overall score, and highlight the improvements in specific sub-skills (Figure 5.3).

Student 3 received small group literacy support with one other student but this student was not in the School when initial testing was conducted, and therefore his results are not recorded. Student 3's progress was seemingly not as great as the other focus students (see Figures 5.2 to 5.5). His performance on the AIST, however, did indicate a greater percentage improvement than his peers (Figure 5.2) even though the final result was still low. The breakdown of the AIST sub-skills (Figure 5.3) reveals that this student made significant progress in his knowledge of sounds, but less in his graphophonic knowledge. This student's initial SPAT-R total score and non-word spelling percentile ranks were both 0, well below what was expected for a student in that year group. When examining the limited improvement by this student it is important to acknowledge that using resources designed to teach decoding may be too difficult for him. His limited oral language skills suggest the need to start the intervention with phonemic skills rather than graphophonic skills. In addition to the content of the program, low attendance rates were reported indicating that he was missing out on learning opportunities.

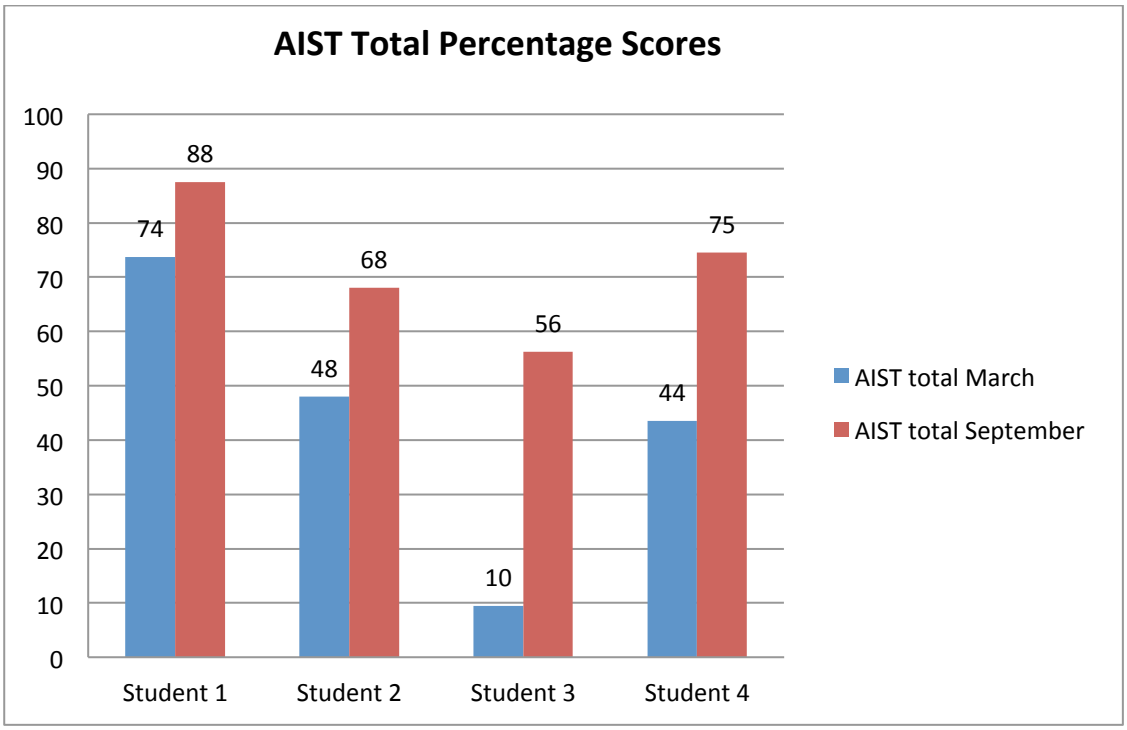


Figure 5.2. Pre- and post-Project AIST percentage scores for Abby's students

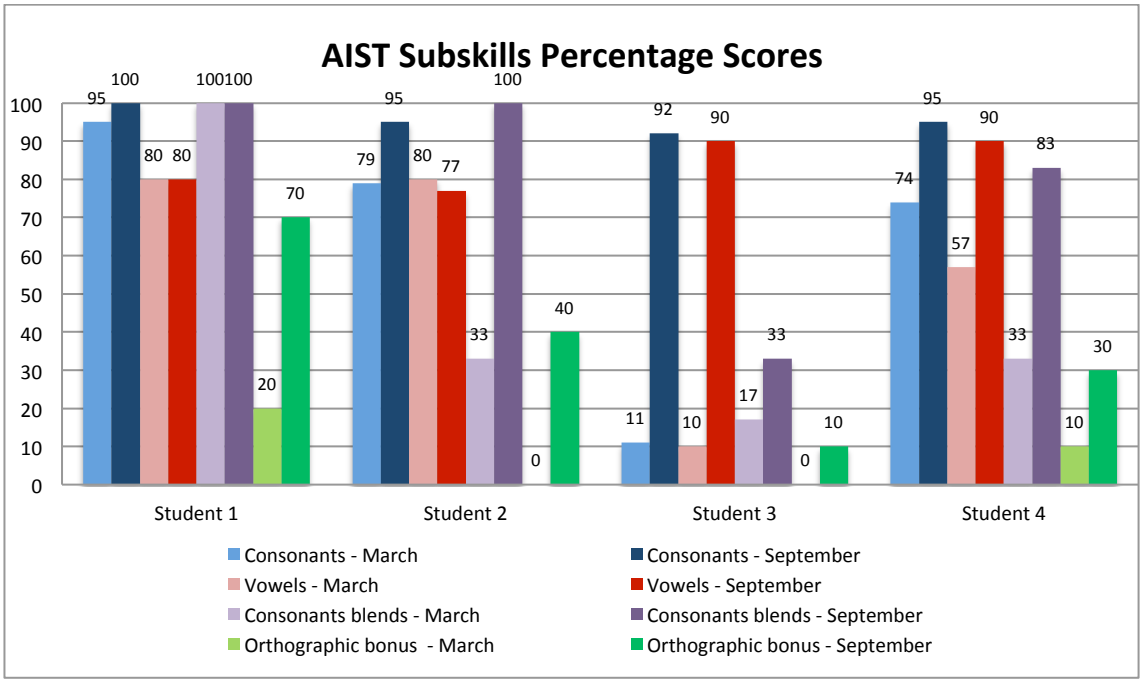


Figure 5.3. Pre- and post-Project AIST subskills percentage scores for Abby's students

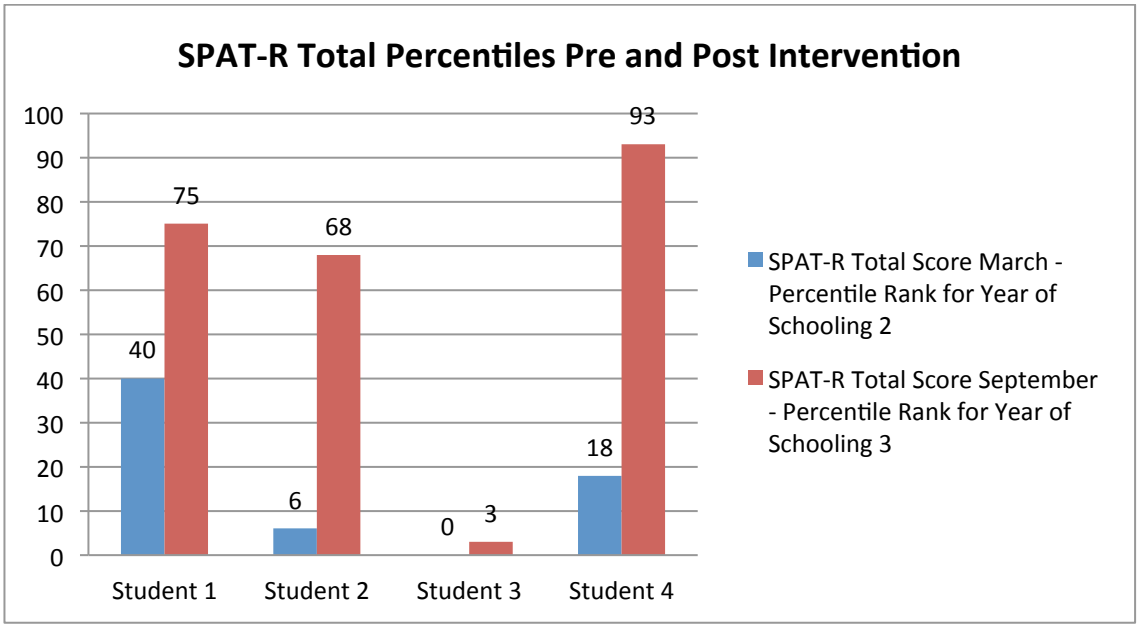


Figure 5.4. Pre- and post-Project SPAT-R percentile ranks for Abby's students

Note: A percentile of >1 is represented by 0 on the y axis

The middle two quartiles (one standard deviation either side of the mean) for students in their 2nd Year of Schooling =26 – 74%.
* The middle two quartiles (one standard deviation either side of the mean) for students in their 3rd Year of Schooling = 25 – 72%.

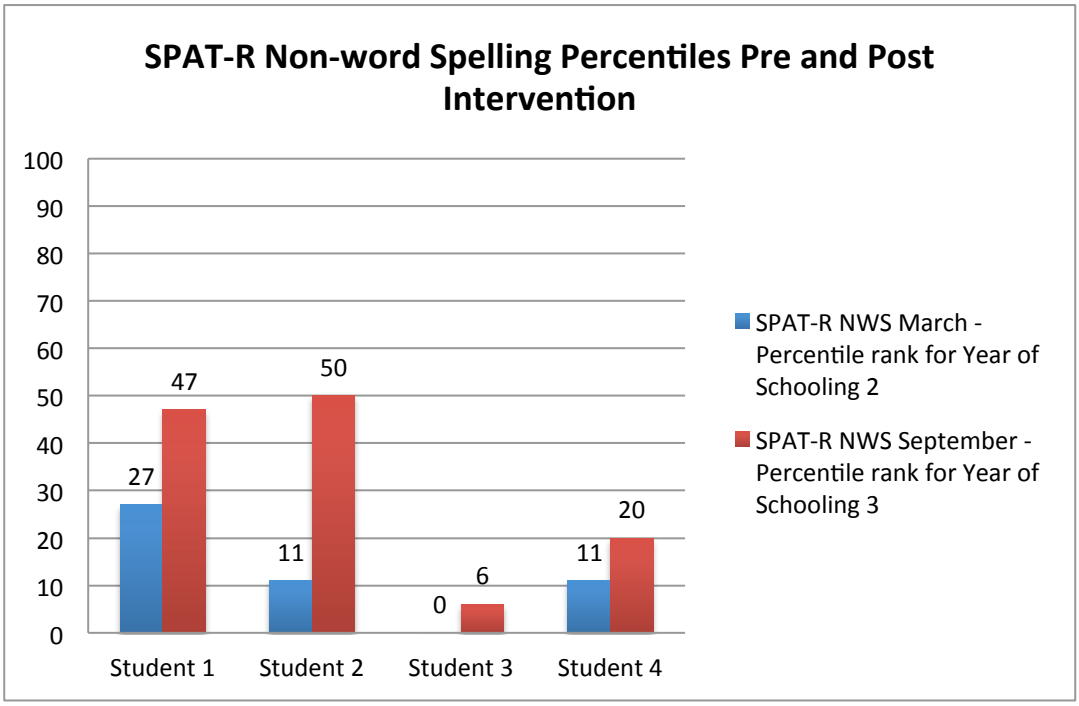


Figure 5.5. Pre- and post-Project SPAT-R non-word percentile ranks for Abby's students

Note: A percentile of >1 is represented by 0 on the y axis

The middle two quartiles (one standard deviation either side of the mean) for students in their 2nd Year of Schooling = 27 – 70%.

*The middle two quartiles (one standard deviation either side of the mean) for students in their 3rd Year of Schooling = 25 – 68%.

The target students in Abby's class showed overall gains in their performance on the literacy assessments. The skills that improved most were aligned with the increased emphasis on phonological awareness. Effect sizes for the students were calculated as this measure is not a consequence of sample size and provides some indication of the magnitude of the students' improvement. It is important to acknowledge, however, that "effect sizes in small scale studies are more likely to be highly variable than is the case in large studies" (Slavin & Smith, 2008, p. 3) and it is not possible to extrapolate beyond this particular context. Although moderate to large effect sizes were obtained for each literacy skill, Abby was not overly confident that the professional learning had an impact on the outcomes for her students (Table 5.3) and the limitations of the research design mean that is it not possible to provide the comparative data from which to identify the impact of the professional learning on student outcomes. Taking into consideration this limitation, the large effect sizes for students' results are indicative of effective pedagogy leading to improved outcomes for students.

Table 5.7. *Comparison of Abby's students' pre/post performance on the SPAT-R (percentile) and AIST (percentage)*

			Pre		Post		Difference[1]		Effect size
		N	*M*	*Mdn*	*M*	*Mdn*	*M*	*Mdn*	*r*
SPAT-R	Total	4	16.12	12.0	59.75	71.5	43.63	59.5	.65**
	NWS	4	12.38	11.0	30.75	33.5	18.37	22.5	.65**
AIST	Total	4	43.69	45.75	71.56	71.25	27.87	25.5	.65**

Note: *M* = mean, *Mdn* = median, NWS = Non-word Spelling
[1] Post-test minus pre-test
** = large effect size

Key Finding 5.5

There were significant improvements in the students' performance in several assessments, with a large effect size for all assessments; however, Abby was not overly confident that this could be attributed to her involvement in the professional learning.

The Following Year: Influence and Impact

In the following year Abby was observed and interviewed in order to determine if the professional learning from the previous year's Project was utilised. Abby had been transferred to another Year 2 class in a school closer to the CBD and was no longer in a team teaching situation. The ICSEA for this School was 1171 indicating the students were more educationally advantaged than students at her previous school. The classroom layout was restricted by the size of the room, which was built in the 1930s, and while the features remained similar to those listed for her previous room, there was no space for a comfortable, well-organised informal reading area.

At the beginning of the year, Abby explained that the School based their literacy block activities around Diana Rigg's material (Rigg, 2009) and expressed concern that this is what would be reflected in a classroom observation rather than her own approach. This final classroom observation was delayed until term two in order to give Abby the chance to settle into her new school.

Abby had continued to use groupings to enable her to work intensively with smaller groups of students and analysis of feedback to students in their workbooks indicated the use of metalanguage when making specific recommendations to students. Using the *Literacy Practices Guide* (Konza, 2012a), it was evident that Abby was using more of the strategies identified for effective literacy practice including:

- Oral language opportunities.
- Explicit phonological awareness teaching.
- Phonemic awareness in context.
- Explicit letter-sound teaching.
- Grouping of students.
- Explicit vocabulary instruction.
- Incidental practice of new vocabulary.
- Monitoring of progress.
- Clear purpose set for reading.
- Variety of levels of oral questioning.
- Modelling of good oral reading (prosody - phrasing, fluency, expression, varied volume).

The lesson began with the class organised into groups. Groups were either working on their spelling lists, including using the 'Look, Say, Cover, Write', Check strategy, word shapes, sentence of the day (an editing task), or working with the teacher. The groups rotated when Abby rang a bell after 10 minutes.

The first group that Abby worked with was focusing on the 'oa' spelling of /oʊ/ (as in boat) sound. The task involved copying down a 'silly' sentence that Abby read aloud: 'The toad sat in the boat and floated through the moat. He got soaked and began to moan. He wore a cloak so he wouldn't get a sore throat. He began to boast and made some toast in the toaster.' Explicit instruction from Abby included reminding the students of the 'ow' spelling of the /oʊ/ (as in tow) sound they had learnt the previous week and asking students the term used to describe two vowels that make a single sound. Students responded that it was a digraph and Abby prompted, "what type of letters are these?" to which one of the student's responded "vowels", to which Abby responded, "so it is a vowel digraph". Incidental teaching included helping with the spelling of 'would' by reminding students of the mnemonic device "o u lucky duck".

The second group to work with Abby focused on the 'ow' spelling of the /oʊ/ (as in tow) sound because they had studied 'o' (as in go) spelling the previous week. Students were asked to underline the sound in a list of words, including words such as 'snow' and 'window', and to clap out the syllables in the words. Abby asked students "how do we remember what a

syllable is?" eliciting the response that there is a vowel sound in each syllable. She then went through the sounds in the words, reminding students that they had learnt blends like 'sn as in snow' and 'thr as in throw' in Year One. Following this, the students read aloud in unison. Students then worked on word building by adding the morphographs '-s', '-ing', '-ed' and 'ly' where appropriate. Abby explained the different parts of speech and how this influences what morphographs can be added and subsequently what parts of speech they may become; for example, "If you add 'ly' to 'slow' it changes from a verb to an adverb because it is adding to a verb". Abby also instructed the group on the spelling rules associated with adding these morphographs. Students recited, "plural means more than one" three times. Students then worked on writing sentences with these extended words while Abby reviewed the work of the other groups in the class. Abby explained that she would work with the other groups throughout the week, so all students had the opportunity to work with her, and she had the opportunity to observe each student's progress.

The next activity also involved explicit instruction followed by group work on a rotational basis with Abby working with one of the groups. When explaining the tasks, Abby reminded students of the sounds they were focusing on that week, and worked through some examples: "'e' [i] as in sunny, where does that usually occur?" "What do we call 'a' as in cake?" Students offered "split digraph" and Abby elaborated on it being a vowel digraph. Other independent groups worked on a Sound Hunter task, a cloze exercise, or a sequencing activity.

The groups on the mat worked with Abby on a guided reading task. Incidental instruction included questioning to elicit strategies the students could use when they did not know a word; for example, sound it out, clap syllables, read around it, substitute a word, and find little words in the big word. Abby pointed out a hyphen and explained that the writer wanted them to read it as one word and made the distinction between this and compound words. After reading the poem, Abby asked a range of question types to check their understanding.

It was evident during the lesson observations that Abby was incorporating more explicit instruction into her literacy lessons than she had been before the Project (Table 5.8). In addition to explicit whole-class instruction, Abby worked with smaller groups, explicitly teaching sounds specific to their needs. What is indicated in Table 5.8 is that, with the structure of the learning experience, Abby was able to incorporate a greater range of literacy activities without compromising the explicit phonics instruction based on individual student needs.

Table 5.8. *Final Observation of Abby's Teaching*

Activity	**Emphasis**
Blending	Phonics instruction (synthetic)
Spelling ('Look, Say, Cover, Write, Check')	Graphophonic knowledge
Word shapes	Word recognition
Sentence of the day	Grammar
Focus sounds	Phonics instruction (synthetic)
Sound Hunter	Phonics
Cloze activity	Comprehension
Sequencing activity	Comprehension
Recalling prior knowledge of reading strategies	Code-based (phonics) and meaning-based (whole language)
Questioning	Comprehension

Abby's classroom also reflected the emphasis on explicit phonics with wall charts using the metalanguage of literacy. There was a mix of teacher/student created charts, such as sentence starters and sounds in words. Similar to her previous school, Abby had displayed student work around the room and filled the walls with charts to assist students with reading and writing tasks. Being an older school, there was less available space within the classroom and Abby had to utilise the enclosed veranda outside her classroom when doing group work. This area was also used to provide a space for children to read quietly as there was no space near the bookcases in the classroom.

Key Finding 5.6

In the year following the Project, Abby had become more proficient at teaching explicitly, differentiating instruction for smaller groups of students and using metalanguage as a teaching tool. This is indicative of a change in her skills and beliefs about how to teach reading.

In the Teacher's Words

A number of informal and semi-structured interviews were conducted during the course of the Project, which provided insights into Abby's perception of the Project and how it was

contributing to her teaching. At the start of the Project Abby was aware of the need to teach decoding skills and this was reflected in the literacy support material around the room and her responses to the TORP, although the TPAA and the SLCRLA did indicate some areas of weakness in relation to these skills. In discussions about the Project earlier in the year Abby expressed concern about catering for the needs of children who were significantly behind their peers, which aligns with the Management stage of the CBAM model (Hall & Hord, 2001). The approach from the start of the year was to have a roster system of parents, library staff and an education assistant to work with these students, but this was not always possible as the parents would not always come and the library staff could be required for other duties. In particular, it was difficult with parents as these students had already developed some effective work avoidance strategies and it was not always an enjoyable task for the parents rostered on to assist them.

As the year progressed, the lessons observed contained more explicit instruction and greater use of small groups to differentiate the curriculum. More material was added to the resources for the students working with support people. In an interview on the 8th of June, Abby expressed concern about the advice from the school psychologist to start "at the beginning" with Student 3 despite him having some knowledge of sounds and sight words. It had been recommended that she teach a sound a week and then all of the blends, rather than only those that cannot be made by decoding the sounds. She felt this was time consuming, as it did not take into account what the student already knew, based on what she had ascertained from the Project assessments. She was aware of the variability in the individual skills profile of students who had not acquired the standard reading milestones. She commented "so maybe I should move him on to blends as he can sound out already" indicating an appreciation of the need to establish a teaching sequence appropriate to the student's reading ability. The focus of her concerns was on the impact on student outcomes, rather than on managing the implementation (Hall & Hord, 2001) of Project recommendations.

Key Finding 5.7

Abby's questioning of the approach advocated by the school psychologist indicated changes in her PCK. She became more aware of her students' abilities, and how to meet their needs.

Abby and Alexis also made use of the support offered by the University research team to visit and talk to teachers about the needs of specific students and how these might be achieved with the materials discussed in the Project. This involved discussions around the sequence of

material and grouping strategies. They were able to identify materials they already had to achieve the key targets, rather than relying on being given a set program to teach.

In the final interview, Abby reported that:

> " [I] found the Project very beneficial towards my teaching. As I was trained from Years 1-7 in my DipEd, I found the Project gave me a detailed background of where the children were coming from. It gave me an insight into what I needed to explicitly teach and in what order".

When discussing how the Project had impacted on her teaching the following year she reported that the experience with fine grained assessment tools and knowledge of how to teach reading "was extremely helpful when preparing Individual Education Plans." She also used material from *Letters and Sounds,* which was introduced to Project participants, in particular the interactive games on the smart board. Abby explained that she was surprised when she realised that children were comfortable using the metalanguage of literacy, such as 'split digraphs', and was now incorporating this into her teaching. She was also more aware of the impact of explicit instruction on the reading skills of her students.

Key Finding 5.8

Abby was enthusiastic about being involved in the Project and made use of the support offered by the research team. She continued to utilise the teaching and assessment resources beyond her involvement in the Project as she felt they had a positive outcome on student performance.

When asked how the School supported her involvement in the Project, Abby relayed that the time provided by the school for testing and preparing sight words and games supported her engagement in the Project. She did report that additional time for collaboration and meetings within school hours would also have been beneficial.

Key Finding 5.9

Support from the School in the form of time and a commitment to the Project was a necessary component of Abby's ability to engage with the professional learning.

Case study 2: Progression through the Project

Profile of the teacher – Alexis

Alexis was between 36 – 45 years old and had been teaching for more than 10 years. According to Huberman's (1989a) stage model of teacher's professional lives, Alexis was in a

phase characterised by *Experimentation and Diversification*. Huberman suggests that this is a result of the consolidation of skills, which occurred in the previous stage, and leads to teachers trying to increase their efficacy in the classroom. Approaches to achieve this may include "experimenting with new materials, different pupil groupings, new assignments, different combinations of lessons and exercises" (M Huberman, 1989a, p. 350).

Alexis' responses to the Project survey instruments indicated that she had a moderate (2) to very good (3) level of confidence in her ability to teach literacy related skills with an average response of 2.4 out of 4 on the SLCRLA. This was somewhat higher on the TRSES at 3.2 out of 5. At the conclusion of the Project, Alexis' self-efficacy was higher on both measures with an average of 2.6 on the SLCRLA and 3.7 on the TRSES. In relation to the SLCRLA, Alexis rated her ability to teach phonics and fluency as better than before the Project and on the TRSES she increased her confidence in teaching reading even when there was a lack of support from home, expressing confidence in her ability to teach even the most difficult students to read and to support colleagues experiencing difficulties in teaching reading.

Key Finding 5.10

Alexis' self-efficacy increased during the Project with increases in her perception of her ability to teach phonics, fluency, and the most difficult students to read even without support from home, and to support colleagues experiencing difficulties with teaching reading.

Alexis' score on the TORP pre- Project (62) indicated that she favoured a decoding perspective, but this had changed to a skills perspective (71), by the end of the Project. On the *Literacy Activities Survey*, the strategies Alexis listed were also consistent with a skills perspective. Alexis scored 76% on the TPAA and 78% on the SLCRLA with specific areas of difficulty being identification of the number of phonemes in a word and reversing the sounds in words. A breakdown of the assessment areas and scores for the SLCRLA appears in Table 5.5. Alexis' overall score remained the same on the post-survey although the scores in individual sections changed and, as mentioned in relation to Abby's results, the conditions under which the post-survey was administered were not ideal.

Table 5.9. *Alexis' Performance in the SLCRLA*

SLCRLA	Pre-	Post-
Phonemic – Knowledge	3/4	3/4
Phonemic – Ability	8/10	10/10
Phonological – Knowledge	1/1	1/1

Phonological – Ability	7/7	7/7
Phonics – Knowledge	6/8	5/8
Phonics – Ability	1/2	0/2
Morphological – Knowledge	2/3	3/3
Morphological – Ability	10/15	10/15
Comprehension – Knowledge	9/10	8/10
TOTAL	47/60	47/60

Alexis' responses to the *Program Evaluation Questionnaire* indicated that overall she felt that the experience had improved her confidence and instructional practices in meeting the literacy needs of her students (Table 5.10). She was not as confident regarding the impact the Project had on the outcomes for her students, which was consistent with evaluation of the whole cohort of participants in the Project. Alexis responded very positively to the items about linking goals to the teaching activities, and assessment to teaching, giving each the maximum score of 5. These are important outcomes for Alexis, whose overall mean for the evaluation was 3.9 out of 5 making it slightly higher than the 3.4 mean for all participants.

Table 5.10. *Alexis' Responses to the Program Evaluation Questionnaire*

QUESTIONNAIRE ITEM	**Mean - all participants/ (Aggregate Mean)**	**Alexis' responses/ (Aggregate Mean)**
As a result of the professional development, you are able to:	**(3.5)**	**(4.1)**
1. Make clearer links between your teaching goals and classroom activities in relation to literacy	3.7	5
2. Use more effective teaching and learning strategies appropriate to the literacy content you teach	3.7	4
3. Use teaching and learning strategies that are more challenging and engaging	3.3	3
4. Better meet the individual literacy needs of your students	3.6	4
5. Link assessment into the teaching and learning cycle more effectively	3.8	5
6. Provide more effective feedback to your students to support their learning	3.3	4
7. Access and use literacy materials and resources more effectively	3.4	4

As a result of the PD, your students:	(3.2)	(3.6)
8. Have fewer difficulties in understanding what they are being taught in relation to literacy	3.1	3
9. Learn more purposely	3.2	4
10. Engage more actively in literacy learning activities	3.2	4
11. Demonstrate enhanced literacy learning outcomes	3.2	4
12. Access and use literacy materials and resources more effectively	3.1	3
As a result of the PD:	**(3.6)**	**(4)**
13. My ability to meet the literacy learning needs of my students has expanded	3.6	4
14. My confidence in teaching literacy has increased	3.6	4

Note: Item rated 1 = strongly disagree, 2 = disagree, 3 = somewhat agree, 4 = agree, 5 = strongly agree

Key Finding 5.11

The TORP and SLCRLA did not indicate any significant changes in beliefs and knowledge at the conclusion of the Project; however, changes were noted during classroom observations and Alexis reported improved confidence and instructional practices on the *Program Evaluation Questionnaire*.

The teaching actions

Alexis' classroom environment was well organised with students' work and photographs displayed around the room and charts to support students to work independently. The following classroom features from the *Literacy Practices Guide* (Konza, 2012a) were evident in Alexis' classroom:

- Room design supports whole group, small group and individual instruction.
- Alphabet displayed.
- Word walls
- High-interest fiction and non-fiction books available at variety of reading levels.
- Take home books.
- Books on tape.

While there was no comfortable reading corner in Alexis' classroom, resources were shared between Abby and Alexis so students could access the reading area in Abby's room. Similar to Abby's room, the charts on the wall included those from Jenny Johnston's *Sounds to Learn* phonics program. In addition, each child had a desk mat which displayed the alphabet, high

frequency words and sentence starters. There were photographs of the students and students' work samples displayed around the room. A document study indicated that Alexis also provided positive and targeted feedback with specific recommendations to students about how they could improve their work. Rubrics were also used for portfolio pieces.

The first observations of Alexis' literacy learning experiences included the following features from the *Literacy Practices Guide* (Konza, 2012a):

- Purpose of lesson stated.
- Activating prior knowledge of content.
- Modelling of good oral reading practices (fluency, use of expression).
- Whole-class and targeted individual assistance.

The teaching processes during each observation are described followed by a table that identifies the emphasis for the teaching approaches being used for each activity (Tables 5.11, 5.12 and 5.13). The first activity of the lesson was Buddy-Bump reading with an emphasis on expressive reading. Alexis directed students to look at the way the animal noises were written in the text and identify the language feature. A student offered '66' and '99' and Alexis added, "good - so you know someone is speaking"; another student added that there was an exclamation mark after the sounds and Alexis asked why that was there. The student responded: "is it they're shouting?" Alexis clarified that it means you have to say it quite loudly but without shouting. Students were then put into pairs for reading while Alexis worked with a smaller group of students. The text was basically the same for all students, but simplified for the weaker readers and pairs were based on students' shared reading levels.

In the group working with Alexis, the students took turns to read the story aloud. One student was having difficulty with reading 'their', so Alexis explained that there are different types of 'their' giving examples of ownership but did not use something like ''their' has an 'I' in it' as a way of making the difference more memorable for students. When students had finished reading the text, Alexis led a discussion on the traits of the main characters and how the text and pictures in the book provided clues to these character traits. Alexis worked through all of the characters in the story with the students suggesting words to describe each character. Alexis then wrote the words on the board and directed students to list some of these words on their work sheet and write 'yes' or 'no' depending on whether they thought this described them. They then repeated this task for another character they had selected.

Table 5.11. *First Observation of Alexis' Teaching*

Activity	**Emphasis**
Buddy-Bump reading	Oral language
Recalling prior knowledge of direct speech and exclamation marks.	Grammar
Reading story in pairs and teacher-led group	Oral language fluency
Incidental teaching of homonym their/there	Phonics (embedded)
Character study	Comprehension

An observation in the middle of the year highlighted the type of explicit instruction that Alexis had started to include in her teaching as the Project progressed. The lesson commenced with students reading the story in unison and, as in Abby's class, students were given a magnifying glass while doing the Word Detective activity. Students were directed to find certain spelling patterns in words that made specific sounds, suffixes, rhyming words, and vocabulary in the text. These included the 'ar' spelling of /a/ (as in path), 'oo' spelling of /ʊ/(as in book), 'ee' spelling of /i/ (as in tree), 'a' spelling of /ei/ (as in cake), the suffix 'ed', words that rhyme with 'peel' and 'game', the opposite of 'hard', and a word that means *rounded up the sheep*. Alexis directed students to find the correct letter-sound combination, not just the letter; provided the example of how the 'a' (as is path) is different from the usual 'ar' spelling of that sound; and asked what other sounds the letter could make in different words. She then worked through examples for each of these tasks ensuring students understood what was required and had at least one example for each. In doing this, Alexis helped students by directing them to sound words out and prompting them with examples of other words with the same sound. When talking about the suffix 'ed', Alexis briefly explained root words and suffixes by giving an example from the students' word lists. She also used the word 'carried' to give an example of what happens when 'ed' was added to words ending in 'y'.

This task also encouraged re-reading of the text and a focus on the rhyming nature of the text. The rhyming components of the task led to the next task, which involved writing a poem with an emphasis on rhyming final sounds. Alexis provided the final sound of the first and alternate lines and students had to fill in all the words and find a rhyme for the other lines. This activity started with a brainstorm on the board of words that rhyme with the sounds given and an explanation that some sounds may be written with different letters, but as long as the sounds are the same they could be used. When a student added the letter 'b' to the end of a word

that rhymed with 'lamb' Alexis explained that the 'b' was not needed because not many words have a silent 'b' on the end. She did not use this as an opportunity to teach the rule (if a word ends in the letters mb, the b is silent) that would assist him with determining when adding a 'b' would be appropriate. Alexis provided support on different sounds and encouraged students to use one of the blends they were learning to make a new word. The students worked in pairs then split and regrouped so that they had many words to work with for their poem. Alexis also worked through an example poem with the whole class before they started work on their own.

Table 5.12. *Second Observation of Alexis' Teaching*

Activity	**Emphasis**
Unison oral reading	Oral language, fluency
Word Hunter (Detective) - sounds	Phonics (analytic)
Word Hunter (Detective) - synonyms	Vocabulary
Word Hunter (Detective) - meaning	Vocabulary
Poem writing with an emphasis on rhyming	Phonics (analytic)

The lesson for the final observation of the year followed a similar format to the previous observations with an increased emphasis on explicit instruction, in comparison to the start of the year, but still in the format of analytic phonics rather than synthetic phonics. The lesson began with Alexis asking students if they had difficulty with any words in the text. One student pointed out 'Egyptian' and Alexis reminded the group to look for smaller words within the word to help them read it. A student identified Egypt in the longer word, and Alexis asked them if they remembered what sound 't' and 'i' make together. A student volunteered 'sh' and, as a class, they came to the correct word. Another child identified 'business' as a tricky word because the 'u' makes the /ɪ/ (as in pit) sound. The students then did two timed readings, in pairs, trying to beat their time on the second attempt.

The next activity was 'word detective', with the first task related to syllables. Alexis asked students to suggest words that had three syllables. Children offered suggestions and the whole class clapped out the syllables in these words. One child said 'basketball', so Alexis did an incidental check on their understanding of compound words. This was followed by work on adjectives, plurals (incidental teaching -'s' does not always make a plural: for example, bus), rhyming and then Arabic words and their meaning as these appeared in the text.

The first group working with Alexis was asked primarily literal questions. Students were reminded to use the subheadings to help them find information. Incidental teaching occurred around why the author used brackets and commas as they did and why capitals were used. The groups then switched and the next group that Alexis was working with had a simplified version of the same basic text, and the questions she asked were all literal.

Table 5.13. *Third Observation of Alexis' Teaching*

Activity	**Emphasis**
Decoding difficult words	Phonics (analytic)
Timed reading	Oral fluency
Word Hunter (detective) - syllables	Phonological awareness (explicit)
Recalling prior knowledge of compound words	Phonics (embedded)
Word Hunter - plurals	Grammar
Recalling information from the text	Comprehension

Key Finding 5.12

Alexis' whole of class teaching included a greater emphasis on explicit instruction as the year progressed; however, the content of this instruction was still predominantly analytic in that it was determined by the themes and texts selected.

The Students' Performance throughout the Project

All students improved their scores for the assessments conducted as part of the Project with the exception of student 7, whose percentile rank for non-word spelling was lower at the end of the Project (Figures 5.6 – 5.9). This student's performance on matching letters to sounds was lower on the non-word spelling test in the final SPAT-R assessment but had improved on this aspect of the AIST. Additional information about the child's progress is required to determine the reason behind this apparent drop in the student's graphophonic ability on the SPAT-R non-word spelling test. It is possible this reflected some aspect of the conditions under which the test was administered as it was reported that test conditions in the school were not always ideal due to other school activities.

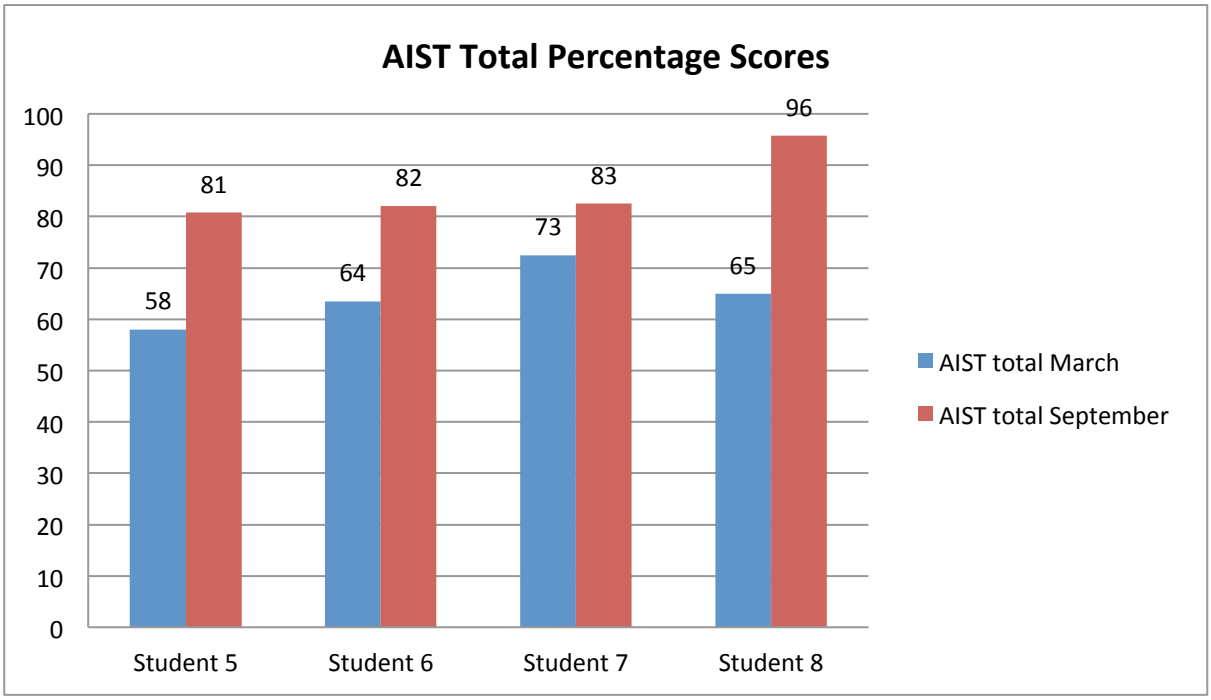


Figure 5.6. Pre- and post-Project AIST total percentage scores for Alexis' students

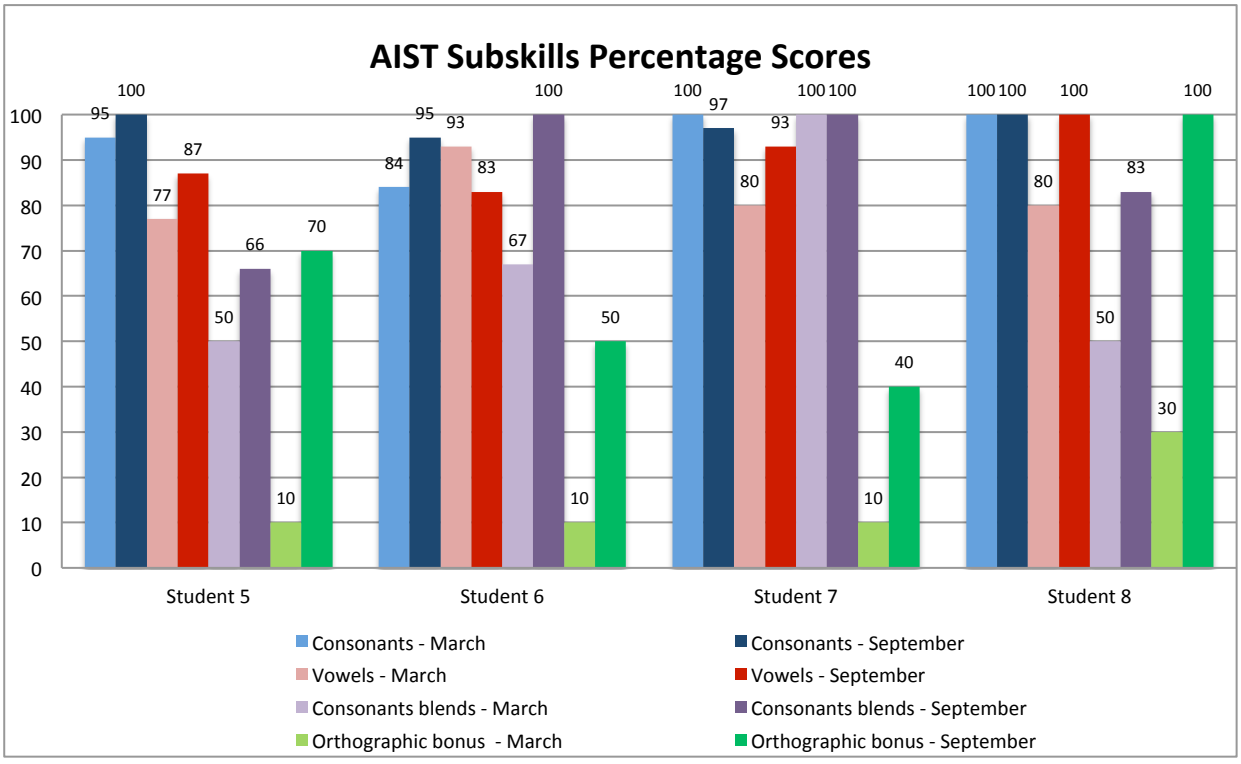


Figure 5.7. Pre- and post-Project AIST subskills percentage scores for Alexis' students

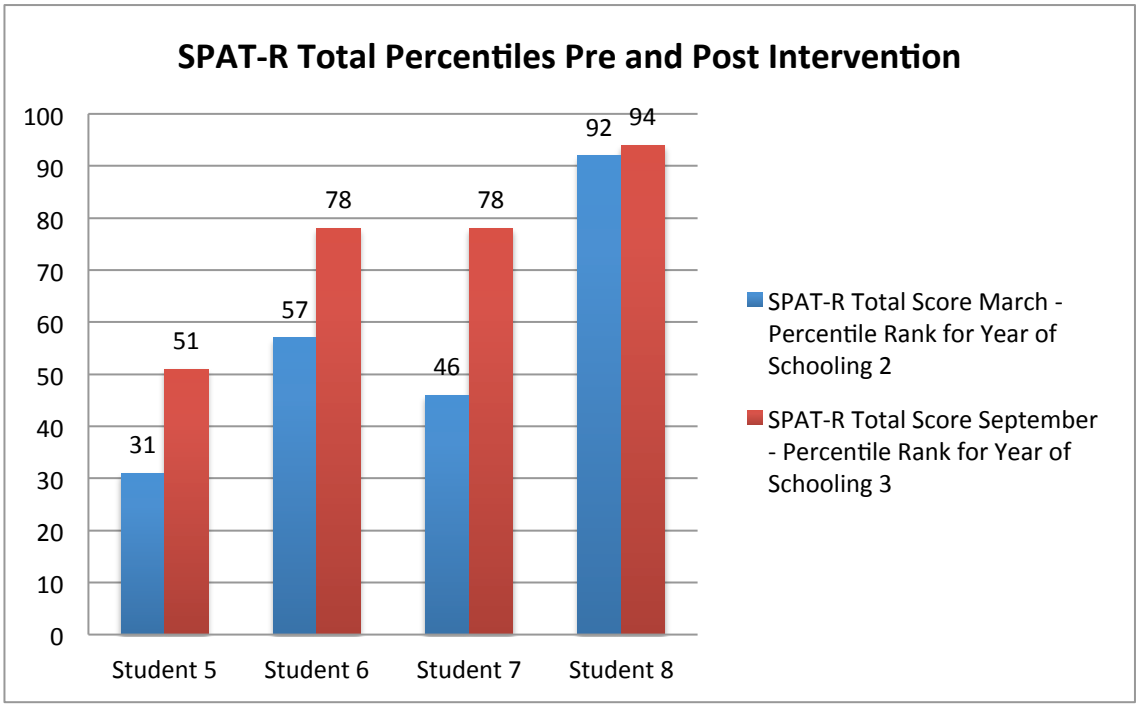


Figure 5.8. Pre- and post-Project SPAT-R percentile ranks for Alexis' students

The middle two quartiles (one standard deviation either side of the mean) for students in their 2nd Year of Schooling = 26 – 74%.
* The middle two quartiles (one standard deviation either side of the mean) for students in their 3rd Year of Schooling = 25 – 72%.

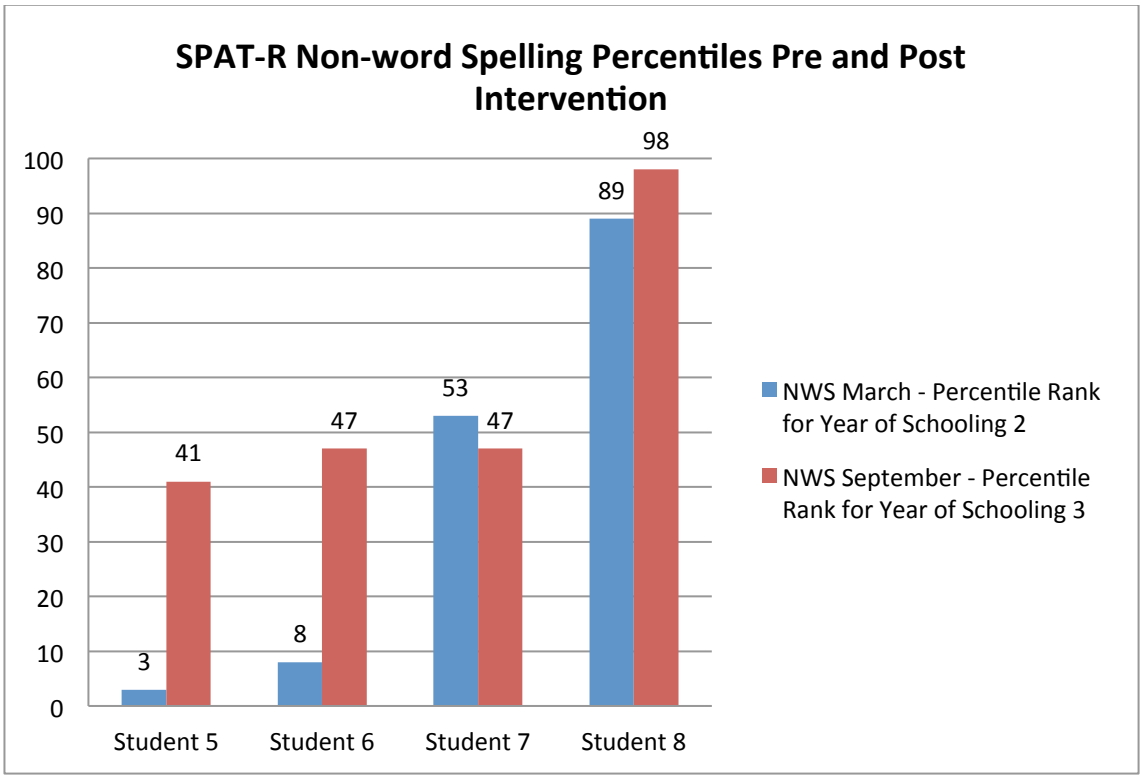


Figure 5.9. Pre- and post-Project SPAT-R percentile ranks for Alexis' students

The middle two quartiles (one standard deviation either side of the mean) for students in their 2nd Year of Schooling = 27 – 70%.
*The middle two quartiles (one standard deviation either side of the mean) for students in their 3rd Year of Schooling = 25 – 68%.

Table 5.14. *Comparison of Alexis' Students' Pre/Post Performance on the SPAT-R (Percentile) and AIST (Percentage)*

			Pre		Post		Difference[1]		Effect size
		N	*M*	*Mdn*	*M*	*Mdn*	*M*	*Mdn*	*r*
SPAT-R	Total	4	56.50	51.5	75.25	78.0	18.75	26.5	.65**
	NWS	4	38.25	30.5	58.25	47.0	20.00	16.5	.52**
AIST	Total	4	64.75	64.25	85.25	82.25	20.5	21.0	.65**

Note: *M* = mean, *Mdn* = median, NWS = Non-word Spelling
[1] Post-test minus pre-test
* = moderate effect size; ** = large effect size

The focus students in Alexis' class improved in the total scores for the SPAT-R and the AIST and the effect sizes were large. Alexis was confident that her involvement in the professional learning had an impact on the outcomes for her students (see Table 5.10)

Key Finding 5.13

The focus students from Alexis' class made overall gains in their performance on the literacy assessments, with a large effect size. Alexis was confident that these gains could be attributed to her involvement in the professional learning.

The Following Year: Influence and Impact

In the following year Alexis had remained at the same school and had another Year 2 class. She had moved into a newly built classroom block that provided her with more space to change the organisation of the classroom. Overall, the features of the classroom remained the same as the previous year; however, Alexis was developing a "living" word wall (Konza, 2012a), which is a term used to differentiate it from a static word wall as it consists of words that the teacher and students generate during learning activities, and which is used and updated regularly. Words can be linked to aspects of classroom instruction including a theme, area of study or based on student interests.

Alexis continued to team teach, working with the teacher in the adjoining classroom so that students could be grouped based on needs. Feedback to students did not change but

continued to be positive and targeted with specific recommendations about how students could improve their work. Similar to Abby, there were more features of effective literacy instruction being utilised in Alexis' classroom as the year progressed. These included:

- Room design supported whole group, small group and individual instruction
- Alphabet displayed
- "Living" Word walls
- Word families displayed
- Other words categorised (e.g. in themes)
- High-interest fiction and non-fiction books available at variety of reading levels
- Take home books
- Books on tape

The classroom observation undertaken at this time commenced with students silently reading their texts. Students were asked to identify certain spellings of sounds in words they were going to read; for example the 'ow' spelling of /aʊ/ (as in how), the 'ea' spelling of /ɛ/ (as in bread), and the 'er' spelling of /ɜ/ (as in pert). Alexis identified the word 'centimetre' and asked students to identify why it was 'tricky'. She elicited through questioning that the first letter 'c' made the 's' sound and then implemented a short teaching sequence about hard 'c' and soft 'c' sounds; that is, the sound depends on the letter that follows it. Students offered words that started with 'ca', 'ce', 'ci', 'co', 'cu' and identified what sound the 'c' made when it was followed by these letters.

The next activity involved 'sound buttons' for which students were given seven counters and asked to find the number of sounds in words on an Interactive White-Board. Students then had to push a sound button (counter) forward for each sound in the word. When students were doing the word 'wings', Alexis reiterated the sound that 'n' and 'g' make together. In addition, she worked through a number of examples explaining that some letters go together to make one sound and some letters make more than one sound: for example, x = k and s. This activity lasted for 20 minutes of the 45-minute reading lesson.

As was the case previously, students had different levels of text depending on their reading skills. The comprehension activity that followed the sound identification task included the three levels of questions, *right there, think and search,* and *on your own questions*. Most time in this lesson was dedicated to the explicit teaching of sound symbol relationships. Overall there was a stronger focus on decoding and comprehension (Table 5.15) than in previously observed lessons (Table 5.11, 5.12 and 5.13).

Table 5.15. *Final Observation of Alexis' Teaching*

Activity	**Emphasis**
Reading – Identifying sounds	Phonics (analytic)
Sound buttons	Phonics (explicit)
Types of questions	Comprehension

Key Finding 5.14

In the year following the Project, Alexis became more proficient at teaching explicitly and her instruction appeared to be guided more by the reading skills she wanted the students to develop rather than a text or theme. This is indicative of a change in beliefs about how reading should be taught.

In the Teacher's Words

Alexis was very positive about the Project and highlighted a number of skills and knowledge that she had learnt from her involvement in it. Her comments and questions in the informal interviews throughout the Project reflected a growing awareness of key features of effective reading instruction. In June she commented that the Project supported her use of smaller groupings of students within the larger class in order to provide more targeted instruction for students. She also talked about the difficulty of doing this effectively, reflecting her focus on the Management stage of the CBAM model: the challenges associated with implementing this change in practice (Hall & Hord, 2001). As she took responsibility for the lower achieving students, she developed the program for the Project's target students. This involved organising parents, education assistants and other available school staff to work with these students. As mentioned when discussing the literacy support, this task was often frustrated by the failure of people to be available to work with these students.

Some of the instructional approaches that she commented on included understanding the need to teach the digraphs (e.g., ch, sh, wh) explicitly, rather than just expecting students to pick them up with reading practice. She also assumed that because they knew the alphabet they could work out how to blend them together but she realised this was not the case. A further insight was her recognition of the need to teach both letter names and sounds in order for students to understand instructions such as 'o' and 'a' make o /oʊ/ (as in tow).

In reflecting on the Project the following year, Alexis reported that the Project not only increased her understanding of how to teach reading, but it also gave her a better understanding of the purpose behind some of the strategies she was already using, such as timed reading from *First Steps*, that is, fluency and word recognition. She stated that she knew decoding was important, but was now more aware of all the sub-skills involved in this process. She also commented that where she had previously placed the emphasis of her teaching on comprehension she was now aware of the need to teach decoding as a pre-requisite to comprehension, but felt she was still trying to get the right balance. Her concerns were centred on the outcomes for her students, the Consequences stage of the CBAM model (Hall & Hord, 2001).

As demonstrated in the lesson observations, Alexis was incorporating more explicit instruction into her whole-class sessions. In an early interview Alexis had explained a teaching sequence for the phoneme /aɪ/ (as is 'igh'). This involved a concept attainment task whereby students brainstormed all the common ways of representing this phoneme and then sorted them into different letter combinations. Students then completed a worksheet to consolidate their knowledge, which was followed by a discussion in which students provided examples to demonstrate their knowledge. Alexis' approach to teaching as a result of the Project involved a more explicit explanation of the focus sound in conjunction with the concept attainment task, followed by ensuring that students were secure with the concept before applying that understanding to a written task.

Other changes included the teaching of morphographs to the Year 2 students. Prior to the Project she thought the students would not have been able to understand this concept until the middle and upper primary years. She said the students were really enthusiastic about the task and enjoyed identifying the morphographs in words. Alexis also reported incorporating more explicit teaching of grammar generally. In addition to teaching approaches and resources, Alexis continued to use fine-grained assessment tools to identify her students' skills. As she stated:

> "I learnt new assessment tools (AIST, *Educheck* and SPAT-R). I learnt how to look at the difficulties children have with reading in detail and break down the teaching to address specific weaknesses. I learnt about the importance of direct instruction teaching and systematic approaches for teaching weaker children. I learnt new strategies and resources- YOYO, Letters and Sounds resources-treasure chest board, match to sample board etc. I learnt new vocab associated with reading- phonemic awareness, morphology etc. I learnt the important 6 features of teaching and learning reading (linguistic knowledge, P.A., phonics, vocab, fluency, comprehension). I learnt to focus

more on the phonemic awareness skills such as syllabification, rhyming, blending, etc.".

Key Finding 5.15

Alexis identified a number of benefits from her involvement in the Project. These included: knowledge of the different skills required for reading, an understanding of how to use assessment to identify which of these skills children require assistance, and a greater appreciation of the need to teach skills explicitly. Her beliefs and knowledge changed as a result of her involvement in the Project.

The key features that Alexis identified as supporting her professional learning included the length of the Project: "it is good to be able to go away and implement something then get feedback on it…it embeds it in your practice". Also, having other members on staff involved in the same professional learning created a community of practice and enabled conversations about the approaches and resources from the Project that they were implementing. The School providing Alexis with additional time to engage in these consultations and develop resources to support their literacy instruction further facilitated this. In addition, having the support from a member of the research team in terms of regular visits to the School increased her involvement in the Project, as she knew that someone would be there to discuss her practice and assist if necessary.

Key Finding 5.16

Features of the Project that Alexis perceived as beneficial included: the length of the Project, having colleagues at the School attending the same professional learning, being given time by the School to develop resources and consult with colleagues, and support from the research team.

5.2. Discussion

Abby and Alexis appeared to benefit from their involvement in the Project and, while the students' results cannot be entirely attributed to the Project, there were improvements in the outcomes for their students (see Figures 5.2-5.9). As shown in Table 5.16 (below), these improvements are commensurate with the overall progress made by students from School A who participated in the Project. The improvement from pre- to post-Project was statistically significant and the effect size large for all assessments.

Table 5.16. *School A – All Student Participants: Comparison of Pre and Post Performance on the SPAT-R (Percentile) and AIST (Percentage)*

			Pre		Post		Difference[1]		Wilcoxon[2]		Effect size
		N	*M*	*Mdn*	*M*	*Mdn*	*M*	*Mdn*	*z*	*p*	*r*
SPAT-R	Total	11	31.50	31.0	60.18	68.0	28.68	37.0	-2.936	.003	.63**
	NWS	11	20.00	11.0	39.36	44.0	19.36	33.0	-2.671	.008	.57**
AIST		11	53.36	58.0	75.27	80.8	21.91	22.8	-2.934	.003	.63**

Note: *M* = mean, *Mdn* = median, NWS = Non-word Spelling
[1] Post-test minus pre-test
[2] Wilcoxon signed rank test
** = large effect size

Key Finding 5.17

The effect sizes of the performance for students from School A on the SPAT-R, and AIST assessments indicated that they made considerable progress over the course of their involvement in the Project.

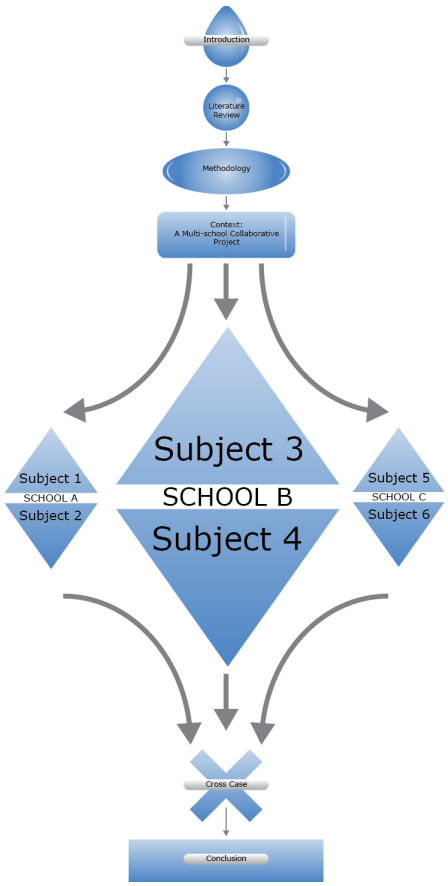
In considering Huberman's (1989a) stage model, Abby, at the stabilization phase, was confident in her teaching practices and there was no real change in her self-efficacy throughout the year. Alexis, on the other hand, was at the experimentation and diversification stage. Consistent with Huberman's description of this phase, Alexis seemed concerned about her practice stagnating and was very open to changing her teaching strategies to increase her efficacy. Despite the differences in their attitude to their teaching, both Abby and Alexis were open to the professional learning and were willing to incorporate new ideas into their teaching to improve student outcomes. The teaching stages as identified by Huberman are useful in considering the professional learning requirements of teachers; however, these stages provide a general indicator only, and do not necessarily align with years of teaching experience.

Key Finding 5.18

The different career stages for Abby and Alexis appeared to impact on their perceived needs from the professional learning but not their willingness to engage.

While their beliefs about teaching reading, as determined by the TORP, generally did not change, their classroom practice did and continued to consolidate the following year. School A was unique amongst the case study teachers' schools, as the teachers in School A shared an open plan demountable classroom. This enabled, indeed necessitated working collaboratively, a situation that Abby and Alexis found beneficial in catering for the differing abilities of the children in their classes. In the context of the Project, the ability to work closely also supported their implementation of approaches recommended by the Project team. Alexis also commented that, while supporting other teachers at her school who were involved in the Project, she was aware of a positive attitude to the Project from all of the staff at School A, whether they were team-teaching or working alone. The following, case study B, represents a more traditional setting with teachers working in separate classrooms and meeting at arranged times during the term.

CHAPTER 6: SCHOOL B



In this chapter the beliefs and practice of two teachers at School B, and the reading performance for selected students in their classes, are examined. The teachers have been given the pseudonyms Bella and Bridget.

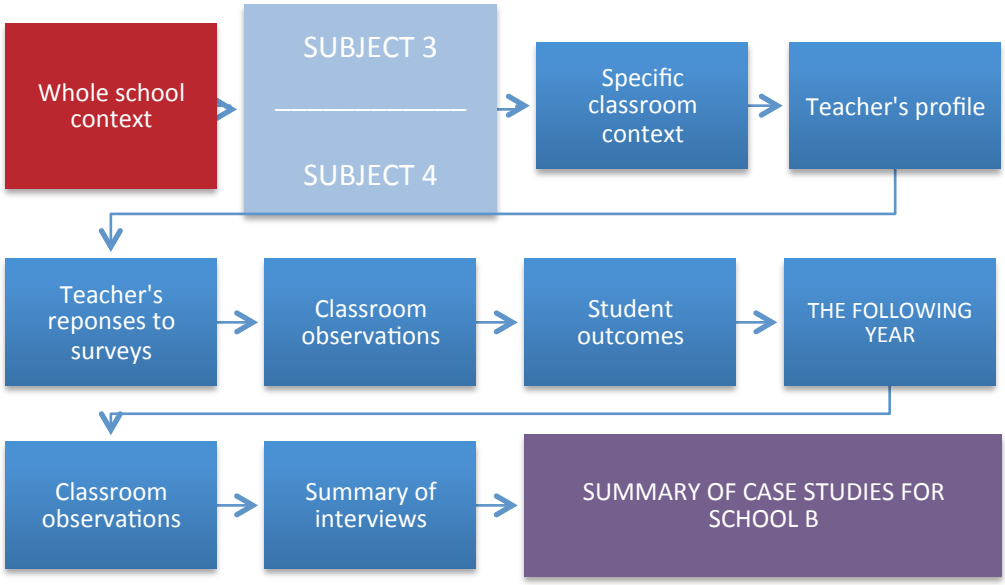


Figure 6.1. Organisation of chapter 6

6.1. The Setting

School B is a government primary school in a metropolitan area catering for students from K-7. At the time of the Project there were 882 students enrolled at the School, 437 girls, 445 boys, with 3% being Indigenous and 7% being from a language background other than English. There were 53 teachers, equivalent to 47 full time staff members, and 32 non-teaching staff equating to 19.8 full time positions. The total net recurrent income for the School was listed as $6,573,127 giving it the highest income of the three schools examined in this study.

The Index of Community Socio-Educational Advantage (ICSEA) for the School was 998, the average being 1000. The distribution of students as presented in Table 6.1 indicates that students in School B were more disadvantaged than the Australian average, with 39% of students in the bottom quarter compared to 25% of the overall Australian population. School B had 69% of their students in the middle and top quarters compared to the overall Australian figure of 75%.

Table 6.1. *Index of Community Socio-Educational Advantage (ICSEA) Indicating the Distribution of Students in School B Compared to Overall Distribution in Australia* (ACARA, n.d.)

Distribution of students	Bottom quarter	Middle quarters		Top quarter
School distribution	39%	20%	37%	12%
Australian distribution	25%	25%	25%	25%

Note. Percentages are rounded and may not add up to 100

The School's NAPLAN data for 2010 indicated that a greater percentage of Years 3, 5 and 7 students achieved the National Minimum Standards in all areas when compared to the 2008 and 2009 results. Exceptions were in Year 5 Reading, Year 5 Spelling and Year 7 Writing. Results for reading in 2008 indicated that the students' performance across all three years was similar to the national average and the average for schools serving students from statistically similar backgrounds. In 2009, Year 7 performance was below the national average and in 2010 Year 3 was below the national average (ACARA, n.d.).

School B's 2010 report foregrounded the NAPLAN results and the strategies that the School was undertaking to improve these results. The report emphasised that literacy would continue to be a focus for the School in 2011 and listed the use of *First Steps* resources across all years; the promotion of the *Lexile Reading Program* in Years 4 to 7; enhancement of the Kindergarten

and Pre-Primary Home Reading Program; maintenance of the Diana Rigg phonemic awareness strategies and diagnostic assessments for students in Years 1-7; the continued assessment of students in Kindergarten and Pre-Primary years through the Literacy Screening Program and the Literacy Support Program for students at risk; retention of the Intensive Language-Speech Early Intervention program to support Kindergarten and Pre-Primary students at risk; a focus on spelling across all year levels with the *Words Their Way* spelling program introduced in Years 3 to 7; and the introduction of a Holiday Reading Program for students in Kindergarten to Year 3.

The School developed a literacy overview for each year that identified what teachers should focus on each term. This was divided under the headings: Use of Texts, Contextual Understandings, Conventions and, Processes and Strategies. In the reading overview, fiction and non-fiction text types were specified followed by reference to a number of *First Steps* teaching activities. This pattern was repeated for Contextual Understanding, but again with only the *First Steps* strategies listed. Under Processes and Strategies, the column was divided into two aspects: learning to read and reading to learn. Under reading to learn, *First Steps* strategies were identified. Approaches under learning to read included assessment in term one using the Waddington Reading Test and the Diana Rigg Literacy Screener Test. Teachers were also given a file at the beginning of the year containing the assessment tools they could use. The *South Australian Spelling Test* and the *Words their Way* checklist, which identified the sounds the students needed to focus, were in the file although they were not mentioned in the Literacy Overview.

Teachers were also directed to use Running Records for Students At Educational Risk (SAER) and to develop literacy intervention programs for these students. In term four, teachers were to use the Year 3 NAPLAN literacy Planner Schedule guideline to improve their students' skills as well as Running Records for SAER.

The following strategies were recommended to assist students to learn to read:

- Word identification strategies such as sounding out phonemes and syllable chunks.
- Common letter/sound relationships.
- Strategies such as self-questioning, self-correcting, pausing, rereading and substituting words to maintain meaning.
- Strategies for comprehending texts using knowledge of text types such as identifying the link between ideas that are directly stated and located close together and recalling key ideas from reading.
- Text selection strategies (in term one only).
- Strategies for locating information.

It is noteworthy that, in this particular school document, no *strategies* are listed against the category of common letter/sound relationships reflecting perhaps an assumption that everyone knows how to teach these in an effective way. Examination of these documents indicates that the School used a range of *First Steps* material in their planning. Although there was no school-generated scope and sequence document, Literacy Intervention Plans were developed for SAER based on the results of the tests teachers administered at the start of the year.

The Teachers and their Classes

Bella and Bridget taught in separate classrooms some distance from each other on the school grounds. Bridget taught part time and her classroom was part of a block of classrooms. Bella was teaching full time and her classroom was one of several demountable classrooms grouped together. They would meet regularly with other teachers to discuss the literacy progress of their students.

Case study 3: Progression through the Project

Profile of the teacher - Bella

Bella was between 26 and 35 years old and had been teaching between three and five years. According to Huberman's (1989a) stage model of teachers' professional lives, this would place her in the *Stabilization* phase, which is characterised by confidence, independence and mastery over instructional practices. This was evident in Bella's instructional environment, which included a well-organised classroom and an emphasis on students being organised and independent learners. There was also an element of Huberman's 'stocktaking and interrogation' reflected in her discussion with the Researcher about other possible career paths.

Bella's classroom had students' work displayed around the room and charts organised in specific areas to support students when working independently. There were several computers with educational software and Internet access in the room. An Education Assistant worked in the classroom once a week to assist Bella with various tasks and parent helpers assisted with reading every Friday.

Bella's responses to the survey instruments administered pre- and post Project provided a profile of her progression through the Project. Her responses on the self-efficacy component of the SLCRLA and the TRSES indicated that she had a moderate to very good level of confidence in her ability to teach literacy related skills. Her average pre-test response on the

SLCRLA was 2.6 out of 4 and 3.2 out of 5 on the TRSES. In the post-test this had increased to an average of 2.8 on the SLCRLA and 3.5 on the TRSES, moving her closer towards rating herself very good on all of the items. Specifically, her confidence increased in her ability to teach reading, even when there was a lack of support from home, and her belief that if a child was not learning to read it was because she had not taught them properly.

Key Finding 6.1

Bella now places greater emphasis on the impact of her teaching on student outcomes than on external factors, such as support from home, indicating a change in her belief about her influence on children's reading development.

Bella's score on the TORP was 87 at the start of the Project indicating that she favoured a skills perspective. This was consolidated throughout the Project with a score of 96, also in the skills perspective, by the end of the Project, and was consistent with the strategies she indicated on the *Literacy Activities Survey*. In the TPAA, Bella experienced difficulty with identifying the first and second sounds in words, identifying the number of phonemes in words and reversing the order of these phonemes. She scored 40% on this assessment. Bella's level of skills on the SLCRLA at the start of the Project was also 40% and this had increased to 52% by the end of the Project (Table 6.2). Lower scores on some skills in the post-test support the view that improvement may have been greater had the conditions of the post-test been more ideal.

Table 6.2. *Bella's Performance on the SLCRLA*

SLCRLA	Pre-	Post-
Phonemic – Knowledge	0/4	3/4
Phonemic – Ability	6/10	9/10
Phonological – Knowledge	0/1	0/1
Phonological – Ability	7/7	6/7
Phonics – Knowledge	4/8	2/8
Phonics – Ability	2/2	0/2
Morphological – Knowledge	0/3	1/3
Morphological – Ability	0/15	4/15
Comprehension – Knowledge	5/10	6/10
TOTAL	24/60	31/60

Despite the increase in self-efficacy and skills, Bella's responses to the *Program Evaluation Questionnaire* indicated that she felt she had gained little from the Project with an average score of 2.3 compared to the mean of 3.4 for all participants (Table 6.3). Specifically, she disagreed that the Project improved her self-efficacy and ability in relation to meeting the literacy needs of her students and strongly disagreed that it enabled her to link assessment into the teaching and learning cycle more effectively and provide more effective feedback to her students to support their learning.

Table 6.3. *Bella's Responses to the Program Evaluation Questionnaire*

QUESTIONNAIRE ITEM	**Mean - all participants/ (Aggregate Mean)**	**Bella's responses/ (Aggregate Mean)**
As a result of the professional development, you are able to:	**(3.5)**	**(2.2)**
1. Make clearer links between your teaching goals and classroom activities in relation to literacy	3.7	3
2. Use more effective teaching and learning strategies appropriate to the literacy content you teach	3.7	4
3. Use teaching and learning strategies that are more challenging and engaging	3.3	3
4. Better meet the individual literacy needs of your students	3.6	2
5. Link assessment into the teaching and learning cycle more effectively	3.8	1
6. Provide more effective feedback to your students to support their learning	3.3	1
7. Access and use literacy materials and resources more effectively	3.4	2
As a result of the PD, your students:	**(3.2)**	**(2.4)**
8. Have fewer difficulties in understanding what they are being taught in relation to literacy	3.1	2
9. Learn more purposely	3.2	2
10. Engage more actively in literacy learning activities	3.2	3
11. Demonstrate enhanced literacy learning outcomes	3.2	2
12. Access and use literacy materials and resources more effectively	3.1	3
As a result of the PD:	**(3.6)**	**(2)**
13. My ability to meet the literacy learning needs of my students has expanded	3.6	2
14. My confidence in teaching literacy has increased	3.6	2

Note: Item rated 1 = strongly disagree, 2 = disagree, 3 = somewhat agree, 4 = agree, 5 = strongly agree

Key Finding 6.2

Bella's self-efficacy and knowledge improved during the course of the Project. On the *Program Evaluation Questionnaire*, she reported that she was able to use more effective teaching and learning strategies for literacy instruction but her overall response to this questionnaire indicated that she did not believe the Project had a positive impact on her teaching.

The teaching actions

The *Literacy Practices Guide* (Konza, 2012a) was used as the framework to evaluate the classroom environment, student work, literacy planning documents and reading instruction. The following classroom features were evident in Bella's classroom:

- Room design supported whole group, small group and individual instruction
- Alphabet displayed
- "Living" word walls
- High-interest fiction and non-fiction books available at variety of reading levels
- Take home books

There were also word lists based on sounds including digraphs and blends as well as sight word charts around the room. A document study revealed that a number of different student workbooks were used for literacy activities including: have-a-go pads; spelling books using the 'Look, Say, Cover, Write Check' strategy; language skills books with grammar work including types of sentence, narrative writing, narrative elements, punctuation, alternative endings and conjunctions; literacy books with work on comprehension, sequencing, read and draw activities, components of stories reading task sheets and cloze activities. There was also a collection of graded guided reading books and student folders. Feedback to students in these books was generally in the form of a tick or positive comment.

Observations of Bella's literacy lessons were undertaken once in April before the monthly Project meetings commenced and then in May and June while regular Project meetings were being held. Bella had a practicum student taking her class in September so no observations were conducted at this time. Interviews were conducted after each of these observations, with an additional longer interview being conducted in June, and again in September, despite there being no observation at that time. During lesson observations, the teaching actions were recorded and are reported below in conjunction with tables that identify the emphasis for the teaching actions (Tables 6.4 and 6.5).

During the first observation in April the learning experiences included the following features from the *Literacy Practices Guide* (Konza, 2012a):

- Purpose of lesson stated.
- Activating prior knowledge of content.
- Modelling of good oral reading practices (fluency, use of expression).
- Specific attention to content-specific vocabulary.

The focus of the first part of the lesson was on identifying specific sounds in print based on the students' spelling list words. Bella reported that she had noticed that the students were not transferring their knowledge of sounds in their spelling into identifying the sounds when they were reading and she found the word hunt activity, described below, useful in developing this skill.

The instructional sequence commenced with Bella asking students if they could remember the spelling of the sound 'wh' (as in what) and then asked students to list words with the wh spelling of the 'wh' sound. She directed students to word lists on the wall of the classroom. When a student offered 'wallaby' Bella explained that, "this is a tricky one because it makes the 'w' sound but the 'h' is silent" referring to the target letter-sound combination and the child's selection of a word that did not contain an 'h'. She did not continue the interaction with the student or check for understanding. The next letter combination discussed was 'u-e' and Bella asked students what was special about these letters. The children offered that it was the magic 'e' and had two vowels. Bella then asked whether the 'e' said its name and a student responded "no". Bella then refined the student's answer, explaining that the 'e' made the other letter say its name. Bella asked students "If a letter is not saying its name what is it doing?" A student suggested it was an 'oddball' and Bella reminded students that an 'oddball' was when the letters made the same sound as another but were spelt differently. Another student provided the correct answer to the question and the class moved on to a word hunt activity. The word hunt involved students using magazines to find words with their allocated sound. Some students appeared to be having difficulty understanding the instructions and this was reflected in the level of difficulty they had completing the task.

This activity lasted about 15 minutes and was followed by students working on their spelling lists using 'Look, Say, Cover, Write, Check'. The students' spelling list consisted of five sight words and five words that contained the sounds with which they were experiencing difficulty. They retained the same words for a fortnight so they had longer to learn them and were thus more likely to retain the information. Students worked independently on this task for another 15 minutes. The class then came together to do grammar work, reviewing different types of sentences, commands, exclamations and questions with students providing examples. Bella led the class in Punctuation Judo for full stops, exclamation marks and questions. Punctuation

Judo is a multi-sensory approach to learning about the different punctuation types, often attributed to comedian Victor Borge. The follow-up activity was for students to find full stops, capital letters, questions and exclamations in newspapers and magazines, cut them out and stick them in their scrapbooks under the right heading. Before they started, Bella asked students to predict if they would find more of one type of punctuation and students made various predictions. This aspect of the literacy block concluded with students doing more Punctuation Judo to test their understanding of the types of sentences and punctuation they had just been finding. They read a series of sentence types aloud in unison with expression and used the Punctuation Judo to animate these sentences.

The final activity observed on this day was 'think-pair-share', which was a school-dictated strategy that all Year 2 students had to learn. There was a picture of a chicken on the board and children had to tell each other everything they knew about chickens. Bella asked students to identify what skills they were practising when they were doing this task. Children identified remembering, listening and speaking. Bella provided feedback to those students who did not do the 'think, pair, share' well and set goals for next time they would do this activity, such as actively listening to their partner. The students then engaged in a 'think-pair-share' on what they would like to know about chickens which was followed by Bella reading the story that would form the basis of their report writing task over the following weeks.

Table 6.4. *First Observation of Bella's Teaching*

Activity	**Emphasis**
Recalling prior knowledge	Phonics (explicit analytic)
Word hunt	Phonics
'Look, Say, Cover, Write, Check'	Graphophonic knowledge
Sentence types and punctuation	Grammar (explicit)
Think-pair-share	Listening and speaking

The literacy learning experience observed in May also included the following features from the *Literacy Practices Guide* (Konza, 2012a):

- Purpose of lesson stated.
- Activating prior knowledge of content.
- Modelling of good oral reading practices (fluency, use of expression).
- Specific attention to content-specific vocabulary.

At the start of the day students were in the routine of working independently on their spelling task while Bella completed administrative duties, responded to parent enquiries and monitored students' work. When students were drawn together, the first activity was news telling and Bella led a discussion about body language and how this can provide information about what people are thinking and feeling. This was followed by a question and answer session on non-fiction books with students explaining the key features of this genre including blurbs, indices, contents pages, headings, chapters, bullet points, glossaries, different fonts, captions, diagrams, maps and graphs, and legends. Students used non-fiction texts that they had taken from the library to identify the different features of this genre. They then completed a worksheet on the features they could find in their non-fiction text.

Table 6.5. *Second Observation of Bella's Teaching*

Activity	**Emphasis**
'Look, Say, Cover, Write, Check'	Graphophonic knowledge
News telling	Listening and speaking
Characteristic of texts	Syntactic knowledge

In September the lesson being delivered by the practicum student was briefly observed and appeared to be following a similar pattern to the lessons delivered by Bella earlier in the year. Bella emphasised the need for students to become independent learners and this was reflected in her use of questioning to encourage students to generate knowledge rather than providing them with the answers. Some of Bella's responses had the potential to confuse students, such as her response to the student who offered 'wallaby' as an example when learning about the 'wh' spelling of the 'w' (as in what) sound. A more explicit explanation of the different letter-sound combinations was needed to ensure the student understood the distinction between sounds and spelling. There was a strong emphasis on multi-sensory learning within these activities including the use of Punctuation Judo. The activities in which students had to find words with specific sounds or punctuation marks and paste these into their workbooks was intended to give students the opportunity to apply the information that had just been presented to them, but this could be seen as having more value as a fine-motor exercise than literacy skills development. Cutting and pasting of punctuation marks from a newspaper was a time consuming task, requiring further time at its conclusion to clean up the inevitable paper scraps. Arguably, Bella could have used the time allocated to the literacy block more effectively when teaching this knowledge.

Key Finding 6.3

Bella used a number of strategies to teach graphophonic knowledge with an emphasis on student directed learning. There appeared to be little change in her approach to teaching reading over the course of the Project.

The Students

Bella's responses to the surveys indicated that she believed both she and her students did not benefit significantly from their involvement in the Project. There were increases in student performance throughout the year with both of the focus students' percentile ranks increasing on the SPAT-R, SPAT-R non-word spelling and the overall AIST score (see Figures 6.2 – 6.5), with the exception of the orthographic bonus on the AIST, which remained the same. Bella ascribed this to identifying the students' needs to their parents who sought literacy support outside of the School.

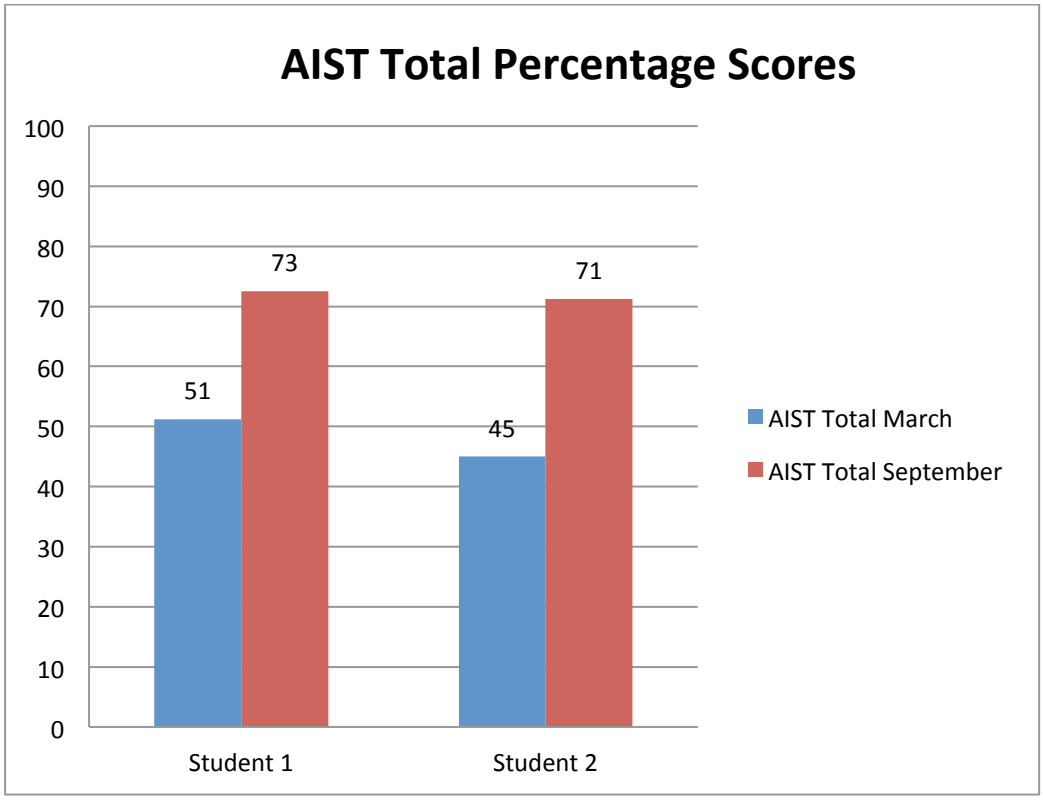


Figure 6.2. Pre- and post-Project AIST total percentage scores for Bella's students

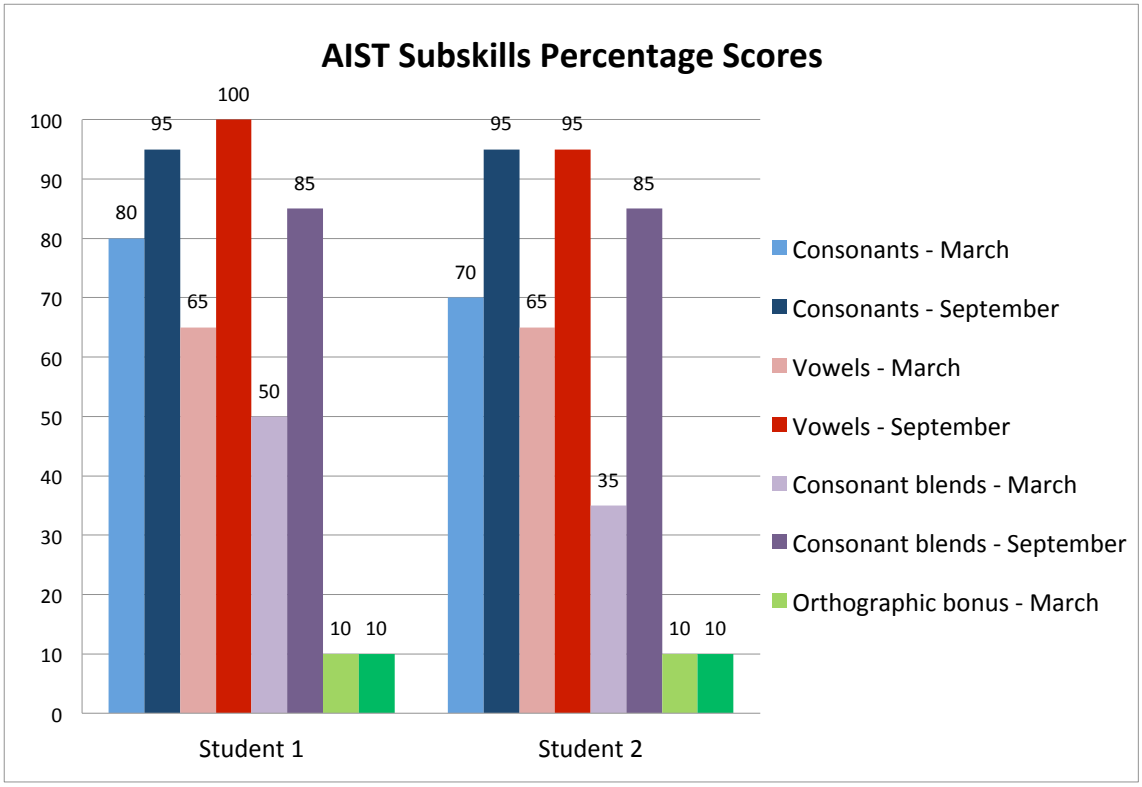


Figure 6.3. Pre- and post-Project AIST subskills percentage scores for Bella's students

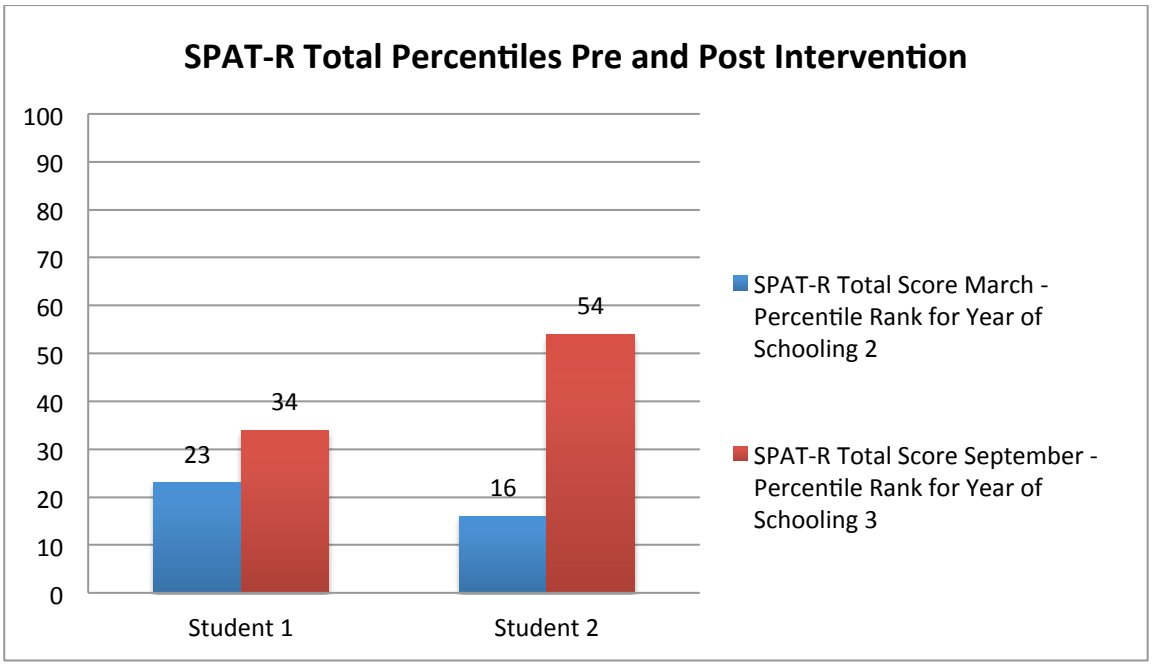


Figure 6.4. Pre- and post-Project SPAT-R percentile ranks for Bella's students

The middle two quartiles (one standard deviation either side of the mean) for students in their 2nd Year of Schooling = 26 – 74%.
* The middle two quartiles (one standard deviation either side of the mean) for students in their 3rd Year of Schooling = 25 – 72%.

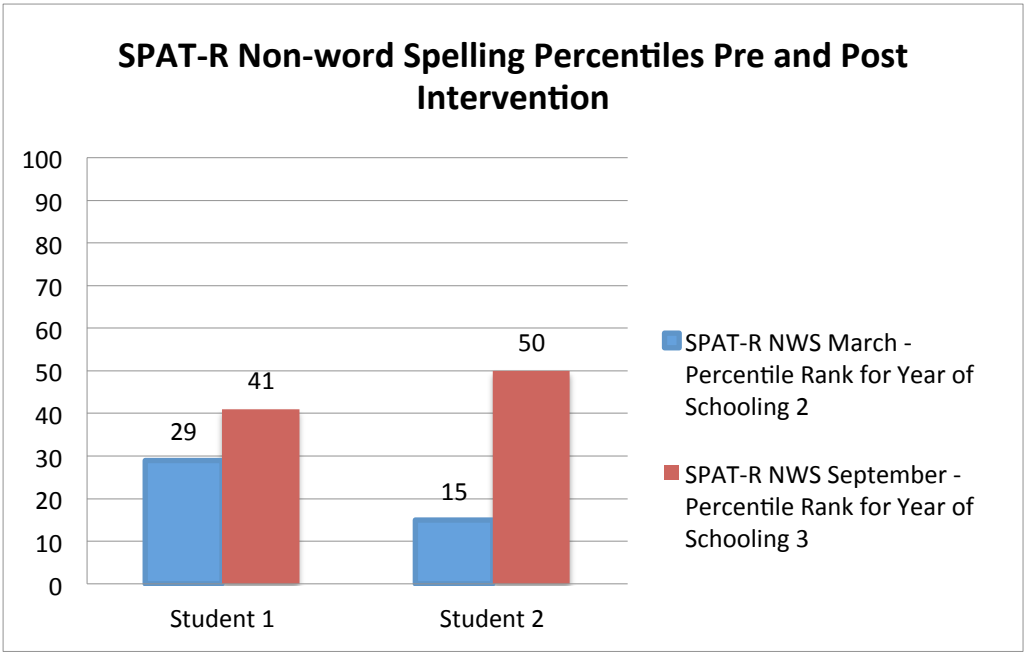


Figure 6.5. Pre- and post-Project SPAT-R percentile ranks for Bella's students

The middle two quartiles (one standard deviation either side of the mean) for students in their 2nd Year of Schooling = 27 – 70%.
*The middle two quartiles (one standard deviation either side of the mean) for students in their 3rd Year of Schooling = 25 – 68%.

Table 6.6. *Pre- and Post-Testing of Bella's Students*

			Pre	Post	Difference[1]	Effect size
		N	*M*	*M*	*M*	*r*
SPAT-R	Total	2	19.50	44.00	24.50	.67**
	NWS	2	22.00	45.50	23.50	.67**
AIST		2	48.13	71.88	23.75	.67**

Note: With 2 participants the mean and median are equal. Hence, only means are reported.
M = Mean, NWS = Non-word Spelling
[1] Post-test minus pre-test
* = moderate effect size; ** = large effect size

Bella's students showed improved reading skills on the literacy assessment and large effect sizes for each of the assessments (see Table 6.6). Bella reported that she did not believe this improvement was a result of her involvement in the Project (see Table 6.3). Despite not being able to link student improvement directly to the Project, the assessments conducted as part of the Project's initial phase identified the students' needs and Bella passed this information to the parents for action.

Key Finding 6.4
The performance of Bella's students over the course of the professional learning improved, with large effect sizes, but she attributed this to additional tutoring provided by parents and not her involvement in the professional learning as she did not change her teaching practice.

The Following Year: Influence and Impact

In order to determine if the professional learning from the previous year was utilised in the next, Bella agreed to be observed and interviewed the following year. Bella had remained at the same school and was teaching Year 2 and 3 students. The type of workbooks used was similar to the previous year as was the use of ticks and positive comments to provide feedback to students. She had moved to a different room and while the layout was different, it retained many of the features of her room from the previous year:

- Room design supported whole group, small group and individual instruction.
- Alphabet displayed.
- Word families displayed.
- High-interest fiction and non-fiction books available at variety of reading levels.
- Take home books.

(Konza, 2012a)

Bella explained that they were working on a cross curricular program based on a story about an Indigenous family. The students were to read the text several times and then write a recount of the story incorporating symbols they developed themselves. To facilitate this, the observed lesson involved Bella taking the students outside to the sandpit for a symbols activity. Students had been looking at another book that showed Aboriginal symbols and their meaning. Bella drew symbols in the sand and the students had to recall what they meant. Bella then read more from the story, discussing a range of topics related to the story such as the types of maps and sundials for telling the time, and students then took turns at writing a message in the sand. Compared with the previous observations (Tables 6.4 and 6.5) there was less use of explicit instruction (Table 6.7)

Table 6.7. *Second Observation of Bella's Teaching*

Activity	**Emphasis**
Recalling prior knowledge of symbols in text	Semantic knowledge
Symbols activity	Semantic knowledge

Key Finding 6.5

Observations of classroom practice gave no indication that Bella's teaching changed as a result of her involvement in the Project. This suggests that her beliefs remained unchanged.

In the Teacher's Words

Early in the Project Bella was enthusiastic to see what the Project could offer to improve her teaching. She was confident in her ability to teach in this area, but was open to any assistance or innovation. After the first couple of professional learning session she expressed concern that the material was too general or not appropriate. She expressed annoyance with a demonstration of an instructional sequence by one of the research team and reported that she felt this indicated a lack of understanding about the needs of Year 2 students. She explained that her biggest concern was how she could manage to get 20 minutes teaching a day with those students who are having difficulties indicating that her level of concern was at the Personal stage (Hall & Hord, 2001). Although she had worked on students being independent learners, she still perceived difficulties with spending time one on one or in small groups with students having difficulties, stating "we can't spend all of our time with them...". She had expected that this Researcher would be coming into her class on a regular basis to teach those students who had been identified as having poor literacy skills and was disappointed that this support was not part of the Project.

In an interview mid-way through the Project, Bella said that she had been involved in discussions with the parents of students who had been identified as having reading delays and that these parents had enrolled their students in out-of-school tutoring. She felt that any improvements in the students' performance would be as a result of this tutoring rather than what was occurring in the classroom. She also reported that while her spelling program had always been phonics-based she was trying to ensure that there was 10 minutes each day of explicit phonics instruction with the whole class. Further, that while other teachers had previously been encouraging her to use the *Letters and Sounds* program; she had started using this program earlier than she might have done because she learnt about it in the Project's professional learning sessions. These adjustments to her teaching do reflect changes recommended in the Project.

Bella also identified strategies she had used to support students who were experiencing difficulties, reiterating that it was difficult without additional support in the classroom. To overcome this, she attempted to make literacy sessions as open ended as possible and chose skills that could be taught to the whole class. One example of this was teaching children the strategy of highlighting words in the text that they didn't understand and then reading the rest of the sentence to work out what the word might be. The children then had to write their own definition of the word and identify what other sources they could use to find the meaning of the word. While the more able students worked on this independently, Bella worked with the weaker students. These students would also use the computer to play the Woodlands literacy games to support their literacy development. Bella's concerns with the implementation of changes to her practice had moved towards the Management of this change but there were still indications of Personal concerns (Hall & Hord, 2001).

Key Finding 6.6

Bella expressed a willingness to improve her practice, but experienced frustration by what she perceived as the limitation placed on her by the context. This context included the lack of additional staff to work individually with students experiencing reading difficulties.

In the interview at the end of the Project, Bella responded that the Project did not have any impact on her belief about teaching literacy, which is consistent with her responses on the TORP. She stated that she "was already doing all of it" and didn't "get anything out of the afterhours sessions". She believed it might have been more useful for new graduates but that there was "nothing in it for middle practice teachers". Overall, she was disappointed with the Project as she had expected more support and felt the Project sessions were "a waste of time".

When asked if she had tried the YOYO (You're On Your Own) strategy, demonstrated in the Project, Bella said this was interesting, but the School had only been given one timer by the research team and she hadn't been able to organise one for herself. She was also concerned about having to adhere to a time limit if more time was required and reported that it would have been beneficial to have had more emphasis on *Letters and Sounds* in the professional learning sessions including using this time to make some of the resources mentioned. Bella explained that, while teachers did a lot of idea sharing, when they moved to another school they tend to take their resources with them.

When reflecting again in the following year, Bella reiterated her belief that the Project did not have an impact on her practice, but that it "did make me think about the way I approach

literacy, particularly reading, in terms of the structure of my lessons". She viewed the assessments used in the Project as a great resource, but did not use them again as she considered them too time consuming. In discussing how the School supported her involvement in the Project she said that the paid relief to attend the Professional Learning sessions and team meetings was helpful. The School also included this in the teachers' Performance Management so they were released from other duties at the School. She thought the most useful thing was giving teachers extra time to conduct the student assessments associated with the Project. Bella believed that this needed to extend to the Department of Education providing more support such as Education Assistants to work with the children experiencing difficulties.

Key Finding 6.7

School support, in the form of paid relief to attend the professional learning sessions, regular team meetings, and the inclusion of the Project in her performance management for the year, encouraged Bella to be part of the professional learning project.

Huberman's (1989a) stage model is useful to consider in relation to Bella's engagement with the professional learning. Based on her age and years of teaching, Bella would be in the stabilisation phases; however, her awareness and frustration about the limitations placed on her practice are consistent with the next stage of professional life, which he describes as Diversification and Change. In this phase teachers become more aware of the bureaucratic restrictions impacting on their ability to improve student outcomes. There were also elements of the *Stock-Taking and Interrogations at Mid-Career* phase in which "'symptoms' can vary from a nagging feeling of routine to a full-fledged crisis over the wisdom of having become a teacher and, once locked in, of trying to break out" (M Huberman, 1989a, p. 352). In informal discussions, Bella raised the question of how she could use her teaching qualifications in another field of employment suggesting that she was experiencing the 'mid-career crisis' referred to by Huberman. An analysis of Bella's ability to reflect on ways in which the particular needs of her students with reading difficulties could be met, for example, encouraging parents to practise more with their children or accessing out of school assistance, is presented in the cross-case analysis.

Key Finding 6.8

Bella's approach to her teaching was consistent with someone who has been teaching for longer than she had. Bella was of the opinion that the Project did not cater for teachers at her stage in their teaching career and this impacted on her engagement with the Project.

Case study 4: Progression through the Project

Profile of the teacher – Bridget

Bridget was between 46 and 55 years old and had been teaching over 10 years. When identifying the characteristics of teachers in the later phases of teaching, Huberman (1989a) acknowledges that there is considerable diversity in individual profiles. Bridget would appear to belong to the *Serenity and Affective Distance* phase in which "the level of career ambition decreases, as does the level of investment, but the perception of confidence, effectiveness and serenity appears to compensate for it" (M Huberman, 1989a, p. 353). He also suggests that teachers in this stage are more economical in the effort they expend and become more distanced from their students, taking on more of a parent or grandparent role. This would seem consistent with the observations and discussions with Bridget, who had a firm but friendly manner with the children and provided a great deal of specific and positive feedback. Bridget's room was well set out and she had a predictable routine for the children. As she worked part-time she shared the room with another teacher, but they appeared to work well together as the room did not reflect 'two personalities'. The class was a Year 1/2 split. There were charts around the room to support students when working independently and several computers with educational software and Internet access in the wet area adjoining the room.

Bridget's responses on the self-efficacy component of the SLCRLA indicated that she rated herself as very good (3 out of 4) on all measures of literacy instruction and this remained constant throughout the Project. On the TRSES, her level of confidence was moderate with an average response of 3.7 on a 5 point Likert scale on the pre-test but had increased to an average of 4.2 on the post-test. Specifically, her confidence increased in her ability to teach students to read even if they were not interested in learning and being able to successfully teach reading skills to even the most difficult students.

Key Finding 6.9

Bridget's self-efficacy was high, but still increased in relation to her belief that she was able to teach all children to read. This suggests a change in her belief about her influence on children's reading development.

Bridget's score of 82 on the TORP at the start of the Project indicated that she favoured a skills perspective and this remained consistent on the post-test with a score of 81. Her responses on the *Literacy Activities Survey* were also consistent with a skills perspective. Bridget scored 60% on both the TPAA and the SLCRLA. Areas on the TPAA with which she experienced some difficulty related to identifying the second sounds in words and identifying the number of

phonemes in a word. At the end of the Project, Bridget's score on the SLCRLA had increased to 67%.

Table 6.8. *Bridget's Performance on the SLCRLA*

SLCRLA	Pre-	Post-
Phonemic – Knowledge	2/4	3/4
Phonemic – Ability	9/10	9/10
Phonological – Knowledge	1/1	0/1
Phonological – Ability	7/7	7/7
Phonics – Knowledge	3/8	3/8
Phonics – Ability	1/2	1/2
Morphological – Knowledge	0/3	1/3
Morphological – Ability	8/15	12/15
Comprehension – Knowledge	6/10	4/10
TOTAL	37/60	40/60

Bridget's evaluation of the Project indicated that she felt the Project had increased her ability to cater for the needs of her students (Table 6.9), but was slightly less confident than the whole Project cohort that the Project had an impact on student outcomes.

Table 6.9. *Bridget's Responses to the Program Evaluation Questionnaire*

QUESTIONNAIRE ITEM	**Mean - all participants/ (Aggregate Mean)**	**Bridget's responses/ (Aggregate Mean)**
As a result of the professional development, you are able to:	**(3.5)**	**(3.6)**
1. Make clearer links between your teaching goals and classroom activities in relation to literacy	3.7	4
2. Use more effective teaching and learning strategies appropriate to the literacy content you teach	3.7	4
3. Use teaching and learning strategies that are more challenging and engaging	3.3	3
4. Better meet the individual literacy needs of your students	3.6	4
5. Link assessment into the teaching and learning cycle more effectively	3.8	4
6. Provide more effective feedback to your students to support their learning	3.3	3
7. Access and use literacy materials and resources more effectively	3.4	3

As a result of the PD, your students:	(3.2)	(3)
8. Have fewer difficulties in understanding what they are being taught in relation to literacy	3.1	3
9. Learn more purposely	3.2	3
10. Engage more actively in literacy learning activities	3.2	3
11. Demonstrate enhanced literacy learning outcomes	3.2	3
12. Access and use literacy materials and resources more effectively	3.1	3
As a result of the PD:	**(3.6)**	**(4)**
13. My ability to meet the literacy learning needs of my students has expanded	3.6	4
14. My confidence in teaching literacy has increased	3.6	4

Note: Item rated 1 = strongly disagree, 2 = disagree, 3 = somewhat agree, 4 = agree, 5 = strongly agree

Key Finding 6.10

The survey instruments did not indicate any significant change in practice and knowledge at the conclusion of the Project; however, Bridget reported that she believed the Project has been beneficial to her teaching.

The teaching actions

The following classroom features from the *Literacy Practices Guide* (Konza, 2012a) were evident in Bridget's classroom:

- Room design supported whole group, small group and individual instruction.
- Alphabet displayed.
- High-interest fiction and non-fiction books available at variety of reading levels.
- Take home books.
- Environmental print; for example, labelling of resources, days of week, calendar.
- Organisation of environmental print: for example, word families.

The document study identified a number of student workbooks including: have-a-go pads; spelling books using the 'Look, Say, Cover, Write, Check' strategy with words drawn from Diana Rigg's (2009) list words and their own writing; and language skills books with comprehension activities, activities on sounds and blends, narrative writing, read and draw activities, and cloze activities. Student work indicated that Bridget had responded to most of the work completed by students providing specific feedback and models for correct spelling. There was also a collection of graded guided reading books and student folders.

Observations indicated that Bridget's literacy lessons throughout the Project and into the following year followed a very similar pattern. These learning experiences included the following features from the *Literacy Practices Guide* (Konza, 2012a):

- Purpose of lesson stated.
- Activating prior knowledge of content.
- Modelling of good oral reading practices (fluency, use of expression).
- Specific attention to content-specific vocabulary.
- Whole-class and targeted individual assistance.
- Explicit instruction of strategies to decipher multi-syllabic words.

Each lesson commenced with students reading the notices for the day from a small white board. These notices included the date and key details for the day: for example, library. Sight words were identified by a red, cloud-shaped outline, while words with focus sounds and blends were underlined in green. The students read the notice in unison after which Bridget read the underlined words. The students then read the same words and told Bridget what the sounds were in the words: for example, the 'ay' spelling of /ei/ (as in day) and the 'or' and 'ing' in morning. The same pattern was followed for the sight words. While this activity provided the opportunity to practise reading graphemes that the students had already encountered, there was no indication that these letter/sound patterns were being taught in a specific order suggesting this was an analytic approach to phonics.

The next activity was conducted on the main board and was a riddle or a 'what/who am I'. The students read the text to themselves first, then together, with support from the teacher when they read a word incorrectly. The answer to the riddle was identified with lines for each sound and students had to identify the sounds in the word and what letter combinations were needed to make these sounds. Feedback on student responses indicated that Bridget used visual prompts for letter recognition: for example, when a student said /k/ Bridget asked "which one, curly or kicking?"

At this point in the lesson the students moved into small groups to rotate through different activities. These activities included writing, *mathletics*, construction and jigsaws. The students working on the jigsaws continued this activity until they were asked to read individually to Bridget who listened to approximately five children per lesson. Although at times the reading support that she provided for students was simply to tell them the word with which they were having difficulty, generally she would remind students of reading strategies. These included using pictorial cues before starting to read the story to give them an idea of what the story would be about; sounding out, as in "what sound does 'a' and 'w' make"; orthographic clues,

for example “that ends in ‘d’ so it can’t be will”; using semantic clues, such as “does quickly make sense in this sentence?” and reminding students of rules like “When two vowels go walking the first one does the talking”. After the students had read the story Bridget would point to words from the text that the students needed to re-read without the context of the story to help them.

While students were writing, Bridget checked their work for spelling and grammatical errors. Students were encouraged to check such aspects as spelling by looking around the room for the word or sound on charts or on the boards. The class would then come back together and the students who had been in the writing group would read their writing. Bridget used this as an opportunity to do some incidental teaching on aspects of writing with which the children were having difficulty. In one lesson this involved using one of the student’s writing to discuss the placement of full stops. Students then moved on to other whole-class activities including reading a riddle and trying to solve it and deciding whether a piece of information on the board was fact or fiction.

At this point in the learning experience the task varied throughout the days that Bridget was teaching. In the second observation she read the story *Who sank the boat?* by Pamela Allen. She incorporated ‘viewing’ into the lesson by focusing on the illustrations in the story, particularly how the final illustration, in which the characters are all wet, tells the reader what happens without words. Bridget also asked students to identify the setting of the story, the characters, the problem, and the solution. This was followed by a writing activity in which students planned a story on a topic of their choosing. Students’ plans had to include setting, characters, conflict and resolution.

Bridget explained that on other days of the week, this part of the activity might include writing a recount or a character description based on the text they were reading. In another of the observed lessons, Bridget used a modelled writing approach to teach descriptive words. This involved writing a title and an incomplete sentence before asking students to predict the next word and what else could be written. Students then moved to their desks and worked on copying down the sentences and writing more of their own. Later in the year discussion of texts also included examining the structure of a book: for example, title page and publisher information.

The interactions with students during the teaching of reading skills varied, but there was no marked difference between Bridget’s instruction at the start of the year and at the end of the Project. The teaching activities are reported in one table (Table 6.10), as the sequence was

similar for each of the observations. In terms of catering for the needs of the students identified as part of the Project, these students were given additional writing tasks to do at home.

Table 6.10. *Observations of Bridget's Teaching Approaches Throughout the Course of the Year and into the Following Year*

Activity	**Emphasis**
Reading notices	Phonics (analytic) and vocabulary
Riddle	Phonics (analytic) and fluency
Reading to teacher	Fluency and use of code-based (phonics) and meaning-based (whole language) strategies
Writing	Orthographic knowledge and grammar
Text study	Comprehension

Key Finding 6.11

Bridget maintained a similar literacy block structure throughout the course of the Project. This structure included a strong emphasis on letter sound knowledge, but was more aligned to an analytic approach to phonics rather than a synthetic approach. This suggests that there was no significant change in Bridget's beliefs or pedagogical content knowledge.

The Students' Performance throughout the Project

The focus students in Bridget's class made limited progress over the course of the year and, in some instances, they performed more poorly on the assessment in September than they did in March (see Figures 6.6 to 6.9). When examining the students' scores on specific skills in the AIST, it becomes evident that while there were areas in which the students made good gains there were also areas where there was limited progress. No AIST post-scores were obtained for student 5 so this student's results do not appear in the following graphs.

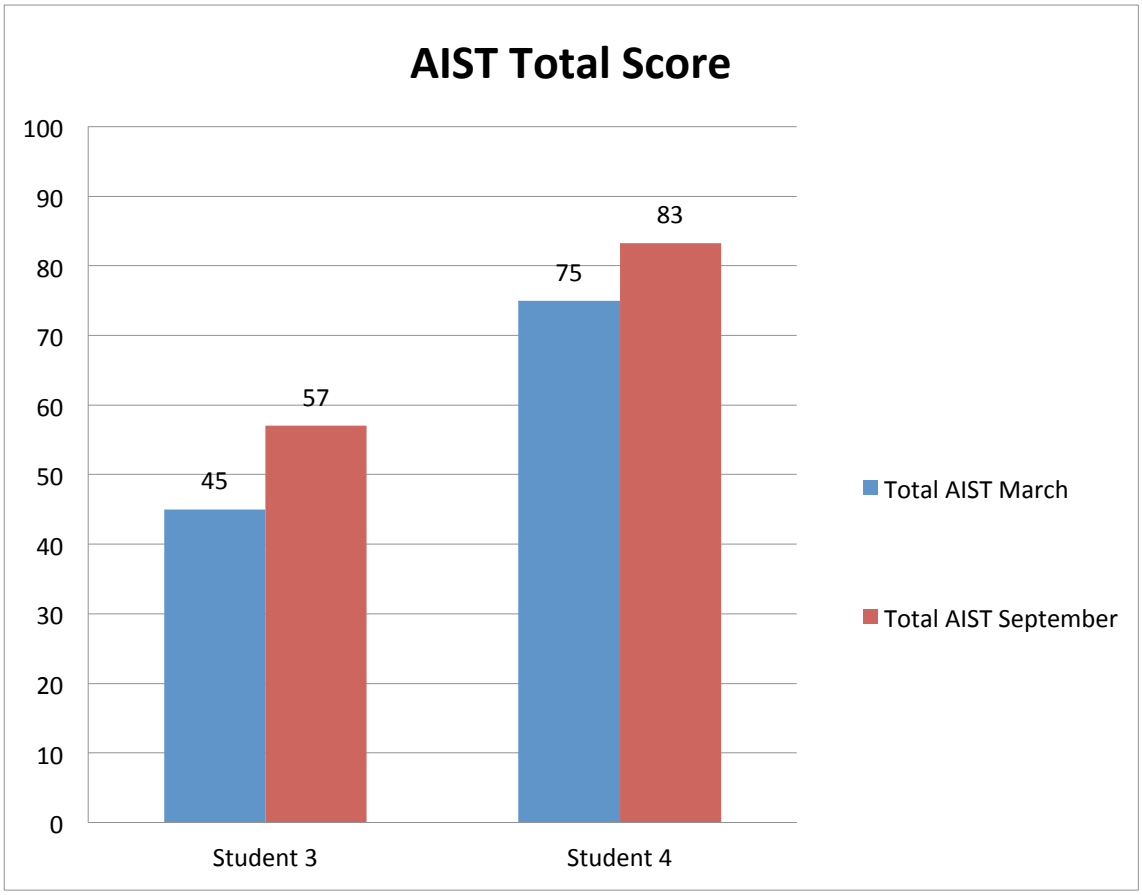


Figure 6.6. Pre- and post-Project AIST total percentage scores for Bridget's students

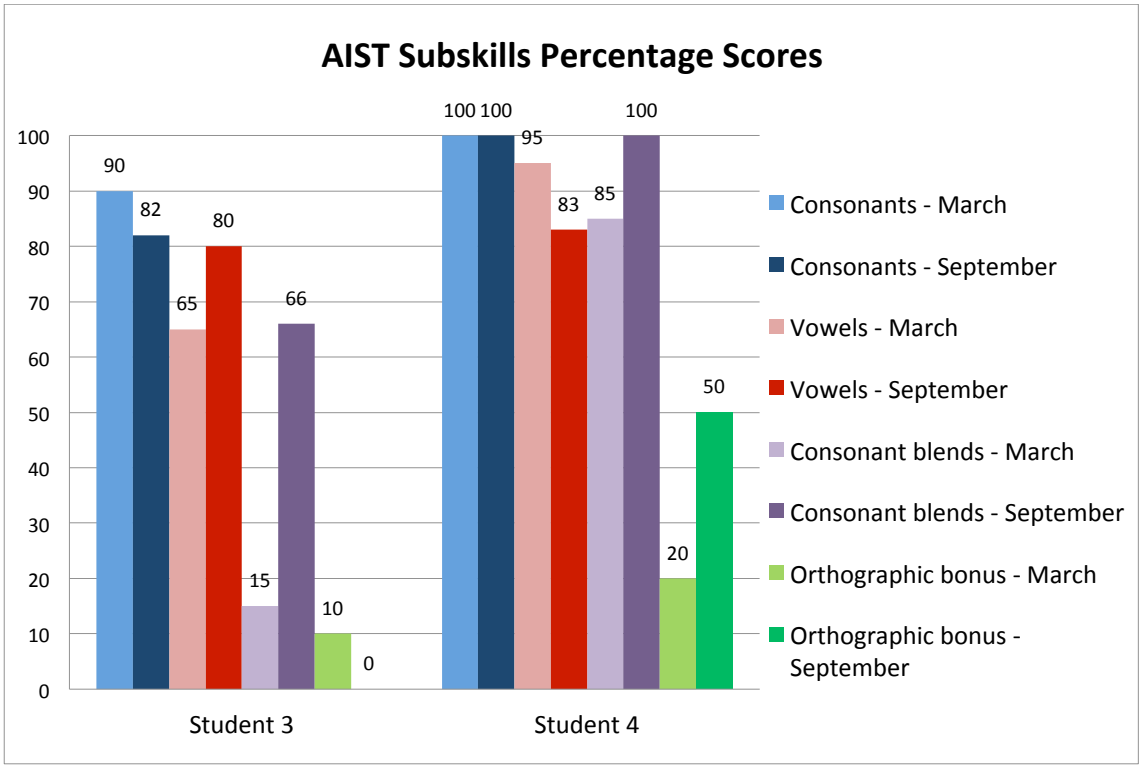


Figure 6.7. Pre- and post-Project AIST subskills percentage scores for Bridget's students

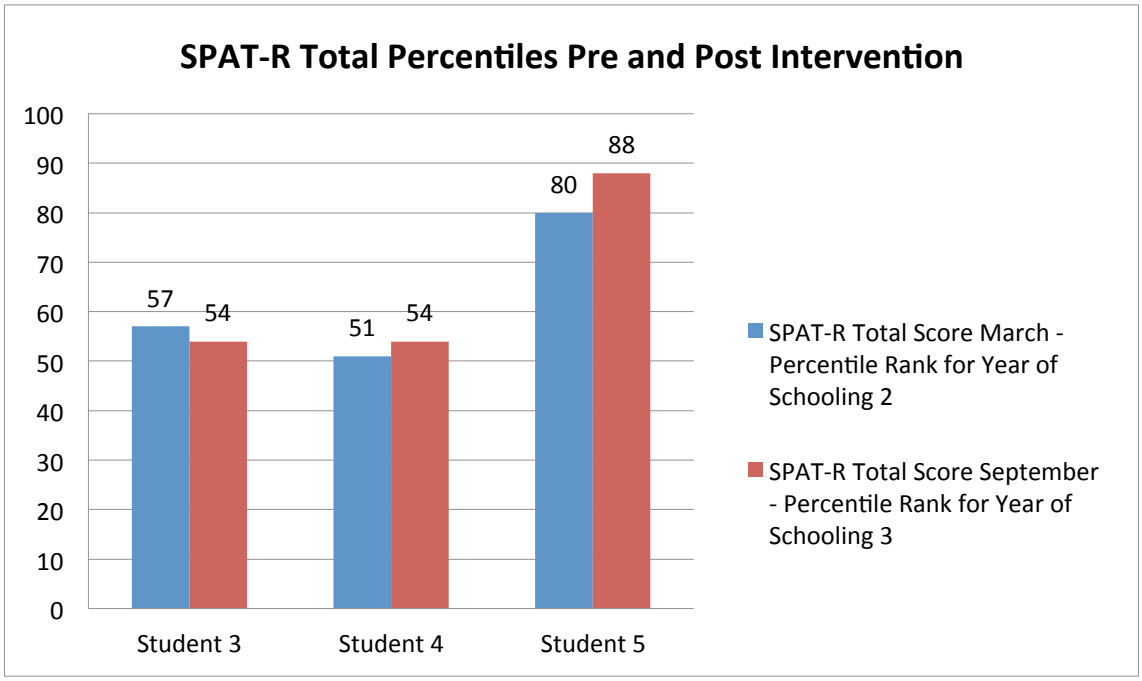


Figure 6.8. Pre- and post-Project SPAT-R percentile ranks for Bridget's students

The middle two quartiles (one standard deviation either side of the mean) for students in their 2nd Year of Schooling = 26 – 74%.
* The middle two quartiles (one standard deviation either side of the mean) for students in their 3rd Year of Schooling = 25 – 72%.

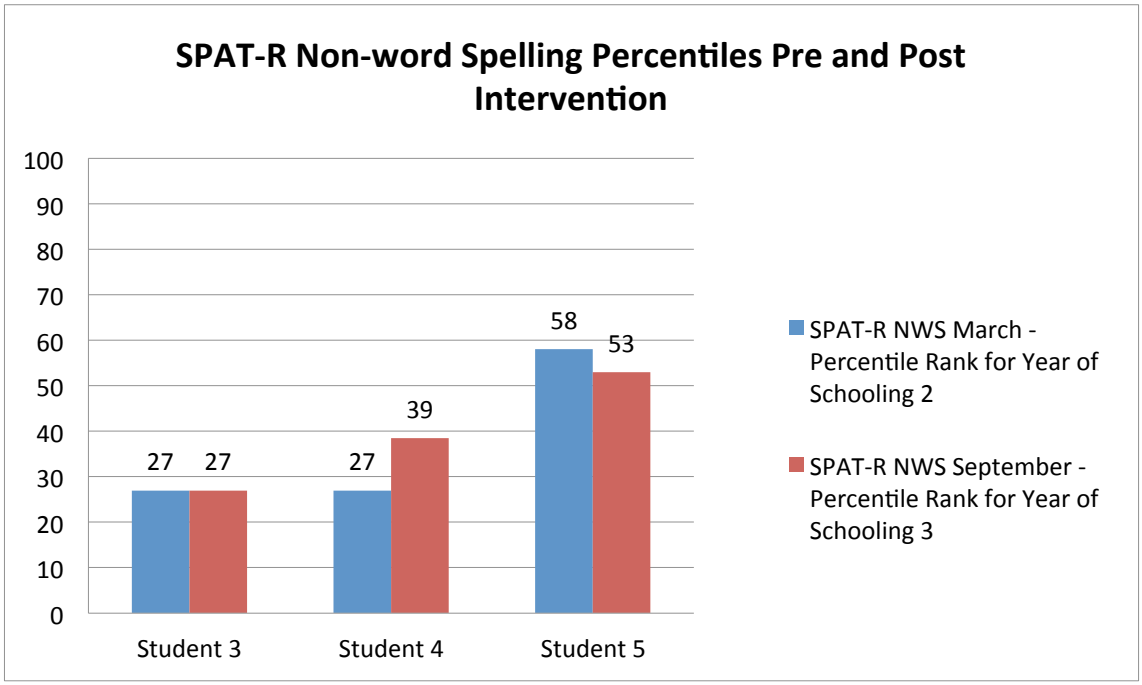


Figure 6.9. Pre- and post-Project SPAT-R percentile ranks for Bridget's students

The middle two quartiles (one standard deviation either side of the mean) for students in their 2nd Year of Schooling = 27 – 70%.
*The middle two quartiles (one standard deviation either side of the mean) for students in their 3rd Year of Schooling = 25 – 68%.

Table 6.11. *Pre- and Post-Testing of Bridget's Students*

			Pre		Post		Difference[1]		Effect size
		N	*M*	*Mdn*	*M*	*Mdn*	*M*	*Mdn*	*r*
SPAT-R	Total	3	62.67	57.0	65.33	54.0	2.66	-3.0	.33*
	NWS	3	37.33	27.0	39.50	38.5	2.34	11.0	.18
AIST		2	60.00	[2]	70.13		10.13		.67**

Note: M = mean, *Mdn* = median, NWS = Non-word Spelling
[1] Post-test minus pre-test
[2] Only means are reported since means and medians are equal with only 2 participants.
* = moderate effect size; ** = large effect size

The focus students in Bridget's class made progress in some areas but appeared to regress in others. Bridget was unsure why this was the case but suggested that the children's health or concentration might have impacted on their performance. More information is required to understand the trends in these data. Despite the variability in the data, effect sizes for the SPAT-R (Total) and AIST assessments were moderate to large. Bridget was more confident about the impact of the professional learning than Bella, but nevertheless reported that she only 'somewhat agreed' that this had an impact on student outcomes (see Table 6.9).

Key Finding 6.12

There were some improvements in the outcomes for Bridget's students but she was slightly less confident than the average Project participant that these improvements could be attributed to her involvement in the professional learning.

The Following Year: Influence and Impact

An observation conducted in the following year indicated that Bridget was following the same format she had used in the previous year (Table 6.10). Each lesson commenced with students reading the notices for the day and a range of small group activities, individual reading with Bridget, and whole-class activities, followed this. She was in the same classroom as the previous year and the resources in the room had remained the same. The type of workbooks used and the feedback provided to students also remained the same. She commented that this class was weaker than last year and, while this was not observed, she reported that one

significant area of change from last year was that she now selected the sounds and activities based specifically at the students' ability levels.

Key Finding 6.13

In the year following the Project, Bridget stated that she was differentiating her instruction based on the students' individual needs.

In the Teacher's Words

When asked about whether she felt the Project had met its objectives, including encouraging collaboration between teachers and schools, Bridget reported that she felt the Project was pitched at the one level and did not cater for the diversity of teaching experience in the group. She stated that for her "It was more of a refresher course". This suggests that Bridget believed she was teaching in a manner consistent with project recommendations, but classroom observations suggest that she was not teaching as explicitly or as systematically as was promoted by the Project. Bridget also stated that people tended to stay in their school groups at the sessions rather than mixing with staff from other schools. This would suggest her concerns related to Collaboration stage (Hall & Hord, 2001). Bridget was also disappointed with the feedback the teachers received on the testing as she was expecting more specific information including recommendations on what strategies could be used to assist students to develop the skills they were lacking.

Key Finding 6.14

Bridget identified the following issues that impacted on her level of engagement with the Project: it did not cater for the different levels of teaching experience, was not collaborative enough, and reporting of test data was not specific enough.

Bridget did believe the Project was correct to target Year 2 students not meeting the reading milestones and that it was appropriate that the Project did not simply ask teachers to implement a specific program. She was critical of teachers who "think they have to do something because it is the *First Steps* book or Diana Rigg says so, not because they actually want to do it". She agreed with the Project's presentation of evidence-based approaches that did not privilege one specific program over another. Overall, the Project reinforced her belief in her approach to teaching reading even though she was not observed to use the synthetic approach to decoding instruction. One of the aspects of the program that Bridget appreciated most was the opportunity to talk with colleagues at her School. When asked what the School

did to support collaboration, Bridget referred to the extra DOTT (Duties Other Than Teaching) time allocated by the School for literacy and numeracy planning meetings.

In discussing what was happening at the School to cater for the needs of students with reading difficulties in the year following the Project, Bridget explained that the students who needed additional support with reading skills were withdrawn from class twice a week by an Education Assistant who taught students using Direct Instruction material. When asked if this was linked to the information on the efficacy of explicit instruction and synthetic phonics programs presented in the Project sessions, Bridget reported that she was not aware of a link to anything in the Project that prompted this approach.

Key Finding 6.15

The aspects Bridget identified as supporting her involvement in the Project included: the information presented in the Project sessions aligned with her beliefs about teaching reading, the time provided by the School to attend the Project sessions and, time to meet with her colleagues at school.

6.2. Discussion

Bella and Bridget did not believe that the Project met their particular needs nor was it suitable for teachers with their level of experience. It did appear that they became more confident about their reading instruction over the course of the Project, but this appears to be linked to the belief that they had the skills they needed to teach reading effectively before they commenced the Project.

Key Finding 6.16

Bella and Bridget were of the opinion that the information in the Project was not aimed at teachers with their level of experience. As such, they did not actively engage with the content of the Project and their PCK appeared to remain the same.

Bella's students did make reasonable improvements between March and September (see Figures 6.2 to 6.5), but she attributed this to the additional tutoring they received rather than any change in her practice. Bridget's students, who were not receiving any additional support outside of the classroom, made less progress with their reading skills (see Figures 6.6 to 6.9). When considered together the students in this School did make significant gains in their performance between March and September with a large effect size in each area assessed (Table 6.12).

Table 6.12. *School B - All Student Participants: Comparison of Pre- and Post-Performance on the SPAT-R (Percentile) and AIST (Percentage)*

			Pre		Post		Difference[1]		Wilcoxon[2]		Effect size
		N	*M*	*Mdn*	*M*	*Mdn*	*M*	*Mdn*	*z*	*p*	*r*
SPAT-R	Total	13	49.85	42.0	69.54	62.0	19.69	20.0	-2.974	.003	.58**
	NWS	13	28.23	27.0	50.50	47.0	22.27	20.0	-2.719	.007	.53**
AIST		13	57.88	59.4	78.56	79.0	20.68	19.6	-3.181	.001	.62**

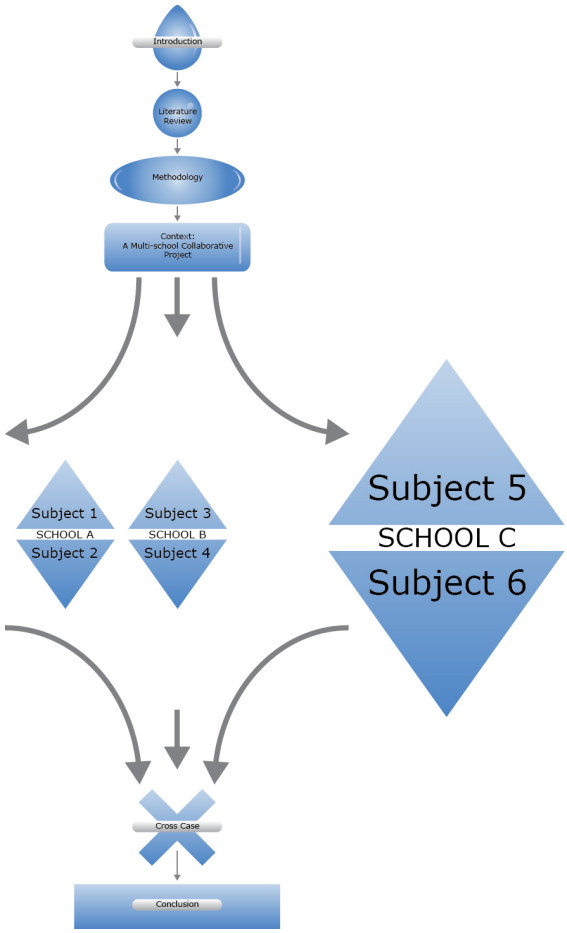
[1] Post-test minus pre-test
[2] Wilcoxon signed rank test
M = mean, *Mdn* = median, NWS = Non-word Spelling
** = large effect size

Key Finding 6.17

Overall, in School B, student performance on assessment tasks indicated a significant improvement with a large effect size.

Teachers at School B who were involved in the Project held regular meetings during the year to discuss the content of the Project and plan their literacy programs. Although Bridget was more positive about her involvement in the Project than Bella, it would appear from interviews with Bella, that the other teachers involved in the Project at School B generally did not believe the Project benefited their teaching. However, it is worth noting that the School planned to implement a literacy support program similar to the one advocated by School C, which is consistent with the recommendations of the Project. The following chapter also discusses case study teachers who taught in separate classrooms, but highlights how the School's approach to literacy support influenced the way that these teachers engaged with the Project.

CHAPTER 7: SCHOOL C



This last case study chapter utilises the same structure as the preceding chapters to examine the teaching practices and student outcomes for two teachers, Cathy and Charlotte, in School C.

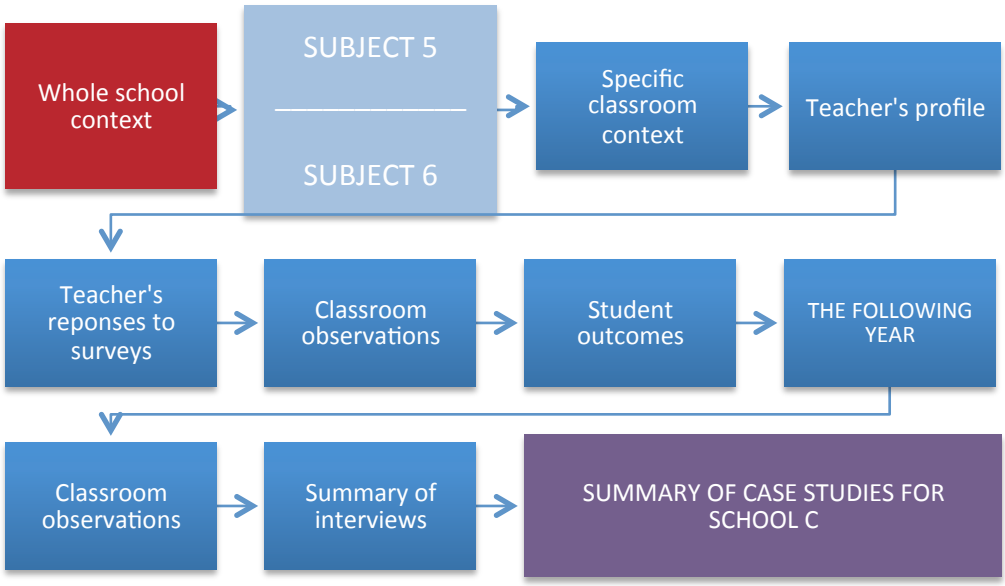


Figure 7.1. Organisation of chapter 7

7.1. The Setting

School C is a government primary school in a metropolitan area catering for students from Kindergarten to Year 5. The My School website (ACARA, n.d.) profile of School C indicated that, at the time of the research, there were 571 students enrolled, 337 girls, 329 boys, with 1% being Indigenous and 7% being from a language background other than English. There were 41 teaching staff equivalent to 34.5 full time positions, and 20 non-teaching staff equating to 12.2 full time positions. The total net recurrent income for the School was listed as $6,260,057.

The Index of Community Socio-Educational Advantage (ICSEA) for the School was 1016, the average being 1000. The distribution of students presented in Table 7.1 indicates that students in this School were similar to the Australian average in the bottom and lower middle quarters, but lower in the top quarter, with 17% for School C compared to the Australian distribution of 25%.

Table 7.1. *Index of Community Socio-Educational Advantage (ICSEA) Indicating the Distribution of Students in School C Compared to Overall Distribution in Australia (ACARA, n.d.)*

Distribution of students	Bottom quarter	Middle quarters		Top quarter
School distribution	26%	23%	33%	17%
Australian distribution	25%	25%	25%	25%

Note. Percentages are rounded and may not add up to 100

NAPLAN data for 2008, 2009 and 2010 indicated that a high percentage of Years 3 and 5 students achieved the National Minimum Standards in all areas. Results for reading in 2008 indicated that the students' performance across both years was similar to the national average and the average for schools serving students from statistically similar backgrounds, similar ICSEA, with Year 5 being above the average for statistically similar schools in grammar and punctuation. In 2009, Year 3 performance in all areas was above the average for statistically similar school in all areas and above the national average in reading and narrative writing. In 2010, the Year 3 and 5 results were close to the national average in all areas except Year 5 narrative writing and spelling, which were above the national average and those for statistically similar schools (ACARA, n.d.).

The School's 2010 report was colourfully presented and introduced by the School's Mission Statement, Vision, Beliefs and Planning Framework. A large proportion of the report provided

graphical representations of NAPLAN data, highlighting School C's success in all areas except Year 3 Spelling. Data collected from teachers on attitude, behaviour and effort was also reported with attendance being compared favourably to the state average. In the area of literacy, the report explained that School C took a developmental approach to the teaching of literacy utilising *First Steps*. Whole school scope and sequence documents and assessment strategies had been developed and implemented by all staff. Students identified with Specific Learning Difficulties in reading and writing received additional support through the literacy support program. This program used a range of strategies including Direct Instruction Programs, phonemic awareness strategies and the multisensory reading program, *Toe by Toe* (Cowling & Cowling, 1993).

School C had developed an overview document for literacy, which identified the areas of knowledge to be developed in each year. The School used THRASS (Teaching Handwriting Reading and Spelling Skills) (Ritchie & Davies, 2012) and Dianna Rigg resources (Rigg, 2009), and had scope and sequence documents for spelling in each year. In Year 2 the knowledge areas reflected THRASS phonemes, Grammar Focus, Spelling Rules and Handwriting. In addition, the Year 2 teachers' had developed a weekly schedule for each term based on a combination of the *First Steps* strategies and direct instruction. These were grouped into the areas of writing, reading strategies, punctuation and cooperative activities. Each teacher took responsibility for programming and developing resources for one term, which were shared with the other Year 2 teachers. As an example, the learning experience plan for a week included the following sequence: Use of Texts on Monday, in which students engaged in an activity from the *First Steps* resources; on Tuesday, activities related to Inferring were followed by a *First Steps* activity; on Wednesday the activity revolved around Contextual Understanding; on Thursday Conventions were taught; and on Friday a word study such as antonyms/synonyms was conducted. Phonics and spelling lessons were conducted separately to the reading lessons, but teachers endeavoured to integrate phonics and spelling when doing the Conventions part of the program.

Spelling words were selected from the Salisbury list and were grouped according to the sounds in the words (these were called THRASS words as this was the approach used to teach them). Other words were identified using Diana Rigg's scope and sequence. Strategies such as 'Look, Say, Cover, Write, Check' were used to learn these words and students were tested regularly to see if they could move on to different words. The *Sound Check* program was used for weaker spellers.

Students identified as having Specific Learning Difficulties in reading and writing were enrolled in the literacy support program. This was a pull-out program, meaning that students were withdrawn from class at specified times to work with an Education Assistant using direct instruction programs such as *Reading Mastery* by SRA and other synthetic phonics programs including *Toe-by-toe* (Cowling & Cowling, 1993).

The Teachers and Their Classes

The two teachers from School C were Cathy and Charlotte. All Year 2 teachers at School C taught in the same block with a central wet area. This area was divided into sections with one of these being a working space where an Education Assistant delivered the literacy support program. Cathy and Charlotte taught in classrooms separated by another classroom. Regular meetings were held between the Year 2 teachers and one of the School's literacy support personnel who also taught Year 2.

Case study 5: Progression through the Project

Profile of the teacher – Cathy

Cathy was over 56 years old and been teaching for more than 15 years. Her approach to teaching seemed most closely aligned to the *Serenity and A*ffective *D*istance phase in which "the level of career ambition decreases, as does the level of investment, but the perception of confidence, effectiveness and serenity appears to compensate for it" (M Huberman, 1989a, p. 353). Cathy commented on how much of what she had learnt at Teachers' College was now coming back into 'fashion' and seemed confident in her ability to be an effective teacher. She was well organised and expected her students to follow established routines in the classroom. She travelled several times during the year of the Project and seemed able to "peacefully, [leave] it all behind" (Peterson, 1964, cited in M Huberman, 1989a) and, as Huberman suggests is typical of this phase, was more distanced from her students, taking on more of a parent or grandparent role.

Cathy's responses on the self-efficacy component of the SLCRLA and the TRSES indicated that she had considerable confidence in her ability to teach literacy related skills with an average pre-test response of 2.6 out of 4 on the self-efficacy subtest of the SLCRLA and 4.7 out of 5 on the TRSES. In the post-test this had increased to an average of 2.9 on the SLCRLA and 4.8 on the TRSES. Her confidence in her ability to support colleagues who were experiencing difficulties in teaching reading increased in the post-test survey.

Key Finding 7.1

Cathy perceived herself to be an effective reading teacher and her belief in her ability to support other teachers experiencing difficulty with their instructional practices increased throughout the course of the Project.

Cathy's score of 65 on the TORP at the commencement of the Project indicated that she favoured a decoding perspective; however, this changed to 70 by the end of the project, which is at the lower end of the skills perspective. The teaching strategies she listed on the *Literacy Activities Survey* indicated a predominantly skills perspective at the start of the Project. Assessing Cathy's literacy skills at the start of the Project resulted in a score of 60% on the TPAA and 52% on the SLCRLA. On the TPAA she experienced difficulty with tasks that required her to identify the second sounds in words and reverse the order of phonemes. At the end of the Project her score on the SLCRLA increased slightly to 53%. A breakdown of the assessment areas and scores appears in Table 7.2. It is relevant to consider that Cathy wrote a note on her final assessment indicating that she was tired and not functioning at her best.

Table 7.2. *Cathy's Performance on the SLCRLA*

SLCRLA	Pre-	Post-
Phonemic – Knowledge	2/4	4/4
Phonemic – Ability	8/10	9/10
Phonological – Knowledge	1/1	1/1
Phonological – Ability	5/7	5/7
Phonics – Knowledge	4/8	3/8
Phonics – Ability	½	0/2
Morphological – Knowledge	0/3	2/3
Morphological – Ability	2/15	2/15
Comprehension – Knowledge	8/10	6/10
TOTAL	31/60	32/60

Cathy's responses to the *Program Evaluation Questionnaire* indicated that she believed she had gained from the Project with an average score of 4 compared to the mean of 3.4 for all participants (Table 7.3). She strongly agreed that the Project improved her ability to meet the individual literacy needs of her students and agreed that the Project impacted positively on all

of the other specified areas. Cathy appreciated the resources provided by the Project, such as the Letters and Sounds program sheets.

Table 7.3. *Cathy's Responses to the Program Evaluation Questionnaire*

QUESTIONNAIRE ITEM	**Mean - all participants/ (Aggregate Mean)**	**Cathy's responses/ (Aggregate Mean)**
As a result of the professional development, you are able to:	**(3.5)**	**(4.1)**
1. Make clearer links between your teaching goals and classroom activities in relation to literacy	3.7	4
2. Use more effective teaching and learning strategies appropriate to the literacy content you teach	3.7	4
3. Use teaching and learning strategies that are more challenging and engaging	3.3	4
4. Better meet the individual literacy needs of your students	3.6	5
5. Link assessment into the teaching and learning cycle more effectively	3.8	4
6. Provide more effective feedback to your students to support their learning	3.3	4
7. Access and use literacy materials and resources more effectively	3.4	4
As a result of the PD, your students:	**(3.2)**	**(4)**
8. Have fewer difficulties in understanding what they are being taught in relation to literacy	3.1	4
9. Learn more purposely	3.2	4
10. Engage more actively in literacy learning activities	3.2	4
11. Demonstrate enhanced literacy learning outcomes	3.2	4
12. Access and use literacy materials and resources more effectively	3.1	4
As a result of the PD:	**(3.6)**	**(4)**
13. My ability to meet the literacy learning needs of my students has expanded	3.6	4
14. My confidence in teaching literacy has increased	3.6	4

Note: Item rated 1 = strongly disagree, 2 = disagree, 3 = somewhat agree, 4 = agree, 5 = strongly agree

Key Finding 7.2

Survey instruments did not indicate any significant changes in beliefs and knowledge at the conclusion of the Project; however, Cathy reported improved confidence and instructional practices on the *Program Evaluation Questionnaire*.

The teaching actions

The following classroom features from the *Literacy Practices Guide* (Konza, 2012a) were evident in Cathy's classroom:

- Room design supported whole group, small group and individual instruction
- Alphabet displayed
- Word walls
- Other words categorised (e.g. in themes)
- High-interest fiction and non-fiction books available at variety of reading levels
- Take home books

In addition, there were desk charts with the alphabet, sounds and key words to support literacy as well as mathematics. THRASS charts were also displayed on desks and walls. A document study identified a number of student workbooks for subject areas, but during observations, students primarily used *First Steps* worksheets, which they pasted into workbooks. Observed feedback on written work was generally a tick to acknowledge completion.

Observations of Cathy's literacy lessons were undertaken once in April before the monthly Project meetings commenced, and again in August. Interviews were conducted after each of these observations, with an additional longer interview in June. During lesson observations, the teaching actions were recorded and are reported below in conjunction with tables that identify the emphasis for the teaching actions (Tables 7.4 and 7.5).

During the first observation in April, the learning experiences were observed to include the following features identified in the *Literacy Practices Guide* (Konza, 2012a):

- Activating prior knowledge of content.
- Modelling of good oral reading practices (fluency, use of expression).
- Whole-class and targeted individual assistance.
- Specific attention to content-specific vocabulary.
- Preview text layout of informational text.

Before class commenced, a parent helper worked with selected students on a 'super-reader' program implemented by Cathy to develop students' reading fluency. Cathy also reported that

she would provide additional literacy support for students requiring it when they read to her in the morning. When the lesson commenced, Cathy directed students to sit on the mat in front of a small whiteboard. The students read a story on mammals in pairs from the sheet provided to them, after which the whole class read the same story in unison while Cathy listened for students having difficulty with the task. She then worked through unfamiliar vocabulary from the story, using actions at times to illustrate the meaning of words. One student asked the meaning of the word 'paragraph' and Cathy used this as a teaching opportunity.

Cathy then reminded students of the recount format by indicating the relevant wall chart and checking for students' understanding of the terms: Title, Classification, Description, Location, Dynamics and Conclusion. The class then co-constructed the information needed to complete the *First Steps* Facts and Falsehood worksheet on the whiteboard and returned to their desks to transcribe this information onto the worksheet. This included a cloze activity based on the reading students had done on the mat. Once they had completed this task there was an information chart on mammals for students to complete.

After 40 minutes, students moved back to the mat to do an activity on spelling 'dd' words. Students generated a list of words they thought would be spelt with 'dd'. When students offered incorrect words they were told how the word was spelt, rather than being offered an explanation of why their suggestion was not correct: for example, one student suggested 'sliding', but this was not used as an opportunity to teach the rule about words ending in vowels compared to those that end in consonants. Students then moved to their desks to complete their spelling workbooks based on levels determined by the teacher. Cathy used this time to move around the classroom checking on students' progress and assisting students experiencing difficulty.

Table 7.4. *First Observation of Cathy's Teaching*

Activity	**Emphasis**
Super reader	Fluency and phonics (analytic)
Reading in unison	Fluency and vocabulary
Recount	Comprehension
Spelling	Orthographic knowledge (explicit)

In the observation undertaken in August the before-class 'super-reader' program was still in place, with a number of students reading to Cathy so that she could monitor their progress and

provide literacy support, generally in the form of feedback on decoding strategies, for students experiencing difficulties.

The activities were focused on the book *Best of Friends* and the session began with students predicting what the story might be about from looking at the front cover. Then some of the elements of the cover, such as author and illustrator, were discussed, with Cathy providing prompts to assist students to identify these features. Elements of visual literacy, such as the use of colour and the selection of pictures, were also discussed. Cathy explained that she would read the book first and then everyone would get a copy of the book to look at the pictures and take turns to read aloud to the class. Cathy asked literal questions during the reading of the book to monitor students' understanding. Once this was completed, she generated a list of words from the story that students needed to write down: bride, butter, cat, cousin, delicious, empty, family, food, friends, gobbled, hollow, house, licked, mouth, repeated, responsible, river, rubbish, stored, tree, tub, wedding, winter and wonderful. Students returned to their desks with the book and a word sleuth worksheet. Cathy moved around the room listening to each student read and individually correcting words pronounced incorrectly by providing the correct pronunciation.

Table 7.5. *Second Observation of Cathy's Teaching*

Activity	**Emphasis**
Super reader	Phonics (analytic)
Reading	Comprehension
Individual reading	Fluency and vocabulary

Key Finding 7.3

Cathy maintained a consistent approach to her whole of class literacy block activities throughout the year. There was evidence of her understanding the need to teach phonics explicitly, but this was not part of her standard literacy block activities. Students requiring additional literacy assistance were referred to School C's literacy support program or received one-on-one reading assistance from Cathy before class.

The Students

Cathy identified one student in her class as needing additional assistance. This student improved in all areas on the AIST (vowels, consonants and the orthographic bonus) over the course of the Project (Figures 7.2-7.5). Similarly, the student's score on the Non-Word Spelling

subset of the SPAT-R increased from 29 to 65. Her total SPAT-R score decreased over the course of the Project suggesting that she was still experiencing significant difficulties with phoneme identification and manipulation, although this was inconsistent with her performance on the other assessment. It is possible that factors outside of her ability influenced her performance on the post-Project assessment task.

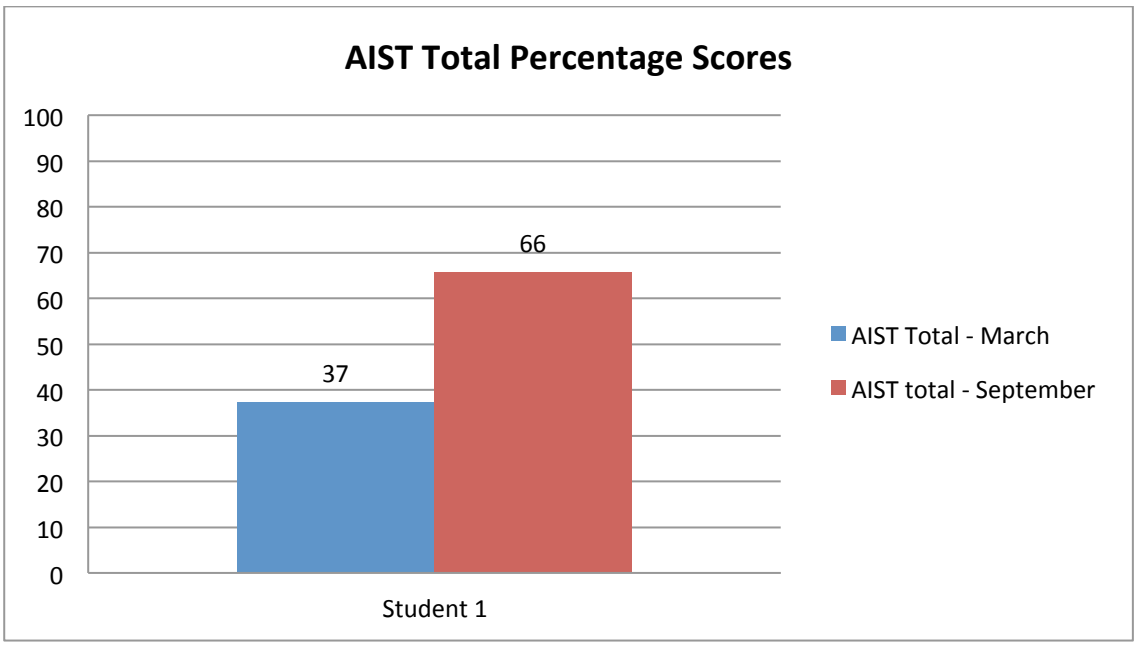


Figure 7.2. Pre- and post-Project AIST total percentage scores for Cathy's student

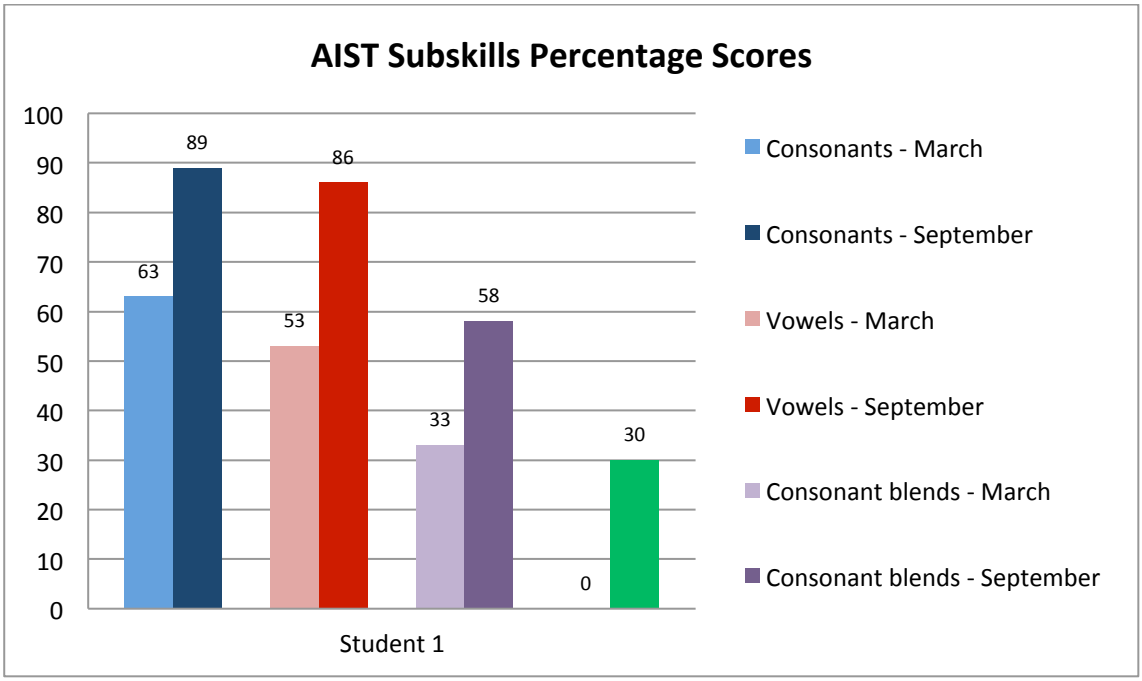


Figure 7.3. Pre- and post-Project AIST subskills percentage score for Cathy's student

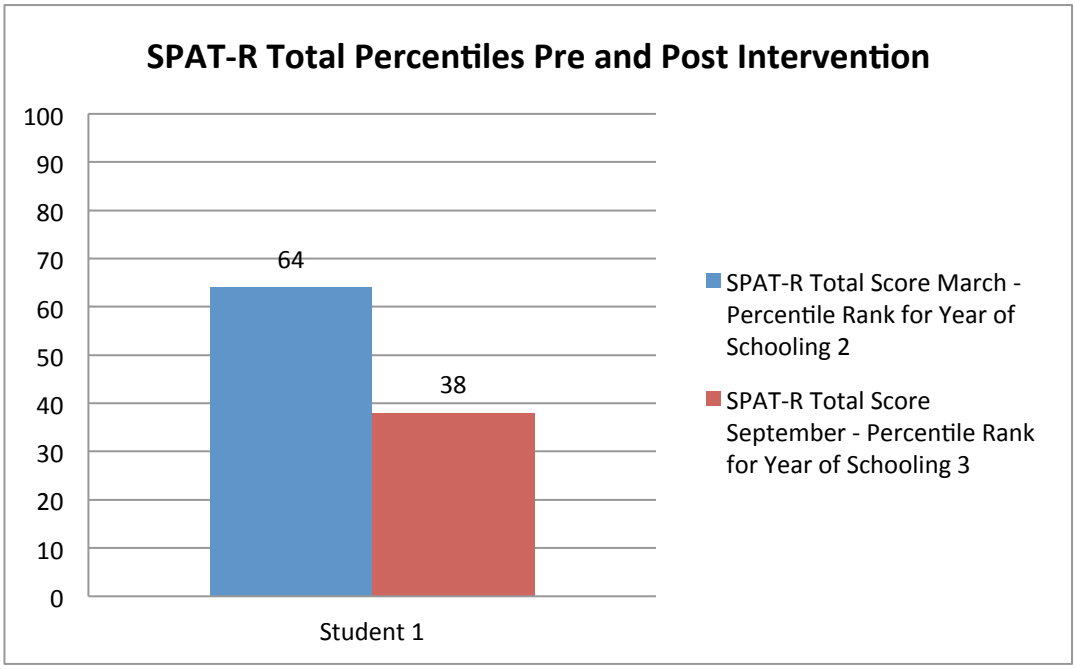


Figure 7.4. Pre- and post-Project SPAT-R percentile ranks for Cathy's student

The middle two quartiles (one standard deviation either side of the mean) for students in their 2nd Year of Schooling = 26 – 74%.
* The middle two quartiles (one standard deviation either side of the mean) for students in their 3rd Year of Schooling = 25 – 72%.

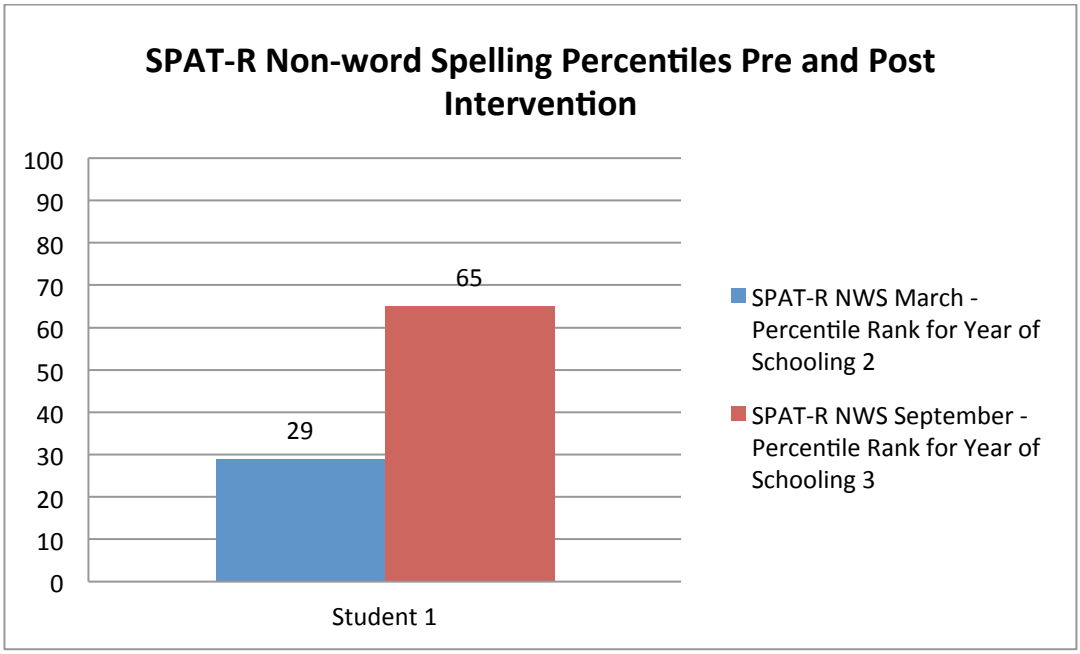


Figure 7.5. Pre- and post-Project SPAT-R non-word percentile ranks for Cathy's student

The middle two quartiles (one standard deviation either side of the mean) for students in their 2nd Year of Schooling = 27 – 70%.
*The middle two quartiles (one standard deviation either side of the mean) for students in their 3rd Year of Schooling = 25 – 68%.

This student made progress with her reading skills, but there was a backward trend in the SPAT-R. Cathy was not able to explain why this occurred but the Researcher observed that different staff members, including one of the education assistants, administered some of the post-tests. Therefore, differences in performance may be a result of different procedures

when administering the assessments. Effect size could not be calculated, as there was only one student's result for Cathy's class. Cathy reported that her students benefitted from her involvement in the professional learning (see Table 7.3)

Key Finding 7.4
There were mixed outcomes for the focus student in Cathy's class, but she was confident that the professional learning contributed to improved literacy outcomes for her student.

The Following Year: Influence and Impact

Cathy agreed to be observed and interviewed the following year. She had remained at the same school as the previous year, was teaching Year 2 students and had remained in the same classroom with the same layout. A document analysis indicated that she continued to use student workbooks for subject areas and provide feedback in the form of a tick to acknowledge completion.

Cathy reported that this group had weaker literacy skills than students in the previous year.

Students were continuing work they had started earlier in the week on the 'i – e',' I – y', 'igh' and 'ie' spelling of /aɪ/ (as in high) and were generating a list of words incorporating these letter patterns that Cathy then transcribed onto the blackboard. The next activity focused on informational texts and their structure. Students had a copy of the text and Cathy directed them to the contents page asking students how it was organised. She provided several prompts and shaped students' responses through questioning. When students had identified that the headings were structured as questions, Cathy asked specific groups of students to read the section for the question she asked. Cathy activated prior knowledge by asking students if they remembered the definition of 'pollution' from their work the day before. Students then moved to their tables to complete a worksheet based on the information in the reading, which also included cutting out pictures and matching them to the definitions provided. Once they finished this task they had a 'word sleuth' to complete.

Table 7.6. *Final Observations of Cathy's Teaching.*

Activity	**Emphasis**
Sounds	Phonics (explicit/synthetic)
Informational texts	Comprehension and vocabulary

The emphasis of teaching was similar across the different observations (Table 7.4, 7.5 and 7.6) but there are indications of increased use of explicit synthetic approaches and Cathy reported that, after the first professional learning day, she was reminded of the *Let's Decode* (Formentin, 1993) material (an early intervention program utilising a synthetic phonics approach) that she had formerly used to teach reading. She located this material and started to use it in the sessions before school with students experiencing reading difficulties. This suggests that Cathy was cognisant of the importance of synthetic phonics in reading instruction.

Key Finding 7.5

Cathy was clear on the need to teach students explicitly about phonics to develop their reading skills and the reported use of synthetic phonics material with students experiencing reading difficulties is suggestive of a change in PCK.

In the Teacher's Words

Cathy was enthusiastic about the Project as an opportunity to share information with teachers from other schools and learn what they do to support children with literacy difficulties. She felt the Project had affirmed her beliefs about how children learn to read and would be valuable for beginning teachers or those who did not have an early years' background. This positions Cathy at the Collaboration stage (Hall & Hord, 2001).

Key Finding 7.6

Cathy was positive about the Project, although she felt it would be more helpful to beginning teachers than those with her level of experience.

Cathy was very positive about the approach being used at her school to support children with literacy difficulties, but explained that this was not always reflected in the NAPLAN results as there were still many children coming from other schools and overseas who had not had the benefit of the type of early intervention offered at her school. Kindergarten and Pre-primary classes incorporated the synthetic phonics program *Jolly Phonics* into their learning experiences and, in Years 1 and 2, students who were slower than their peers to acquire literacy skills received support through the literacy support withdrawal program.

Midway through the year Cathy reported that the Project had not made any difference to her teaching because she felt students received the instruction they needed from the literacy

support program, so all she needed to do was to give them the opportunity to practise this in the classroom. Cathy saw this as an advantage, as she was able to focus on moving the more able students on from 'learning to read' to 'reading to learn'. She questioned the ability of any teacher to be able to cater for students with reading difficulties in their regular classroom suggesting, "You can have your groups but the only group that is working is the one you are with" and saw withdrawal programs like literacy support as the answer to this problem.

Key Finding 7.7

Despite having the knowledge and skills to teach reading to students experiencing reading difficulties, Cathy's experience at School C supported her belief that reading interventions are best delivered through small group instruction in a withdrawal program.

After the final observation the following year, Cathy was interviewed to see what her perception of the program was in retrospect. She reported that she found the professional learning sessions interesting and revisiting phonics instruction a worthwhile exercise. As a result of her learning in the Project she had concentrated more on tasks that involved identifying sounds, word studies and providing students with multiple opportunities to write. Given that her concerns were related to Collaboration, this evaluative process is aligned with the Refocusing stage (Hall & Hord, 2001).

Case study 6: Progression through the Project

Profile of the teacher – Charlotte

Charlotte was between 26 and 35 years old and had been teaching between 6 and 10 years. In terms of Huberman's stages (1989a), this would place her in the *Diversification and Change* phase; however, observations of her teaching suggested she was somewhere between this and the stabilisation stage. She appeared to be comfortable in her instructional abilities "refining, a basic instructional repertoire on which [she] can, finally, rely" (p. 350), but there were times when she deviated from this and was more spontaneous in her instructional approach. Charlotte had a genuine manner with the students and they responded positively to her. She used a great deal of positive reinforcement, identifying those children who were behaving correctly, and making connections with the children such as "welcome back, how are you feeling now?" to a child who had returned to school after being absent due to illness.

Charlotte's responses on the self-efficacy component of the SLCRLA indicated that she rated herself as 'good' - 2.9 out of 4 - on all aspects of literacy instruction at the start of the Project, and this remained constant throughout the Project. Her level of confidence on the TRSES was

higher with an average response of 4.7 on a 5-point Likert scale. Her sense of self-efficacy was higher than the other case study teachers, and remained static over the course of the Project. In the pre-test, the single question on which she rated herself lower than five was 'How would you rate your ability to teach using assessment to inform reading instruction?' In the post-test she rated herself as 'very good' on this item but, in contrast, she rated herself as 'moderate' on the post-Project response to 'How would you rate your ability to teach literacy skills to English Language Learners (ELLs)?' compared to a response of 'very good' pre-Project. This may relate to an experience of ELL during the year or a shift in perception that ELL can be interpreted as English as a Second Language (ESL).

Charlotte's score of 74 pre- and 75 post- on the TORP indicated that her preference for a 'skill's approach' to teaching reading remained the same throughout the Project. This is consistent with the teaching strategies she listed on the *Literacy Activities Survey* administered at the start of the Project.

Charlotte scored 56% on the TPAA and experienced difficulty isolating the sounds in words. On the first administration of the SLCRLA Charlotte's overall score was 50%, changing only slightly to 54% on the post-survey; however, the scores in individual sections changed and one area in which there was a noticeable improvement was in Charlotte's morphological knowledge and skills. Morphological awareness was an area in which the teachers generally performed poorly and was subsequently covered in one of the Project sessions, thus Charlotte's improvement appears to link directly to Project content.

Table 7.7. Charlotte's Performance on the SLRLA

SLCRLA	Pre-	Post-
Phonemic – Knowledge	2/4	3/4
Phonemic – Ability	8/10	5/10
Phonological – Knowledge	0/1	0/1
Phonological – Ability	7/7	6/7
Phonics – Knowledge	5/8	2/8
Phonics – Ability	0/2	0/2
Morphological – Knowledge	0/3	3/3
Morphological – Ability	0/15	7/15
Comprehension – Knowledge	8/10	6/10
TOTAL	30/60	32/60

Key Finding 7.8

Charlotte's perception of self-efficacy was higher at the beginning of the Project than the average for the Project participants and, like her skills and theoretical orientation to reading, did not change over the course of the Project.

Charlotte's responses to the *Program Evaluation Questionnaire* (Table 7.8) indicated that, overall, she felt that the experience had improved her confidence and instructional practices in meeting the literacy needs of her students. She was less confident regarding the impact the Project had on the outcomes for her students, which was consistent with evaluations of the whole cohort. Charlotte's overall mean for the evaluation was 4, making it slightly higher than the 3.4 mean for all participants. However, with a response of 4 to all items on the survey, there is the concern that she responded holistically to the Project without due consideration of the specific questions being asked.

Table 7.8. *Charlotte's Response to the Program Evaluation Questionnaire*

QUESTIONNAIRE ITEM	Mean - all participants/ (Aggregate Mean)	Charlotte's response/ (Aggregate Mean)
As a result of the professional development, you are able to:	**(3.5)**	**(4)**
1. Make clearer links between your teaching goals and classroom activities in relation to literacy	3.7	4
2. Use more effective teaching and learning strategies appropriate to the literacy content you teach	3.7	4
3. Use teaching and learning strategies that are more challenging and engaging	3.3	4
4. Better meet the individual literacy needs of your students	3.6	4
5. Link assessment into the teaching and learning cycle more effectively	3.8	4
6. Provide more effective feedback to your students to support their learning	3.3	4
7. Access and use literacy materials and resources more effectively	3.4	4
As a result of the PD, your students:	**(3.2)**	**(4)**
8. Have fewer difficulties in understanding what they are being taught in relation to literacy	3.1	4
9. Learn more purposely	3.2	4
10. Engage more actively in literacy learning activities	3.2	4
11. Demonstrate enhanced literacy learning outcomes	3.2	4
12. Access and use literacy materials and resources more effectively	3.1	4

As a result of the PD:	(3.6)	(4)
13. My ability to meet the literacy learning needs of my students has expanded	3.6	4
14. My confidence in teaching literacy has increased	3.6	4

Note: Item rated 1 = strongly disagree, 2 = disagree, 3 = somewhat agree, 4 = agree, 5 = strongly agree

Key Finding 7.9

Although Charlotte's knowledge and skills did not indicate improvement on the survey measures, she reported that her practice had improved as a result of her involvement in the Project.

The teaching actions

The following classroom features were evident in Charlotte's classroom:

- Room design supported whole group, small group and individual instruction.
- "Living" word wall.
- Alphabet displayed.
- Other words categorised (e.g. in themes).
- High-interest fiction and non-fiction books available at variety of reading levels.
- Take home books.

(Konza, 2012a)

The classroom environment was attractive and well organised, and there were photographs of the students and students' work samples displayed around the room. The charts on the walls included sounds cards, Reading Roles from *First Steps,* a map of Australia and number charts. A document analysis indicated that Charlotte provided feedback in the form of stamps, encouraging comments and ticks. Spelling was corrected in workbooks, but there was no written directional feedback given to help students understand their errors.

During lesson observations, the teaching actions were recorded and are reported below in conjunction with tables that identify the emphasis for the teaching actions (Tables 7.9 and 7.10). The first observation took place in May and the main feature of the *Literacy Practices Guide* (Konza, 2012a) observed was that the purpose of the lesson was stated. Students were randomly allocated to reading groups, with the exception of the students identified as having reading difficulties. These students were sent to the literacy support classroom for *Direct Instruction*. Students in Charlotte's classroom read a passage and highlighted the key points. When they had completed this task, they moved to the mat with their 'shoulder buddy' to discuss the points they found. The task was to write statements (rather than questions) about

mammals that other students would read to determine if they were true or false. These sentences were written on a worksheet from the *First Steps* support material. Students could use their books to find facts and to check spelling. Charlotte helped some students: for example, with the spelling of 'hippo' Charlotte prompted "hh hh hh…" but there was no instruction around rules for doubling the 'p'. When a student asked how to spell 'pig' Charlotte provided the sounds "/p/-/i/-/g/".

This activity continued for 45 minutes, after which the students moved to spelling using the familiar 'Look, Say, Cover, Write, Check' strategy. This activity took about 10 minutes, and included students testing each other. There was no input from the teacher during this activity apart from keeping students on task. Spelling lists were determined by the students' results on the Salisbury word list. For the weaker students, lists were made up of five words from the Salisbury word list and five from sounds they were doing with the literacy support program, which used a synthetic phonics approach. The literacy block concluded with a report-writing task. Students recapped the material they had been reading in this lesson by highlighting key words in pairs.

Table 7.9. *First Observation of Charlotte's Teaching*

Activity	**Emphasis**
Reading	Comprehension
'Look, Say, Cover, Write, Check' (general)	Graphophonic knowledge
'Look, Say, Cover, Write, Check' (specific students)	Graphophonic knowledge and phonics (synthetic)
Writing	Comprehension

During the second observation in August, the literacy block commenced with a story reading activity. Students were familiar with the tasks and there was little teacher direction during this session. The lesson started with the shared reading of the story, with Charlotte correcting errors by providing the correct word. This was interspersed with prediction activities and the identification of problems and possible solutions. Charlotte completed reading the story with students following along with her reading. Students then moved to their desks and mostly worked independently on an illustration from the passage they read. The task engaged students and is typical of the type of activity used in many literacy lessons; however, it constituted 40 minutes of the 90 minute literacy block and did not involve any actual literacy instruction.

After that period of time, students moved on to spelling journal work, with Charlotte working her way around the room. As with the previous observation, the spelling lists for students experiencing difficulties included five words from sounds they were covering with the literacy support program. All students had to colour code the sounds in the words so that individual sounds were identified. As it was Monday and students had started a new word list, there was more explicit instruction in the sounds contained in the list words. Some examples of this were recorded in field notes and are provided below:

> A student is trying to explain that he has found another example of a word with a silent 'k', knee. Charlotte is unsure what he is talking about and as he tries to elaborate he refers to the 'k' as a 'c'. He says something about the 'c' making you say the 'n' then the 'ee'. Charlotte does not correct the student's use of the wrong letter to represent the sound only saying that she understands silent 'k' with knee.
>
> When a student said 'lietle' instead of 'little', Charlotte corrected her, but did not explain why the word was pronounced in this way.
>
> When helping a child spell 'about', Charlotte sounded out U buh ow u tt; there was no mention of the sound 'ow' being spelt with 'ou'.

Other examples of spelling assistance included:

> Providing the letters of the words 'back' - 'b a c k' and 'crawl' – 'c r a w l '
>
> "'after' - what is the first sound you hear? It has an 'r' at the end of afta"
>
> " 'er' makes the 'err' sound"
>
> "Gorgeous is pronounced 'gor' 'ge' 'oss'"
>
> "Wood, two 'o's together make the 'oo' sound"
>
> "'o' is with the 'e' in that word"
>
> "because 'au' is one sound"

It was observed that Charlotte did not direct students to look for smaller words in words as a reading or spelling strategy.

Table 7.10. *Second Observation of Charlotte's Teaching.*

Activity	**Emphasis**
Reading	Comprehension
'Look, Say, Cover, Write, Check' (general)	Graphophonic knowledge and phonics (analytic)
'Look, Say, Cover, Write, Check' (specific students)	Graphophonic knowledge and phonics (synthetic)

Key Finding 7.10

There was more evidence of Charlotte working on sounds during the whole of class instruction in the later observations; however, there were numerous missed opportunities for incidental teaching or using whole-class instruction to work on specific sounds.

The Students' Performance

The students from Charlotte's class who were identified as needing additional reading support became part of the withdrawal literacy support program conducted at School C, so a strong connection between Charlotte's teaching and student performance cannot be made. Despite this, the results have been included here in consideration of the overall literacy support at the School (Figures 7.6 – 7.9). Student 2 appeared to have made good progress on the SPAT-R, but she was not assessed on the AIST in March so a score for this measure has not been provided. Student 3 did not appear to have made any progress on the skills assessed in the AIST, although the breakdown into subskills suggests that some progress had been made with consonant and vowel knowledge. Unfortunately, this was offset with a drop in score for consonant blends. Similarly, this student progressed with part of the SPAT-R assessment but performed more poorly on the non-word spelling subtests. When a student's skills appear to have deteriorated over the year, more information is required to determine whether this is an accurate reflection of their progress or if there were other factors impacting on the student at the time of testing.

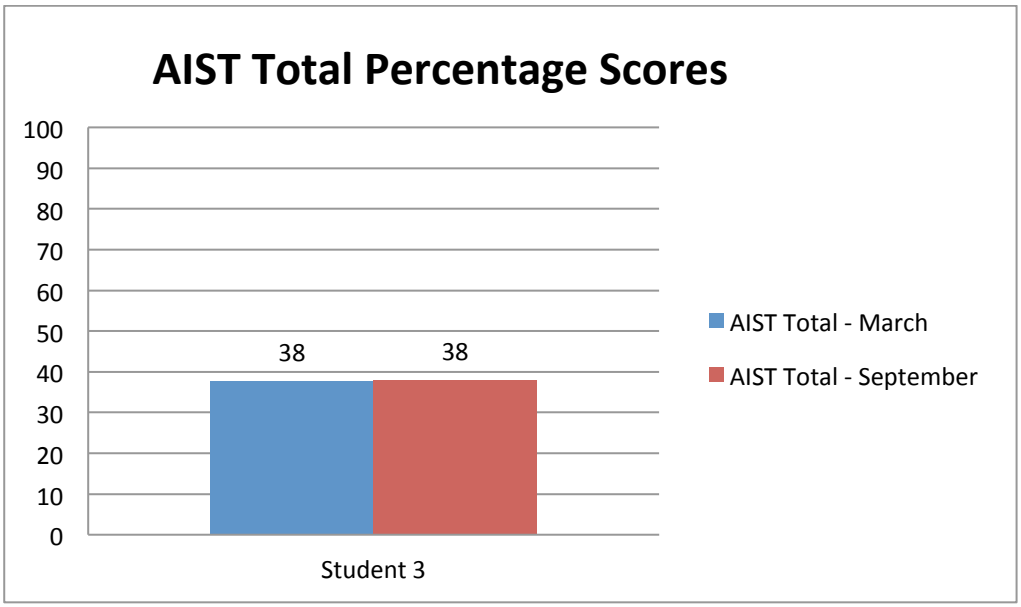


Figure 7.6. Pre- and post-Project AIST total percentage scores for Charlotte's student

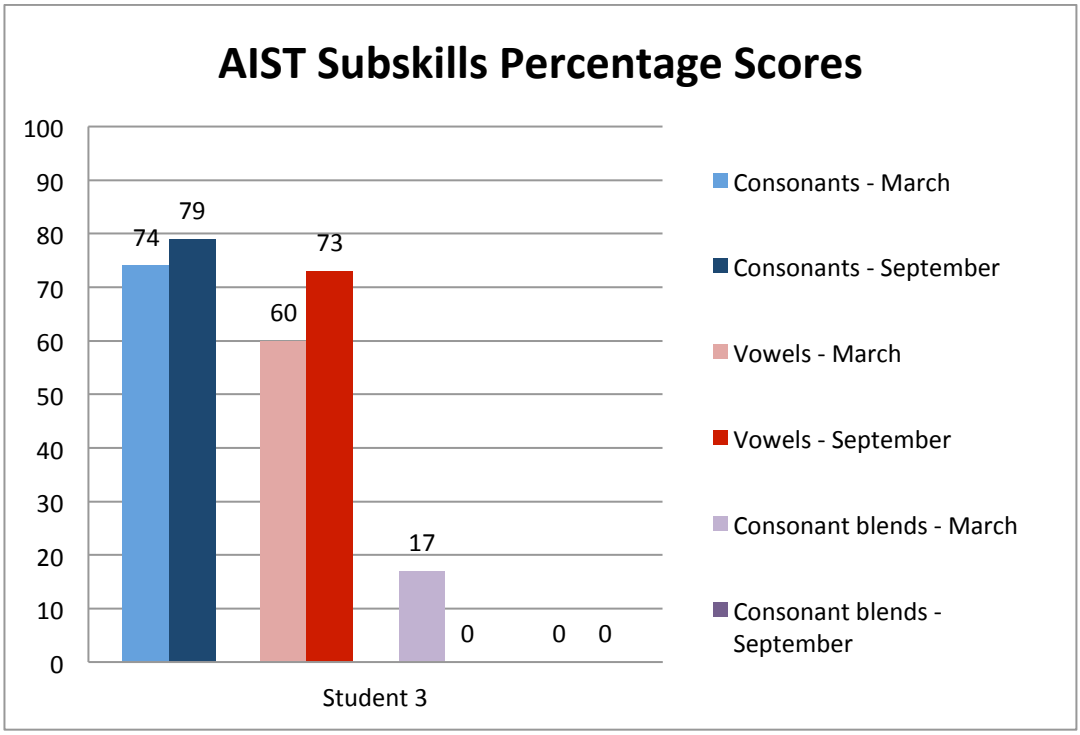


Figure 7.7. Pre- and post-Project AIST subskills percentage scores for Charlotte's student

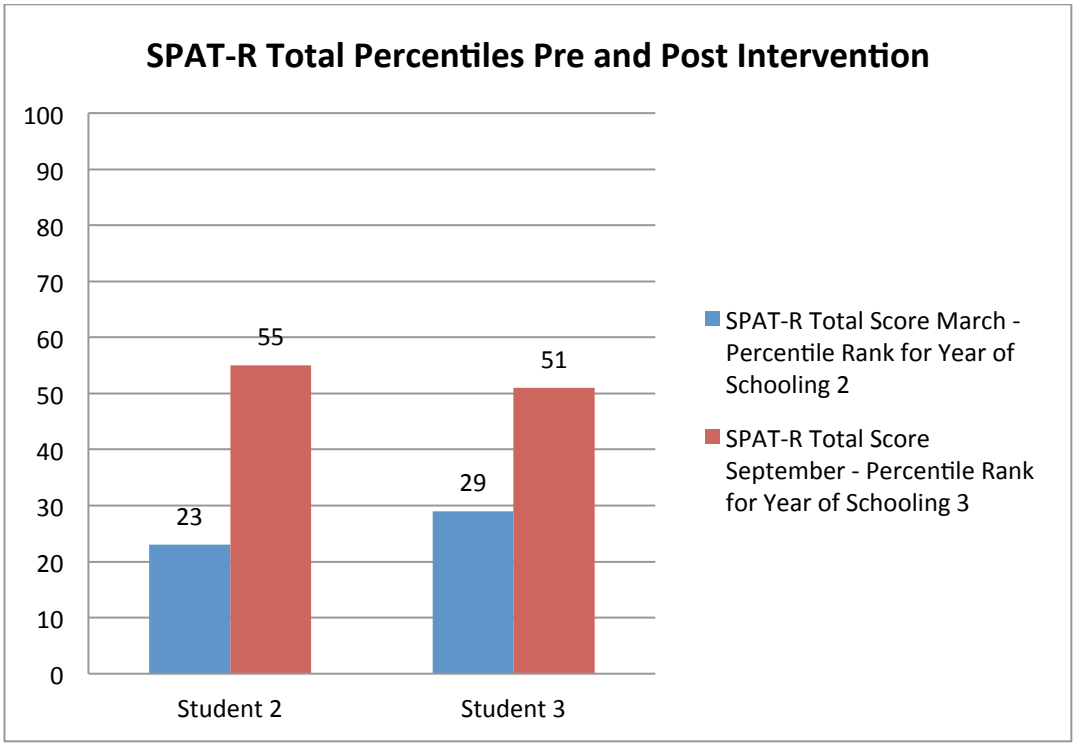


Figure 7.8. Pre- and post-Project SPAT-R percentile ranks for Charlotte's students

\# The middle two quartiles (one standard deviation either side of the mean) for students in their 2nd Year of Schooling = 26 – 74%.
* The middle two quartiles (one standard deviation either side of the mean) for students in their 3rd Year of Schooling = 25 – 72%.

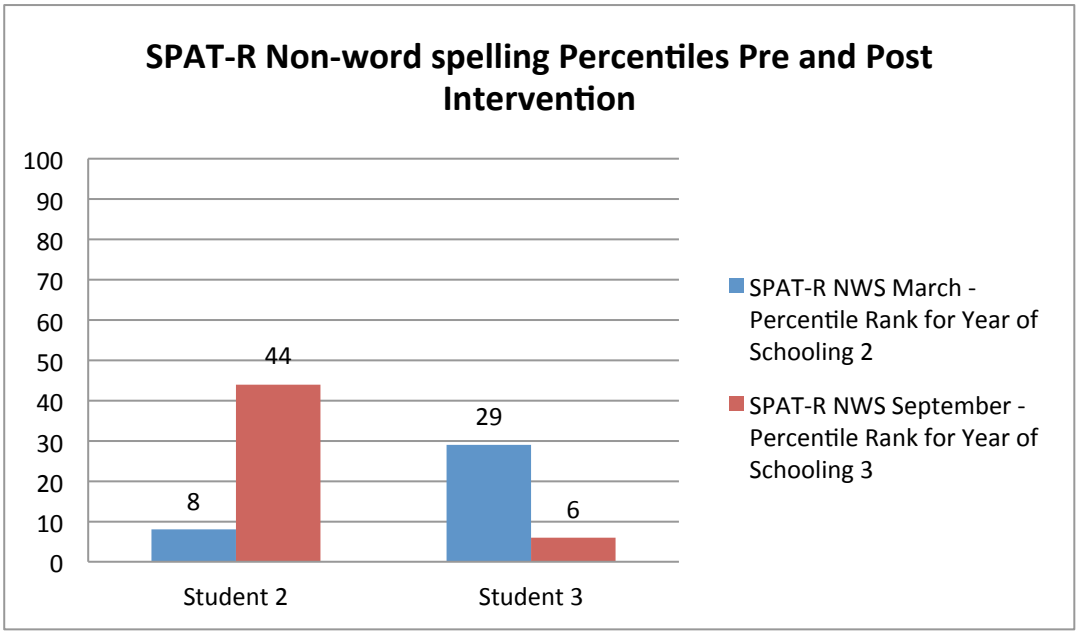


Figure 7.9. Pre- and post-Project SPAT-R non-word percentile ranks for Charlotte's students

The middle two quartiles (one standard deviation either side of the mean) for students in their 2nd Year of Schooling = 27 – 70%.
*The middle two quartiles (one standard deviation either side of the mean) for students in their 3rd Year of Schooling = 25 – 68%.

Overall assessment results indicated that the students made progress over the course of the year, but there were lower post-scores on some of the sub-skills. Charlotte was not able to offer an explanation as to why this occurred but, as stated earlier, the Researcher observed that different staff members, including one of the Education Assistants, administered some of the post-tests. Despite this anomaly in the results, effect sizes for most subtests were large (Table 7.11) and Charlotte believed that the professional learning had a positive impact on her students' literacy performance (see Table 7.5).

Table 7.11. *Pre- and Post-Testing for Charlotte's Students*

			Pre	Post	Difference[1]	Effect size
		N	*M*	*M*	*M*	*r*
SPAT-R	Total	2	26.00	53.00	27.00	.67**
	NWS	2	18.50	25.00	6.50	.22
AIST		1	37.75	38.00	.025	N/A

Note: With 1 and 2 students, the mean and median are the same, so only the mean is reported.
NWS = Non-word Spelling
[1] Post-test minus pre-test
* = moderate effect size; ** = large effect size

Key Finding 7.11

On the whole, the performance of Charlotte's students improved and she was confident that improvements could be attributed to her involvement in the professional learning.

The Following Year: Influence and Impact

In the following year Charlotte was in the same classroom with the same year level. The layout of the classroom remained the same, as did the display charts. An examination of student workbooks indicated that that Charlotte continued to provide the majority of her feedback in the form of stamps, encouraging comments and ticks but that spelling correction included some reminders about rules.

The literacy block observed in April started with Charlotte reading an article that one of the students had brought in about a vegetarian sabre toothed tiger. This was not a prepared lesson and the impetus came from the student bringing in the article that morning. She asked students to predict what they thought this tiger might look like and talked about the size and purpose of canine teeth, and how big they might be on the tiger in the article. Charlotte had difficulty pronouncing some of the scientific names and the name of the scientist and, while she did model the sounding out of some words, she did not use this as an opportunity to teach decoding strategies for difficult words.

Once the article was read, the students returned to their desks and worked on their illustrations for about 30 minutes before moving onto spelling using 'Look, Say, Cover, Write, Check' and colour coding the sounds in words. The sounds task required students to use a different colour to highlight each of the sounds in the words on their list. Charlotte used this time to move around the classroom to assist individual students with their spelling and identification of the number of sounds in the words. She provided feedback to students on identifying sounds in words; for example, sounding out 'd' 'ow', 'er' as one sound. One student requested help with the sounds (not letters) in 'box' and Charlotte provided only three sounds 'b' 'o' 'x'. Charlotte's failure to identify that the 'x' represents two phonemes /k/ and /s/ suggests that she lacked this knowledge herself and that these variations in the representations of sounds was not been considered when designing the activity, as colour coding a letter when it represents more than one sound is difficult. Then students were directed to write sentences with their words. Charlotte did not seem as involved in individual work with the students in this session, but it was approaching the end of the term and students were asking for a break, even though it was the first session of the day.

Table 7.12. *Final Observation of Charlotte's Teaching*

Activity	**Emphasis**
Reading	Comprehension
'Look, Say, Cover, Write, Check' (general)	Graphophonic knowledge and phonics (explicit analytic)
'Look, Say, Cover, Write, Check' (specific students)	Graphophonic knowledge and phonics (explicit synthetic)
Writing	Vocabulary

Comparison of Tables 7.9, 7.10 and 7.12 suggest that that Charlotte was using more explicit teaching strategies in the year following the Project, although the description of the teaching approaches identify incidences where opportunities for this type of instruction were not utilised.

Key Finding 7.12

There is evidence that Charlotte was using more explicit teaching strategies; however, improved knowledge of decoding strategies would enable her to make better use of the incidental teaching opportunities. Charlotte's content knowledge, as assessed by the SLCRLA, was still limited and would have been impacting on her PCK.

In the Teacher's Words

When interviewed in May about what she hoped to gain from her involvement in the Project, Charlotte suggested it "might help other schools if they don't have a [teacher who provides additional support]". She was also interested in hearing about what other schools did to support students with reading difficulties. Like Bridget and Cathy, this would seemingly identify Charlotte as being at the Collaboration stage (Hall & Hord, 2001), but she had not implemented any change in practice to share with colleagues.

During the interview in June, Charlotte responded that nothing had changed in her classroom practice since starting the Project and that it simply confirmed that the current practice at the School was good practice. By August she responded that, "I feel like I am spending a little more time with the students who are the focus of the Project and I have a better understanding of the terminology, like what a phoneme is". Charlotte reported that this helped in her teaching, as she was able to understand why and where students were having

difficulty when she listened to them read. She understood what the benefits of things like repetition were to students' reading ability. In relation to the value of this type of professional learning, Charlotte was of the opinion that it was helpful, although it might have been more relevant to Year 1 teachers. She commented that, "X started with the Project as she was a Year 2 teacher, but now she is in Year 1 and uses a lot from the Project".

In the following year Charlotte reported that she was still using the assessment tools that were introduced in the Project. She credited the Project with improving her awareness of terminology and was confident in her ability to teach reading if she was transferred to another school that didn't have the same structured approach as School C. Although this might appear to have been a backward move in stages, from Collaboration to Consequences (Hall & Hord, 2001), the latter was a more relevant stage to the professional learning based on Charlotte's implementation of the recommendations from the Project team.

Key Finding 7.13

Although Charlotte continued to rely on the literacy support program to assist those children in her class who were experiencing difficulty learning to read, she was able to identify the teaching approach and resources necessary to support these children. She expressed confidence that she could teach children to read if the need arose.

7.2. Discussion

The context for the teachers in School C had a unique impact on the way in which they engaged with the professional learning. Cathy and Charlotte both reported that the beliefs about teaching reading asserted in the Project were consistent with those held at the School and a synthetic phonics approach was certainly evident in the withdrawal program. In addition, the School was supportive of up-skilling their teachers and provided paid relief for teachers to attend the professional learning. While they were very receptive to the ideas being presented about effective reading instruction, they did not see the need to significantly change their own teaching as they had a specialist program for this. Being at the 'Serenity' and 'Affective Distance' phase, Cathy willingly reintroduced explicit strategies that she has used in the past, but did not seek new approaches to integrate within the classroom. Observations of Charlotte's practice suggested that she was at the stabilisation phase and was refining current practice rather than seeking new instructional strategies.

Key Finding 7.14

The School provided encouragement for teachers to be involved in the Project; however, the context of the School and their stage of teaching impacted on the way that Cathy and Charlotte engaged with the Project.

As was the case in the other schools, it was difficult to ascribe student improvement only to the Project, but the results of the assessments indicated that there improvements in the performance of students on School C with moderate to large effect sizes (Table 7.13). The small number of focus students in Charlotte's and Cathy's classes makes it difficult to draw any conclusions about student progress, although the whole school data does suggest that students involved in the project at this school made more than expected progress.

Table 7.13. *School C - All Student Participants: Comparison of Pre- and Post-Performance on the SPAT-R (Percentile) and AIST (Percentage)*

			Pre		Post		Difference[1]		Wilcoxon[2]		Effect size
		N	*M*	*Mdn*	*M*	*Mdn*	*M*	*Mdn*	*z*	*p*	*r*
SPAT-R	Total	11	44.95	29.0	69.18	68.0	24.23	39.0	-2.135	.033	.46*
	NWS	11	39.41	29.0	55.91	56.0	16.50	27.0	-1.824	.068	.39*
AIST		11	45.00	51.2	73.45	79.5	28.45	28.3	-2.934	.003	.63**

Note: M = mean, *Mdn* = median, NWS = Non-word Spelling
[1] Post-test minus pre-test
[2] Wilcoxon signed rank test
- = moderate effect size ** = large effect size

Key Finding 7.15

In School C the performance of the students' involved in the project improved over the course of the Project with moderate to large effect sizes.

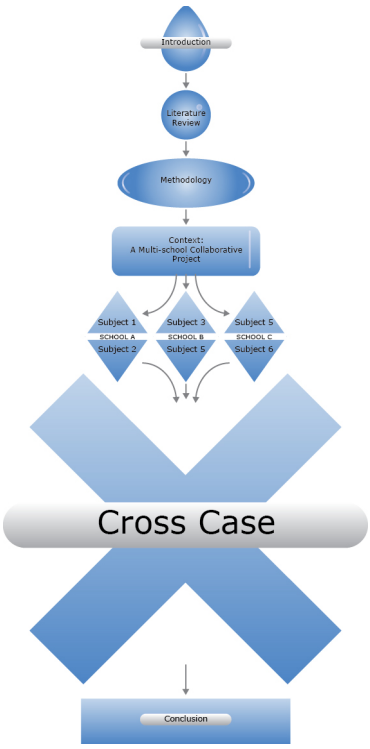
Finally, the case study teachers from School C were keen to share their knowledge and approach to literacy support with the other teachers in the Project. This collaborative approach was a key component of the Project as it was posited that collaboration between teachers would contribute to their development of PCK in literacy instruction.

In the following chapter the key findings for the overall Project and the case study teachers will be considered in answering the general and specific research questions, which are restated below:

How does a Professional Learning Project focused on effective reading instruction to improve student outcomes, impact on teachers' beliefs, reading pedagogical content knowledge, and classroom practice? The following sub-questions facilitated the study:

1. How does the Project impact on teachers' beliefs about reading teaching and learning?
2. How does the Project impact on teachers' reading pedagogical content knowledge?
3. How does students' reading performance influence teachers' classroom practice and beliefs about reading teaching and learning?
4. How does involvement in the Project impact on teachers' classroom reading practices within a whole-class context and with the children identified as having reading difficulties?
5. What factors facilitate or inhibit changes in teachers' beliefs, knowledge and practice?

CHAPTER 8: CROSS-CASE ANALYSIS



This research explored the efficacy of a professional learning program designed to improve Year 2 teachers' ability to teach reading to children who were not acquiring these skills as easily as their peers. Specifically, the research questions focused on what impact the professional learning had on the teachers' beliefs and PCK pertaining to reading instruction, the influence of student outcomes on practice and beliefs, and whether teachers' instructional practices changed with the target students, and with the whole class. Utilising the approach described by Stake (2005), this chapter identifies themes in the key findings from the case studies, triangulates these findings, and develops assertions about the impact of the professional learning.

8.1. Teachers' Beliefs about Reading Teaching and Learning

Teachers' beliefs about reading instruction are important because they impact on what strategies and approaches they select when designing learning opportunities (Cunningham, Zibulsky, Stanovich, et al., 2009). The DeFord (1985) survey (TORP) was used to identify teachers' theoretical orientations to teaching reading and provide information on teachers' beliefs about what constitutes effective practice in reading instruction. Between pre- and post-Project measures there was no statistically significant change in teachers' theoretical

orientation to teaching reading (Key Finding - All Project Participants - KFAPP 4.2), as determined by the TORP. The pattern was similar for the case study teachers (Key Findings KF5.3, KF5.11, KF6.10, KF7.2 and KF7.8), but scores for several of the case study teachers indicated that they had moved further away from the decoding perspective over the course of the Project (Table 8.1, column 6).

Table 8.1. *Case Study Teachers' Survey Results and Student Outcomes*

Teacher	SLCRLA - SE %		Teaching Reading SE %		SLCRLA- Knowledge and skills %		TPAA Tch Knowledge and skills %	TORP* Beliefs about reading instruction		Prog. Eval. Q. %	Student results Effect Size	Observed change in practice
	Pre	Post	Pre	Post	Pre	Post		Pre	Post			
Abby	60	60	66	74	70	68.5	60	64	74	78	large	moderate
Alexis	60	65	64	74	78	78	76	62	71	79	large	high
Bella	65	70	64	70	40	52	40	86	96	34	large#	none
Bridget	75	75	74	84	60	67	60	82	81	69	variable	none
Cathy	65	72.5	94	96	52	53	60	65	70	81	N/A	none
Charlotte	72.5	72.5	94	94	50	54	56	74	75	80	variable	slight

Note: * 0 - 65 points indicates a decoding perspective; 66 - 110 points indicates a skills perspective; 111 - 140 points indicates a whole language perspective

Bella reported that the student represented by these data received tutoring outside of school

In contrast to their answers on the TORP, when all of the Project participants were surveyed about what they were doing differently as a result of their involvement in the Project, teachers either stated that they were teaching more explicitly and systematically or identified the use of specific programs that taught phonological awareness and phonics explicitly and systematically (KFAPP4.4).

On first inspection, the results on the TORP seem to contradict the teachers' reported practice and the focus of the Project on a synthetic phonics approach to reading instruction as this is most closely aligned to DeFord's decoding perspective. However, it is important to consider the stated purpose of the Project in the documentation provided to schools (Appendix H) when examining teachers' responses. This documentation stated that the aim of the Project

was to embed more explicit instruction for children with reading difficulties into existing approaches to teaching reading. The TORP asks teachers to report on their beliefs about teaching reading generally while the survey asked teachers what they were doing with the focus students, those experiencing reading difficulties. The difference between the responses on the TORP and survey suggests that there has been a change in what teachers believe to be effective practice in reading instruction for the focus students in the Project, but this had not translated into beliefs about teaching reading generally.

Consideration also needs to be given to the influence of teachers' personal or entrenched beliefs as these can differ from espoused beliefs (Argyris & Schon, 1974; Rokeach, 1976), with entrenched beliefs having the greatest impact on behaviour (Bandura, 1986). In the case of the Project, teachers with entrenched beliefs about reading that were aligned with the whole-language, constructivist approach were more likely to see the use of explicit and systematic phonics as an add-on rather than a core element of reading instruction. Bella provided an example of this belief system. Despite reporting on the post-Project evaluation questionnaire that she was able to use more effective teaching and learning strategies to teach literacy content (KF6.2), she believed that explicit phonics instruction was only for children with difficulties learning to read and that this was best taught one-on-one or in small groups (KF6.6); that is, not as part of whole-class instruction. This belief was so deeply held that there was no discernable difference in Bella's teaching practice (KF6.5). Pajares (1992) submits that entrenched beliefs are so influential that, if there is a conflict between these beliefs and professional knowledge, it is entrenched beliefs that will determine the strategies selected by the teacher. This is problematic for professional learning as entrenched beliefs can render teachers impervious to consideration of different perspectives and therefore resistant to change (Slater & Nelson, 2013; M. L. Smith & Shepherd, 1988; P. Westwood et al., 2005).

Effective professional learning usually involves teachers being challenged and supported to explicitly examine their own knowledge and beliefs (Bransford et al., 2000), which Timperley (2011) identifies as a challenging aspect of working with teachers. Beliefs can be difficult to change if they are not suitably challenged. In this situation teachers may incorrectly perceive their current practice to be consistent with that being advocated by the professional learning, and therefore, make little or no change to their practice (Bransford et al., 2000). The case study of Bridget provides an example of this. Her response to the Project was positive (KF6.10) and she reported that the approach to teaching advocated in the professional development sessions was consistent with her beliefs about reading instruction (KF6.15). However, the approach that was identified as most effective by the Project team was a synthetic phonics

approach rather than the analytic phonics approach used by Bridget, indicating she lacked the knowledge to differentiate between these two approaches, perhaps because the Project team did not explain the differences clearly enough. Because Bridget perceived that her beliefs were the same as those of the Project team she did not interrogate her teaching practice in order to make changes to her practice (KF6.11).

The ways in which beliefs are measured also need to be considered when evaluating changes to this construct. Self-report measures have been criticised for their reliability (Barker et al., 2005) particularly as an indicator of actual practice (Lam & Bengo, 2003) and Abby and Alexis provide an illustration of this limitation. In both cases their beliefs about teaching reading, as measured by the TORP, did not change (KF5.3 and 5.11) but observations highlighted that, as the year progressed, elements of their whole-class literacy instruction became more aligned with the approaches advocated in the Project. In recent times, the state's education department had moved from a whole language approach to the use of a 'balanced approach' to reading instruction (Department of Education (WA), 2010). This was more aligned with the skills approach on the TORP than the decoding perspective, and it could be argued that teachers responded to the TORP on the basis of these system-wide expectations rather than their actual practice. Despite her responses on the TORP, during interviews Alexis reported changes in her beliefs and explained that these resulted from changing her teaching approach and observing the students' reactions. In this situation interviews in conjunction with observations elucidated more information about beliefs than the self-report measures.

It is also pertinent to consider teacher perceptions of their own efficacy of instruction as a specific type of belief. Bandura (1997) highlights the importance of a having a strong sense of self-efficacy when teaching as this encourages teachers to strive for difficult goals even when they are not successful in the first instance. Research by Guskey (1988) suggests that teachers who hold strong self-efficacy beliefs are "more receptive to the implementation of new instructional approaches" (p. 67). Therefore self-efficacy beliefs are important in relation to professional learning as they can influence teachers' willingness to implement different teaching approaches. The statistically significant increase in teachers' sense of self-efficacy on both measures over the course of the Project (KFAPP4.5) was a positive outcome, particularly as teacher self-efficacy is a difficult construct to change in experienced teachers (Tschannen-Moran, Woolfolk-Hoy, & Hoy, 1998). Data-driven decision-making is considered one of the foundational components to building self-efficacy (Bandura, 1997) and was a key element of the Project (Konza et al., 2011). When examining specific items on the self-efficacy component of the SLRCL, the Project focus on data-driven decision-making was reflected in the teachers'

improved rating of their ability to use assessment to inform reading instruction. This item made the greatest gains from pre- to post- Project and was the highest rated item post-Project (KFAPP4.5).

The focus of the self-efficacy scale developed for the Project was different from the SLRCL as the questions were specific to reading instruction, whereas the SLRCL included more general questions about literacy instruction. Consequently, some teachers' rating of self-efficacy differed between measures: for example, Abby's self-efficacy did not increase on the SLCRLA self-efficacy scale, but did increase on the TRSES (KF5.2). Overall, the item on the Teacher Reading self-efficacy scale that reflected the greatest increase for all Project participants was teachers' belief in their ability to support colleagues experiencing difficulty in teaching reading (KFAPP4.5), although it is difficult to determine whether this was related to the collaborative nature of the Project or a result of increased confidence in their ability to teach reading. Either way, it was an important outcome of the Project as it suggests that elements of the program would be sustained as teachers pass on information, assessment instruments and teaching strategies.

One area of potential concern is the lack of movement on the item relating to the teachers' beliefs regarding their influence on children's acquisition of reading skills. Responses to the statement *If a child isn't learning to read it is because I haven't taught him/her properly,* ranged from *disagree* to *somewhat agree,* indicating teachers felt they did not have as much influence on this factor as they did on others (FFAPP4.5). This item also showed the least movement of all items in the post-Project mean. This is consistent with the literature on teacher's perceptions of why students experience difficulty with reading, which indicates that teachers cite student characteristics or home factors as the main causes (Alessi, 1988; Evans et al., 2007; Hempenstall, 2009). It is, however, inconsistent with the research on what factors actually have the greatest influence on children's learning (J Hattie, 2009) and the position asserted by the Project team.

In contrast to the overall results, the self-efficacy of four of the six case study teachers increased in relation to their ability to teach children to read, even if there were complicating factors such as lack of support from home (KF5.2, KF5.10, KF6.1 and KF6.9). Increased self-efficacy in relation to teaching children to read without support from outside of the classroom could be attributed to successful outcomes for the focus students (Table 8, column 8) or contact with the Researcher who expressed these beliefs. Additional data are required to understand these differences: for example, Bella reported that improvements in student results were due to parents acting on the assessment results that she made available to them,

not on her teaching practice. This suggests that Bella did not see the instruction of students with reading difficulties as achievable within a regular classroom setting and yet she reported higher self-efficacy in relation to teaching children without the support from home.

Other variations in the case study teachers' responses to the TRSES included Alexis and Cathy reporting increased confidence in supporting peers who were experiencing difficulties with teaching reading at the conclusion of the Project (KF5.10 and KF7.1). It could be suggested that Alexis experienced success in her role as one of the literacy support teachers at her school thus increasing her self-efficacy in relation to supporting her colleagues. Cathy, who had been teaching for over 15 years, reported in interviews that the approaches advocated by the Project were consistent with her beliefs about teaching reading. This reinforcement of her beliefs could have made her feel more confident in her ability to help others who are not as experienced. Asking teachers to articulate why their self-efficacy had changed in relation to specific items would provide useful data to assist professional learning facilitators in designing programmes.

As with any self-report measure, the self-efficacy beliefs that teachers express may not be an accurate representation of their actual teaching efficacy. Charlotte had the highest overall self-efficacy rating of all the case study teachers and this did not change throughout the course of the Project (KF7.8). However, her performance on the SLCRLA and TPAA assessments (Table 8.1) were in the 50% range indicating that there were areas of weakness in her knowledge and skills for reading instruction. Observations of Charlotte's classroom practice also highlighted a number of incidents where explicit teaching was not utilised despite the opportunity and the potential benefit to the student (KF.7.10 and KF7.12). It is possible that Charlotte's high self-efficacy could be attributed to the Dunning-Kruger effect, whereby individuals rate themselves higher than average because they are not aware of what they do not know (Kruger & Dunning, 1999). Research highlights that making teachers aware of their areas of weakness can be an effective way of challenging their beliefs (L. C. Moats, 2009) and engaging them in professional learning (Timperley, 2011), but this does not appear to have occurred with Charlotte, even though the Project team provided teachers with their assessment results for the SLCRLA and the TPAA.

Judge, Jackson, Shaw, Scott and Rich (2007) also caution that individual differences and the complexity of a task influence the predictive validity of self-efficacy. Teachers' sense of self-efficacy can be less predictive of outcomes than their personality traits and the difficulty of the tasks that they are undertaking (Judge et al., 2007). In other words, teachers can have a good sense of self-efficacy but this may not predict their behaviour when they encounter a

particularly challenging situation: for example, Bella's self-efficacy belief pertaining to reading instruction was high but she did not change her practice for the children with reading difficulties as she considered these students to be too difficult to instruct in a regular classroom setting. Similarly, Charlotte's teaching context supported the belief that reading instruction for children falling behind their peers was best achieved by withdrawing these students from class for additional support. Therefore, she did not need to change her beliefs and practices when she encountered a child with reading difficulties in her class.

Identifying teachers' beliefs and challenging them is a complex but necessary process for effective professional learning. Teachers' deeply held beliefs about teaching reading and learning are difficult to change and are not easily elucidated by survey instruments. This creates a challenge for those delivering professional learning that can, in part, be addressed through the use of classroom observations and critical reflection.

Assertion 8.1

Professional learning has the potential to change beliefs about reading teaching and learning; however, change will be limited by existing entrenched beliefs, and participants' lack of awareness of any differences between their beliefs and the approach advocated in the professional learning. If professional learning seeks to change beliefs about reading teaching and learning, this goal needs to be clearly articulated to the participants and opportunities provided to interrogate their beliefs.

8.2. Teachers' Reading Pedagogical Content Knowledge

Various conceptualisations of teachers' PCK highlight the significance of beliefs in developing this type of knowledge (Grossman, 1990; Hashweh, 2005; Loughran et al., 2001). Attempting to determine a teacher's PCK is arguably even more complex than identifying beliefs, as much of this construct relates to the body of knowledge a teacher possesses on the subject and the teaching of this subject in different contexts and to different students. In their attempt to develop a measure of PCK, Hill, Ball and Schilling (2008) highlight this complexity, but suggest that there are approaches, such as open-ended questions, that hold promise for developing effective measures of PCK. Direct observation can also contribute information on a teacher's PCK, but will only provide information on the approach that the teacher has selected to use at that point in time rather than the pedagogical reasoning used to select the approach from the teacher's repertoire (Kagan, 1992). The use of case studies in this research enabled the Researcher to use open-ended questions as well as direct observation, in order to elicit more useful information about PCK (Hill et al., 2008).

Pedagogical Content Knowledge comprises a synthesis of knowledge about content, pedagogy, students and curriculum. An overview of the Project data on content knowledge points towards statistically significant improvements in morphological knowledge and phonemic ability (KFAPP4.4). Teachers reported that their involvement in the Project resulted in their understanding and use of more explicit forms of instruction (KFAPP4.3), improvements in their teaching of literacy, and the ability to link assessment with teaching and learning (KFAPP4.6). These changes in knowledge about teaching reading are suggestive of changes in PCK, but there are several other areas of teacher knowledge and skills where there was a lack of significant change. One of the Project objectives was to increase teachers' meta-linguistic knowledge, or knowledge of the language of literacy, as it has been suggested that poor meta-linguistic knowledge inhibits communication of professional knowledge (L. C. Moats, 2009). The apparent lack of improvement in the knowledge and skills section of the SLCRLA suggests that the project did not meet this objective, but the results need to be considered in relation to the conditions under which the SLCRLA was administered at the conclusion of the Project. It is feasible that these results would have been higher had they been completed under the same conditions as the initial assessment.

The case studies provided the opportunity to elaborate on the survey data through interviews and observation and this highlighted inconsistencies in the survey data related to PCK. For example, Abby's skills on the SLCRLA decreased (Table 8.1) but there is a clear indication of a change in Abby's PCK with her questioning of the advice provided by the school psychologist on how to teach blends. She demonstrated her new knowledge of how to teach this concept to students, based on their needs, by highlighting the error in the recommendations made by another professional (KF5.7). Observation of Abby's classroom practice also indicated that she made changes over the course of her involvement in the Project and into the following year that were consistent with the Project's content. She taught skills more explicitly, differentiated instruction within a whole-class context, and used metalanguage as a teaching tool (KF5.4, KF5.6). Indications of changes in Alexis' PCK were also observed in the activities she designed for the target students as well as the way she constructed whole-class learning experiences (KF5.12, KF5.15). She reported changes in her approach to teaching skills, such as comprehension, and her beliefs about what children were capable of understanding, including the metalanguage of literacy.

It was evident in examining the case study teachers that there were varying levels of change in practice indicating different changes in PCK. In School A, both teachers' classroom practice, within a whole-class context, changed to incorporate some of the Project recommendations

(KF5.6 and KF5.14). Similarly, the individual instruction for the target students was modified to include an explicit and systematic approach to teaching phonics. In School B, Bella reported that she was able to use more effective teaching and learning strategies but did not believe the Project made any difference to her ability or practice (KF6.2). This was supported by the lack of any observed changes in Bella's practice over the course of the Project (KF6.3, KF6.5). This would suggest that her PCK did not change, as no new 'teaching scripts' were developed to teach reading generally or to specific students. There was no observable change in Bridget's teaching approach, which was based on an analytic phonics approach to teaching reading, during the course of the Project (KF6.11). Her emphasis on a decoding approach to teaching reading was consistent with the Project's overall emphasis, but a synthetic phonics approach was the specific approach advocated.

There were some changes in Bridget's observed practice in the following year and, while she maintained very similar activities, it was evident that she was differentiating the whole-class instruction for the less able students (KF6.13). It could be argued that this change in her teaching approach indicated a change in her PCK. It could also be argued that this 'script' for teaching was already in her repertoire, but only became evident with the different teaching context. No changes in Charlotte's practice were observed but she did report that the Project made the efficacy of the approaches being used in the withdrawal program at her school clearer to her and, as a result of this, she felt she would be able to apply them in her own classroom if the additional support was not available (KF7.13). Observations of her practice later in the year and in the following year suggest that she was including some explicit instruction into her practice (KF7.10, KF7.12). This was perhaps the start of changes to her PCK and beliefs; however, without practice and reflection, it is questionable whether these changes would be consolidated.

In School C, the lack of change in practice during observation also highlights one of the limitations of this approach to identifying PCK (Kagan, 1992). Cathy commented in interviews that the approach to teaching reading being advocated by the Project was consistent with her approach to teaching, and had prompted her to reintroduce the use of a synthetic phonics resource, *Let's Decode* (Formentin, 1993), that had been in her cupboard for a number of years. She used these materials when working one-on-one with students prior to the start of the day and parent helpers were also given the readers developed for this program to work with selected students (KF7.5). For Cathy, it would seem that the Project reactivated her existing PCK for teaching children with reading difficulties rather than changing it. However,

this information was only provided in an interview, as observations were undertaken during the literacy block, and therefore the Researcher did not observe this practice.

A teacher's skills and knowledge are aspects of PCK; therefore, the teachers' performance on tests of knowledge and skills may provide some indication of changes in PCK. The teachers in School A had the highest scores on the TPAA and the SLRCL (Table 8.1). Teachers in Schools B and C had similar scores for their knowledge and skills, with the exception of Bella who scored slightly lower (Table 8.1). Pedagogical Content Knowledge has also been linked to student outcomes in the sense that effective PCK is required for positive student outcomes (Schroeder et al., 2007). The focus students in Abby and Alexis' classes made significant improvements on their test score with large effect sizes (KF5.5 and KF5.13; Table 8.1). The effect sizes for Bella's students were also good but she ascribed this to support students were receiving outside of school (Table 8.1). The size of the effect for the other teachers was variable, with some in the low range.

There appears to have been changes in PCK for some of the case study teachers but the changes vary from teacher to teacher and in their nature and extent. Many of the changes that did occur were later in the year or into the following year, suggesting that PCK is slow to change. This also highlighted the importance of enacting new approaches to teaching while engaged in professional learning as those teachers who made changes to their practice in the year they were involved with the Project continued to utilise these approaches into the following year. Not surprisingly, when observations revealed that a teacher had not changed practice to incorporate the Project's recommendations the teacher did not use the approaches in the following year.

The interdependence of PCK and beliefs has been discussed in the literature (for example, Hashweh, 2005; L. S. Shulman & Shulman, 2004) and the significance of this interaction is evident in this research. The teachers needed sufficient PCK to distinguish between their existing practice and the new practice being advocated by the Project. Equally, the teachers needed to be sufficiently open to consider new practices to have the opportunity to understand them and develop the associated PCK. In the context of this professional learning, some teachers held beliefs that impeded their engagement with the ideas and practices recommended by the Project team.

Assertion 8.2
The complexity of a teacher's PCK makes it a difficult construct to measure; however, where teachers held beliefs that supported engagement with different teaching practices for reading instruction, and were willing and able to enact recommendation from the professional learning, changes in PCK were identifiable.

8.3. The Influence of Student Reading Performance on Teachers' Classroom Practice and Beliefs about Reading Teaching and Learning

Student outcomes have the potential to have a significant influence on teachers' engagement with professional learning (Hall & Hord, 2001; Timperley, 2011). When teachers can see a positive outcome from the strategies they are using they are more likely to consolidate these approaches into their teaching repertoire even if this requires a change in their beliefs about teaching. However, for a change in beliefs to occur, teachers need to attribute improved student outcomes to their change in practices. Responses on the post-Project evaluation completed by all project participants suggest that the teachers did not make a strong link between changes in student performance and changes in their teaching (KFAPP4.6). Teachers indicated that they only *somewhat agreed* that students demonstrated enhanced literacy learning outcomes as a result of their involvement in the professional learning. This is despite the final assessments indicating that there were significant improvements for the SPAT-R and AIST, with a large effect size for the SPAT-R and AIST total scores and a moderate effect size for the SPAT-R non-word spelling test (KFAPP4.7).

The focus students for the case study teachers also demonstrated improved outcomes (KF5.5, 5.13, 5.17, 6.4, 6.12, 6.17, 7.11 and 7.15) but the case study teachers reported differing views on the impact of the Project on student outcomes. Alexis, Cathy and Charlotte were confident that their involvement had impacted on student performance (KF5.13, 7.4 and 7.11), but Abby and Bridget were unsure (KF5.5 and 6.12) and Bella attributing improved performance to outside factors (KF6.4). These responses highlight a number of issues that need to be addressed when delivering professional learning. First, changes in student performance need to be clearly communicated to all teachers and teachers need to be able to make the link between student performance and their teaching. While the research highlights that, other than the child's prior knowledge, the teacher has the greatest impact on student outcomes (J Hattie, 2009), teachers may still perceive factors outside of their control as having a more significant impact on student learning (Berliner, 2006; Chudgar & Luschei, 2009). If teachers believe the greatest potential influence on student outcomes lies with factors other than their

teaching, they are less likely to see student outcomes as an indicator of the efficacy of their practice (Bandura, 1997).

Teachers can be assisted to identify the links between their teaching and student outcomes through careful consideration of the assessment data. This includes presenting the data clearly and giving teachers time to reflect on what the data show. Although this was a component of the Project, it would appear not all of the teachers had the PCK required to understand the data and therefore needed greater support from the Project team to facilitate this. Bridget commented on the presentation of the data (KF6.14) suggesting that it was not presented in such as way as to make it clear what could be done to address areas of deficit. In addition, the use of percentiles for the third Year of Schooling on the SPAT-R reflects less progress than would have been indicated had the second Year of Schooling percentiles been used. It is not clear whether teachers understood the explanations regarding percentiles that were included in the session when student results were distributed. Some schools requested additional support with understanding and acting on the data, including School A, but School B, Bridget's school, was not one of these. Subsequent to this, case study teachers in School A were observed to change their practice while those in School B did not. This forms part of the iterative inquiry process necessary for teachers to develop an understanding of how their practice impacts on student outcomes.

The presentation of data gathered after a change in practice has been trialled is an effective way of clarifying the link between teacher practice and student outcomes. Providing this information throughout the professional learning would give participants time to reflect on progress and consider whether any modifications to the current approach were required. Teachers in the Project were instructed in the use of the assessment instruments in February but the assessment data were not returned to the Project team until the end of March; therefore, meetings to discuss these data were not held until mid April. It would be reasonable to assume that some teachers would not act on the data immediately as the Project required teachers to decide, from the information on effective practice and the range of resources presented, what approaches to use for their students. Consequently, any change in practice is unlikely to have commenced until May.

The next point of feedback on the students' performance was not until the Project's conclusion. Although teachers had access to the student performance data that they collected at the end of the Project, this was not graphed and presented to them by the Project team until the final session at the same time that they completed the post-Project surveys. If teachers had not examined these data prior to its presentation at the final session, or lacked

the PCK to understand what the data represented, their first exposure to the data occurred at the same time that they were asked to evaluate the impact of the Project. A lack of confidence that their involvement in the Project had resulted in improved outcomes for their students (KFAPP4.6) could be attributed to the teachers not having sufficient time to process this information. This timeframe also did not allow for data to become part of the iterative process of the teaching and learning cycle, to ensure that teachers had the time to consolidate or modify their instruction based on this new information.

As already discussed, beliefs are difficult to change and although student outcomes have the potential to change teachers' beliefs about reading teaching and learning the connection between teachers' actions and student outcomes needs to be clear (Timperley, 2011). In School A the case study teachers sought additional assistance to understand student performance data and were therefore better informed about what the data indicated. This enabled them to implement approaches consistent with those recommended by the research team. Interviews indicated that both case study teachers in School A believed their knowledge about teaching reading had improved and they changed their teaching approach as a result of their involvement in the Project (KF5.3 and 5.11). Abby was not confident that her students had benefited from these improvements in her knowledge and practice; however, the consolidation of information from the Project into her teaching practice the following year (KF5.8) suggests that Abby did come to appreciate the link between this practice and improved student outcomes. The School B case study teachers did not make any observable changes to their practice and therefore their belief that the Project did not impact on student outcomes is reasonable. The case study teachers at School C made some change to their practice and were confident that students benefited from this change, as they believed the approaches to reading teaching and learning were consistent with the approaches they were already using.

Assertion 8.3
It is necessary to ensure that all teachers have the PCK to understand student performance data and to make the link between student performance and their practice. Teachers require time to reflect on these factors as part of an iterative process within the professional learning intervention.

8.4. Impact of the Project on Teachers' Classroom Reading Practices Within a Whole-class Context and with Children Identified as having Reading Difficulties

Classroom instructional practices related to reading instruction have, in part, been discussed in relation to teacher beliefs. It was found that teachers' overall beliefs about reading instruction did not change significantly but there were changes in the way they instructed children with reading difficulties (Assertion 8.1). Further elaboration of how the Project impacted on instructional practices is provided by the case studies. School A provides an example of changes in practice for both whole-class and individual instruction. Abby and Alexis made changes to the small group instruction for their students experiencing reading difficulties but had to rely on other people to teach this material, such as parent volunteers (KF5.1). This precipitated their interest in strategies to include these students in their classes when the volunteers failed to attend, but also in whole-class instruction to support literacy development for all students.

There was little change in whole of class teaching in School B (KF6.5 and KF6.11) and C (KF7.3, KF7.10 and KF7.12). In School C, Cathy reported reintroducing components of synthetic phonics to individual instruction but her classroom practice was not observed to change (KF7.3). Charlotte did appear to be including more explicit instruction into her classroom practice (KF7.10, KF7.12), but a number of missed teaching opportunities suggested it was not fully integrated into her teaching approach. The existing withdrawal support structures at School C meant that there was no expectation that Year 2 teachers would modify their whole-class literacy instruction to cater for students falling behind their peers in reading (KF7.7).

The Project's focus was on improving teacher's PCK and self-efficacy in teaching reading to children not reaching the required level for their age. As such, it is not surprising that most teachers did not generalise these skills to teaching reading to the whole class. The Project team believed that improved knowledge would result in improved practices generally, not just for the children with difficulties, but this was not an intuitive progression for most case study teachers. Teachers often perceive that the strategies utilised to support children with reading difficulties are different from those used to teach all children to read despite research to the contrary (Foorman & Torgesen, 2001). Making the objective of changing reading practice for all students more explicit and providing information about how this can be achieved would need to be incorporated into the professional learning if this outcome were to be achieved.

Assertion 8.4
Predominantly, teachers continued to see the teaching of children with reading difficulties as best achieved by an additional support person or withdrawal program. In order to challenge these beliefs, and encourage teachers to also implement more explicit forms of teaching reading skills to the whole class, professional learning needs to identify this goal more explicitly and address pedagogical beliefs that interfere with this approach.

8.5. Factors that Facilitate or Inhibit the Transformation of Teachers' Beliefs, Knowledge and Practice

Much like the parable of the blind men and the elephant, Project participants took different information from the professional learning depending on the perspective from which they entered. Factors that influenced the beliefs, knowledge and practice of the teachers involved in the Project included their stage of teaching, a willingness to explore different practices, existing beliefs, the context in which they taught, and their engagement with the Project. These factors are consistent with the constructivist epistemology identified in the conceptual framework but also align with the six principles of adult learning theory, andragogy, namely: the learners' prior experience, their self-concept, a need to know, their orientation to learning, a readiness to learn, and their motivation to learn (Knowles et al., 2012).

Teachers at different stages of their career can have different perceptions of the type of professional learning that is appropriate for them and different concerns relating to the implementation of changes in practices (Christou et al., 2004; Hall & Loucks, 1978). Ramey and Ramey (2008) assert that in order to engage teachers in professional learning, it is necessary to have knowledge of the characteristics of the participants so that content and delivery of the professional learning can be matched to their needs. Huberman's (1989b) stage model of professional practice provides a framework for considering the possible needs of teachers but, as he acknowledges, teachers can be at different stages than their years of teaching suggest. Bridget and Cathy had been teaching for more than 10 years and both expressed the opinion that the professional learning delivered in the Project would have been more suitable for graduate teachers (KF6.16 and KF7.6). Alexis, who had also been teaching for more than 10 years, did not express any concerns about the appropriateness of the professional learning and readily engaged with the content. Abby and Bella, both teaching between three and five years, were confident in their teaching practices, but had markedly different levels of engagement with the professional learning. Charlotte, who had been teaching longer than Abby and Bella, seemed to be at the same stage of professional practice. She was positive about her involvement in the Project but appeared to make limited changes to her practice.

Identifying teacher concerns within the stages of the CBAM can also provide information on the professional learning needs of the teacher (Hall & Loucks, 1978), but these stages must be considered in relation to the actions of the teacher. The seven stages follow the sequence of Awareness, Informational, Personal, Management, Consequences, Collaboration and Refocusing. The case study teachers were not interviewed until after the initial professional development sessions and therefore it is only by assumption that we suggest they had already passed at least the first two stages prior to interview. Bella's comments indicated that her concerns were related to the Personal stage earlier in the project and this moved towards the Management stage as the year progressed. Abby, with the same teaching years as Bella (3 – 5 years), and Alexis, who had been teaching more than 10 years, both moved through the Management stage to the Consequences stage. Bridget and Cathy, also with more than 10 years of teaching experience, were at the Collaboration phase when first interviewed, but it is important to note that this related to their belief in the efficacy of their current teaching practice, not in any changes to practice. Bridget remained at this stage for the entirety of the Project but Cathy moved on to the Refocusing stage. In this stage Cathy was reflecting on her practice in relation to some of the ideas presented by the Project team. Charlotte, who had been teaching between six and 10 years, expressed the same desire as Bridget and Cathy to share her practice with other teachers. As the year progressed and Charlotte implemented some of recommendations of the Project, her concerns reverted to the Consequences stage. Like Bridget and Cathy, desire to collaborate was based on existing practice not new practice. Therefore, determining the appropriate professional learning for participants may include, but should not be limited to, information about stages of teaching and learning.

As already identified, teachers' knowledge can influence the way they engage with professional learning. One aspect of knowledge is an understanding of the terminology used in the literature on reading instruction. Inconsistent understandings of this terminology could have a confounding impact on the implementation of approaches advocated by the project. For example, the literature review discusses the use of the term 'explicit' and illustrates how this can vary depending on the theoretical perspective of the individual. Teachers for whom the term 'explicit' refers to the 16 characteristics identified by Archer and Hughes (2011) will teach differently from those ascribing the more generic definition to the term. Bridget's teaching illustrates how a different definition of the term 'explicit' can lead to different teaching practices than those recommended by the project without the participant being aware of the inconsistencies (KF6.10, 6.15). Therefore, ensuring that there is a shared understanding of the terms used in professional learning would serve to increase the fidelity with which the recommended approaches are implemented.

In relation to teacher knowledge and skills, it is also important to recognise that differentiating the curriculum is pedagogically difficult and some teachers require more support than others to do this successfully, regardless of their years of teaching (Kathie, 2006). The information gathered at the start of the Project on teacher knowledge, skills and beliefs about reading instruction could be used to identify those teachers who might require additional professional development and also assist teachers to see the relevance of the professional learning to their specific needs: for example, Charlotte's performance on the skills tests suggested that this was an area in which she would have benefitted from more support than Alexis, who might have required more assistance to appreciate the impact of her practice on children's reading performance (Table 8.1). This is corroborated by classroom observations of Charlotte, indicating that she lacked the skills and knowledge to address students' reading difficulties when she encountered them in class (KF7.12). By using this information to demonstrate to teachers their areas of need, and then providing them with opportunities to develop these skills, the relevance of the professional learning would be more evident to the teachers involved.

It is particularly important to consider existing beliefs and to acknowledge that the interplay between beliefs and actions is complex: beliefs impact on actions and actions have the potential to change beliefs. Abby and Alexis illustrate how enactment and reflection can influence beliefs (KF5.6 and KF5.14), but it could be argued that some teachers did not enact the approaches presented to them through the professional learning sessions due to their beliefs and consequently these beliefs did not change. This can be seen in the case of Bella who believed that effective intervention for children with reading difficulties involved having a support person working one-on-one with the students (KF6.6). She did not change her practice, instead opting to identify the students' needs to the parents so that they could provide the support (KF6.4). There was also limited change in Cathy and Charlotte's teaching and they expressed the belief that students with difficulties were most effectively catered for by their school's withdrawal literacy support program (KF7.7). The policies, procedures and beliefs held by the education system and the school community can also influence the level of engagement, and therefore the degree of change in teacher beliefs, knowledge and practice.

As predicted by Ramey and Ramey (2008) and Opfer, Pedder and Lavicza (2011), the prevailing educational culture and that of the school, including beliefs and practices, influenced the teachers' engagement with the professional learning. The state in which this study was conducted had a long affiliation with whole language approaches to reading instruction (Education Department, 1936) and this had the potential to influence teachers' beliefs and

practices, particularly if teachers undertook their schooling and teacher training within this system. In an extreme case, the conflict between one school's beliefs about reading instruction, and those supported by the Project, resulted in the school withdrawing from the Project. Teachers from this school reported that they were not allowed to implement the approaches advocated by the Project team, as the school required that they use a specific commercially available program, the underlying philosophy of which was inconsistent with a synthetic phonics approach.

Despite the powerful influence of beliefs, effective professional learning helps teachers identify beliefs that bind them to ineffective teaching practices (Kise, 2006). Therefore, it is important that those developing professional learning take into account the beliefs of the participants and provide opportunities to explore these beliefs. Models of professional growth highlight that enactment and reflection can result in changes to beliefs (Clarke & Hollingsworth, 2002) and the conditions necessary for enactment and reflection to occur include time and engagement. Alexis identified the length of the Project as beneficial in supporting the development of her reading instruction (KF5.16), but earlier initial assessment of students would enable feedback on mid-term outcomes, leaving time to adjust or consolidate practice. The professional learning for the Project was undertaken over the four terms of the school year but, due to the busy nature of school terms, the implementation phase was effectively only six months. It could be argued that some of the participants required more time to implement the approaches advocated by the Project and to reflect on the outcome of changes in their practice. Further, where teachers do change their practice, time is required for student improvement and this relies on teachers' willingness to persist in a process for an extended period.

While time to plan and implement new practices is important, it does not guarantee engagement. All schools provided time as an incentive to be involved with the professional learning but this did not ensure that all staff engaged in the Project beyond attending the professional development session. Timperley (2011) suggests that teachers will engage once they see improved student outcomes; however, in a Project of this nature, where teachers are responsible for implementing the change, this can be problematic. Some teachers placed the responsibility for their focus students onto other members of staff or parents, consequently making little change to their own practice. In these situations, where little or no change to practice occurred, student outcomes were not a factor in influencing teacher engagement (KF6.4 and KF7.7). Different teaching contexts can also be more supportive of engagement, enactment and reflection on practice than others: for example, Abby and Alexis shared an

open-plan double classroom, which enabled them to collaborate, use a variety of classroom structures to support students on the basis of need and reflect on their practice. The other case study teachers were operating in separate classrooms and although some had the opportunity to open up teaching spaces between classes, it was evident from the classroom furniture that this was not an intention of the teachers.

Observations of the case study participants in the following year suggested that those teachers who engaged with the Project and enacted more explicit approaches to reading instruction as recommended by the Project continued consolidating this practice. Abby and Alexis were engaged with the Project, and sought assistance and consultation with the Project team on a number of occasions. Changes in their practice, consistent with the content of the professional learning, were evident in the year that the Project was undertaken (KF5.1, KF5.4 and KF5.12) and became more evident in the following year (KF5.6 and KF5.14). In cases where teachers were less engaged, it appears that there was still some change in the following year: for example, Bridget and Charlotte did not change their practice in the year of the Project but appeared to have used information from the Project to differentiate their practice in the following year (KF6.13, KF7.12). Where there was minimal engagement with the professional learning during the course of the Project, there was no change in practice the following year (KF6.5).

The motivation to learn can come from various sources including the individual or others identifying a gap in their knowledge. Individuals can also be motivated to learn when they are supported to engage through incentives or remuneration. As identified by Brook and Lock (2010), incentives like offering academic credit towards post-graduate qualifications can have a positive impact on teachers' willingness to be involved in professional learning. The case study participants identified a number of ways that their schools motivated them to become involved in the professional learning. These included being given time by the school to develop resources and consult with colleagues, paid relief to attend professional development sessions and being able to incorporate the Project in their management for performance objectives (KF5.16, KF6.7, KF6.15 and KF7.14).

Assertion 8.5

Differentiation of professional learning is required to ensure that it is relevant and engages all participants at their point of need. Relevance can be achieved by identifying teachers' stage of professional growth, including their concerns, knowledge and skills, as well as the contextual factors that influence teaching practice. Opportunities to enact new knowledge and reflect on outcomes are important to support teachers' engagement with professional learning. The incentives that motivate engagement may also differ between participants and therefore need to be differentiated.

Another factor that appeared to have a significant influence on whether there was a change in teachers' beliefs, knowledge and practice was the relationship with the Project team. The relationships that are developed are as significant in professional learning as they are in all learning situations (McDonald, 2010) and are as difficult to quantify. These relationships can be built on personal attributes (including orientation to learning), professional values and/or perceived competence. They can be influenced by expectations of the participants and the degree to which these expectations are met. Konza (2012b) asserts the need for researchers to discuss realistic outcomes with the participants so they don't experience disappointment when "the 'answer' is not provided for every student" (p. 80). Similarly, teachers need to have realistic expectations of what they can achieve as part of the professional learning. Teachers who saw the Project as an opportunity to collaborate and construct knowledge were satisfied with their involvement in the project (KF5.16, 5.11, 6.10, 7.2, 7.9). When expectations were not met this impacted on the relationship between the teacher and the Project team, as in the situation where one of the teachers expected the Researcher to come in regularly to work with the focus students and was disappointed when she was told that this was not possible.

In the initial Project model, information provided to the Project team suggested that each school had an on-site literacy mentor who would have provided more one-on-one support in the form of literacy coaching. Very early in the implementation of the Project, the team was made aware that not all of the schools had trained literacy mentors and; therefore, the Project team decided to fulfil this role as they acknowledged the importance of coaches in providing opportunities for relationship building, modelling, enactment and reflection (Carlisle et al., 2011; Hathaway, 2009; Neuman & Cunningham, 2009). However, when the number of schools involved in the Project increased there was not a corresponding increase in the Project team to allow for individual coaching of all teachers involved in the Project (KFAPP4.1) so this was offered as an 'on request' support. This impacted on the Project team's ability to develop

relationships in the schools both through the lack of contact and the demonstration of competence.

Evidence from the case studies suggests that where schools valued the contribution of the professional learning they requested additional contact with the Project team and this resulted in more positive attitudes to the project: for example, School A was one of the schools that asked for additional professional learning sessions and both teachers, Abby and Alexis, had positive attitudes to the Project and were open to the suggestions and support offered by the Project team. The impact of this supportive environment can be seen in the changes of attitude and classroom practice of the teachers (KF5.8, KF5.9). In contrast, both Bridget and Bella reported that, during meetings of the literacy group at school, there was criticism of the content and delivery of the Project and the school did not seek additional support from the Project team. They questioned the competence of the Project team after a teaching demonstration by one of the team that they perceived as inappropriate for the year level of the students involved in the Project. These teachers made little or no change in their practice and their attitude to instruction of children with reading difficulties. If participants had felt comfortable or confident enough to air these doubts during the session, further discussion could perhaps have clarified the purpose of the demonstration.

School C presented a different environment. The school was supportive of the Project and its collaborative intent and felt they had much to offer the other Project participants. One of the key features of the teachers in School C was confidence that their withdrawal program provided the instruction necessary to improve students' reading skills. The approach used in this program was aligned with the approaches advocated by the Project team and therefore there was a good relationship between this school and the Project team. However, the impact of having this support within the school was that the teachers did not modify their whole-class teaching practice to cater for the needs of students with reading difficulties.

Assertion 8.6
Engagement with professional learning is an important condition for changing practice and relationships are pivotal to engagement. Establishing clear and realistic expectation between professional learning facilitators and the participants while maintaining a good working relationship is necessary for positive outcomes.

8.6. Review of Findings

This research highlighted the complexity associated with delivering professional learning to a group of teachers with different experiences, beliefs, orientation to learning and motivation to learn, and who were operating in different teaching contexts. The initial intention of the research was to investigate how individual teachers engaged with the professional learning, but changes to the intended structure of the professional learning are also important to consider in relation to this. These changes, resulting from personnel changes and inaccurate information about the context for all schools, meant that some of the key characteristics of effective professional learning were not fully included in the Project. Restrictions on the design of, and resources for, the professional learning had implications for the overall efficacy of the professional learning and the outcomes for individual teachers.

Information provided to the Project team in the development stages indicated the presence of resources within the schools that would enable the use of literacy coaching as a component of the Project. Feedback has been identified as being important in changing practice (J. Hattie & Timperley, 2007; Timperley, 2011) and the use of literacy support personnel in schools was intended as a way of providing ongoing feedback to teachers as well as the Project team. Modification to the professional learning structure was required when it became evident, after the commencement of the Project, that these resources were not available in all of the schools. In addition, key personnel changes within the Education Department resulted in less direct support from the Department and uncertainty about the expectations of the new Department contact. The intense reactions to reading instruction that the 'reading wars' have highlighted led the Project team to be perhaps overly cautious about drawing the distinctions between the different approaches to avoid alienating the participants. The impact of this tentative approach can be seen in the case study teachers who incorrectly believed that their approach to teaching was the same as that being advocated in the professional learning. On the other hand, demonstrations of strategies aligned with a synthetic phonics approach were enough to alienate other participants to the point of withdrawing from the project.

The perceived relevance of the professional learning to the teachers' needs also impacted on individual teachers' engagement with the professional learning and highlighted the importance of identifying the individual needs of participants. Some of the case study teachers reported that they were already aware of the information being presented and therefore felt that they had nothing to gain from their involvement. Poor NAPLAN results in reading were the reason for the schools being selected to be part of the Project, but teachers could ascribe these results to factors outside of their teaching and therefore the relevance of this alone was not

enough to ensure their engagement. Teachers' knowledge of reading concepts was assessed at the start of the Project and the results were presented to the teachers as a means of identifying the teachers' areas of need and encourage engagement (Cunningham et al., 2004), but there is no evidence to support that this approach was effective. One of the case study teachers who expressed concern about the relevance of the Project to her needs also scored at the lower end of the scale for the knowledge measures. This could suggest that teachers do not see a link between their knowledge of reading skills and their ability to teach reading effectively.

Failure to see the relevance of professional learning can also be linked to how well the Project identified the differences in beliefs between the Project team and the participants. The Project team believed that the knowledge being presented in the professional development sessions was also relevant to whole-class instruction; however, teachers predominantly saw the teaching of children with reading difficulties as a specialist role and did not make the link between their whole-class teaching of reading and the ability to improve the reading outcomes for the focus children. The most likely reason for this was that the articulation of one of the Project's key goals was, *assisting teachers to embed explicit teaching of early reading skills in the broader literacy approach currently used in schools* (Appendix H). This goal positioned explicit instruction as an add-on to the more constructivist approaches that were being employed by many of the schools in the Project. This is a legacy of working in an educational system that had embraced the predominantly constructivist whole language approach to reading instruction. Goals were framed in this way because the research team were cautious about alienating the Project participants by criticising the approaches that they were currently using. This reluctance to challenge existing beliefs appears to have diluted the impact of the professional learning.

Clearly and respectfully identifying how a teacher's current practice differs from the research on, and practice of, effective reading instruction is essential in supporting a change in practice. Given the recent directive to increase the intensity of phonics instruction from the Department of Education (2013), it is necessary that any professional learning on reading instruction ensures that teachers' knowledge and beliefs about what constitutes intense phonics instruction is consistent with the research. It was evident in this research that when teachers interpret information differently from those delivering the information they are likely to implement recommendation incorrectly or incompletely. This research highlighted the importance of examining teachers' knowledge and beliefs to ensure that there is a common understanding of key concepts in effective reading instruction. Providing additional

professional development sessions would be beneficial for those teachers who require support to develop the necessary PCK to implement and evaluate the approaches advocated by the Project.

Clearly articulating theoretical perspectives is also essential in order to address any incongruities that exist between these perspectives. Teachers' existing beliefs can be changed if they are assisted to interrogate the efficacy of their current practice but, even then, changes in beliefs about teaching reading in one context may not be generalised to teaching reading in other settings. Time is also important in facilitating changes in beliefs, as teachers need to trial new approaches and see the impact of their teaching on student outcomes. Time is also required for teachers to reflect on practice, which is important in changing beliefs, but Moon (2008) notes that reflection is a complex process. There were no specific processes for reflection outlined within the Project and it could be argued that teachers were not provided with support to ensure they were able to reflect on their practice and the impact of practice on student outcomes.

Student performance data can be used to demonstrate the efficacy of the approaches being trialled, thereby potentially changing beliefs and practice, but this information also needs to be provided in a timely manner. The first round of data collection was completed in March, but the subsequent data collection only occurred in September and signalled for some participants the end of the Project. Additional collection of data in July, four months after the initial data, would have provided an opportunity to examine student progress and discuss how this might be explained by classroom practice. In addition, it would provide an incentive to implement changes in practice sooner than might otherwise have been achieved. A final assessment could be conducted in November, which would also be more consistent with the action learning cycle recommended for professional learning (Timperley, 2011). In presenting data it is important not to assume teachers have the PCK to understand what the data represent and how this knowledge can be applied to classroom practice. One of the case study teachers criticised how the data were presented and some participants asked the Project team to run sessions at their schools to explain the data. This suggested that some teachers required further assistance to understand what the data represented.

The development of PCK was seen as an important outcome of the Project but the multifaceted nature of this construct proved difficult to measure. Changes in practice are seen as an indicator of developing PCK but these can emerge slowly, and observations of teacher practice only highlight one, among a possible many, 'teaching scripts' in their repertoire that a teacher has selected to use at that time. There was evidence to suggest changes in PCK for the

case study teachers who utilised the support offered by the Project team. The difference between these teachers and the other case study teachers was also the value they placed on the knowledge offered by the Project team. Where the case study teachers believed their current practice was effective and therefore the Project team had little to offer them, there was little or no indication of changes to PCK.

A positive working relationship between the Project team and the participants was also seen to be important in ensuring teachers engaged with the professional learning. Those case study teachers who developed a strong relationship with the Researcher as part of the Project team were more engaged with the Project, and more willing to seek assistance and trial the recommended approaches. A component of this relationship is also an appreciation of the significance of data to the research team and, therefore, a willingness to complete the data required to evaluate the efficacy of the professional learning. The relationship with the school also appeared to be influential in how teachers engaged with the professional learning. Teachers identified the incentive of reduced teaching loads and acknowledgement within the performance management process as encouragement to become involved in the research initially. Ongoing engagement was influenced by whether the beliefs of the school community about teaching reading were consistent with those being advocated by the Project.

Perceived relevance is also a factor in how well teachers engaged with the professional learning, and can be facilitated by differentiating the professional learning according to the needs of the teachers. Data such as those collected by the Project team on teachers' knowledge, skills, and beliefs could be supplemented with self-reported difficulties, observations of the classroom approaches being implemented and, student progress. As Tomlinson (1999) identified, differentiation can take place on a number of levels, including content and process, and coaching provides the opportunity to identify where differentiation needs to occur. In the context of professional learning this could mean additional content sessions for those teachers requiring support in skills and/or knowledge development or individual support based on observations of classroom practice and teacher reflection.

Despite some of the limitations of the Project, when compared across subjects (Table 8.1), there were benefits gained from being involved in the Project for all the case study teachers. Self-efficacy for teaching reading improved for all and self-efficacy for literacy instruction improved for most. Despite the conditions under which the post-Project assessment of skills was conducted, all but one of the case study teachers improved on their pre-Project scores. Bella provided an interesting comparison because she reported a high level of self-efficacy, but scored lower on her knowledge and skills than the other case study teachers. Despite her

awareness of her students' reading difficulties and her performance on the knowledge and skills test, Bella still did not believe the Project was relevant to her needs. However, her students appear to have benefited from her involvement in the Project even if it was simply from her identification of their difficulties to the parents.

As Abby and Alexis were observed to change their classroom practice as a result of their involvement in the Project and there was a large effect size for improvements in students' results, it is worth considering how their context varied from the other case study teachers' schools. Abby and Alexis were the only teachers working in open plan classrooms and they made use of this situation to collaborate on planning and teaching. This also provided the opportunity to reflect on their own and each other's practice. A shared working space also enabled them to share the planning load and provided more flexibility in grouping students to assist with the differentiation of instruction. During reading instruction, this generally resulted in three groups of students, the larger more able group, another group of around 10 students who were less able and a small group of students identified as having significant difficulties with reading. As the planning for all groups was undertaken together, both Abby and Alexis considered the information presented as part of the Project and applied this to all groups of students when they determined it was relevant.

8.7. Reconceptualising the Conceptual Framework

The initial conceptual framework for this research highlighted the interplay between the structural and human components of professional learning. In this model, professional learning was posited to be influenced by, and to influence, teachers' pedagogical content knowledge and teachers' beliefs about how children learn. As a consequence, teachers would undertake certain classroom practices that would influence children's reading performance. Subsequently, evidence of children's reading performance would then influence the teacher's PCK and beliefs (Figure 2.6).

The research has supported these factors, but has also highlighted the significance of the context in influencing teachers' beliefs and PCK. The revised conceptual model maintains the importance of the social constructivist epistemology but also acknowledges the influence of socio-cultural elements. In particular, the historicity of the state and school context, which includes the prevailing philosophy of how children learn, policy on educational practices and existing school-based support mechanisms for children with reading difficulties influenced the project outcomes. Cross (2010) discusses the mediating influences of culturally constructed beliefs and in doing so highlights the necessity of considering the origins of a phenomenon.

Teachers in this research responded differently to the professional learning on the basis of their beliefs, developed in a specific socio-cultural context, about how children learn to read and in what context this learning should take place.

The revised conceptual framework also acknowledges that enactment and reflection can influence beliefs (Clarke & Hollingsworth, 2002; Guskey, 1988) with classroom practice being linked in a reciprocal relationship with beliefs. Evidence of children's reading performance is also identified as having the potential to influence classroom practice with teachers responding to information on children's performance; however, this is mediated by teachers' PCK and beliefs. Pedagogical Content Knowledge on how to interpret and act on results is required for a change in practice to occur; therefore, when teachers requested assistance to understand the assessment data it indicated an area of PCK that required further development. When teachers received information on how to interpret results they were able to use this information to change their classroom practice, which implies a change in PCK. Indicators that evidence of children's reading performance was also mediated by teacher beliefs were apparent in the way that teachers chose to use this information.

These interactions also highlight the importance of considering individual teacher characteristics and the need to differentiate the professional learning for teachers in the same way that we acknowledge the need to differentiate instruction for children (Tomlinson, 1999, 2003). The Researcher envisages that providing teachers with feedback specific to their individual needs will support effective enactment and reflection leading to better outcomes from professional learning. Therefore, the arrows between the teacher, their PCK, beliefs, evidence of children's reading performance and the professional development (Figure 8.1) not only represent the process of teachers' enactment and reflection, but also highlight positions in the professional learning where individualised feedback can assist teachers in the change process.

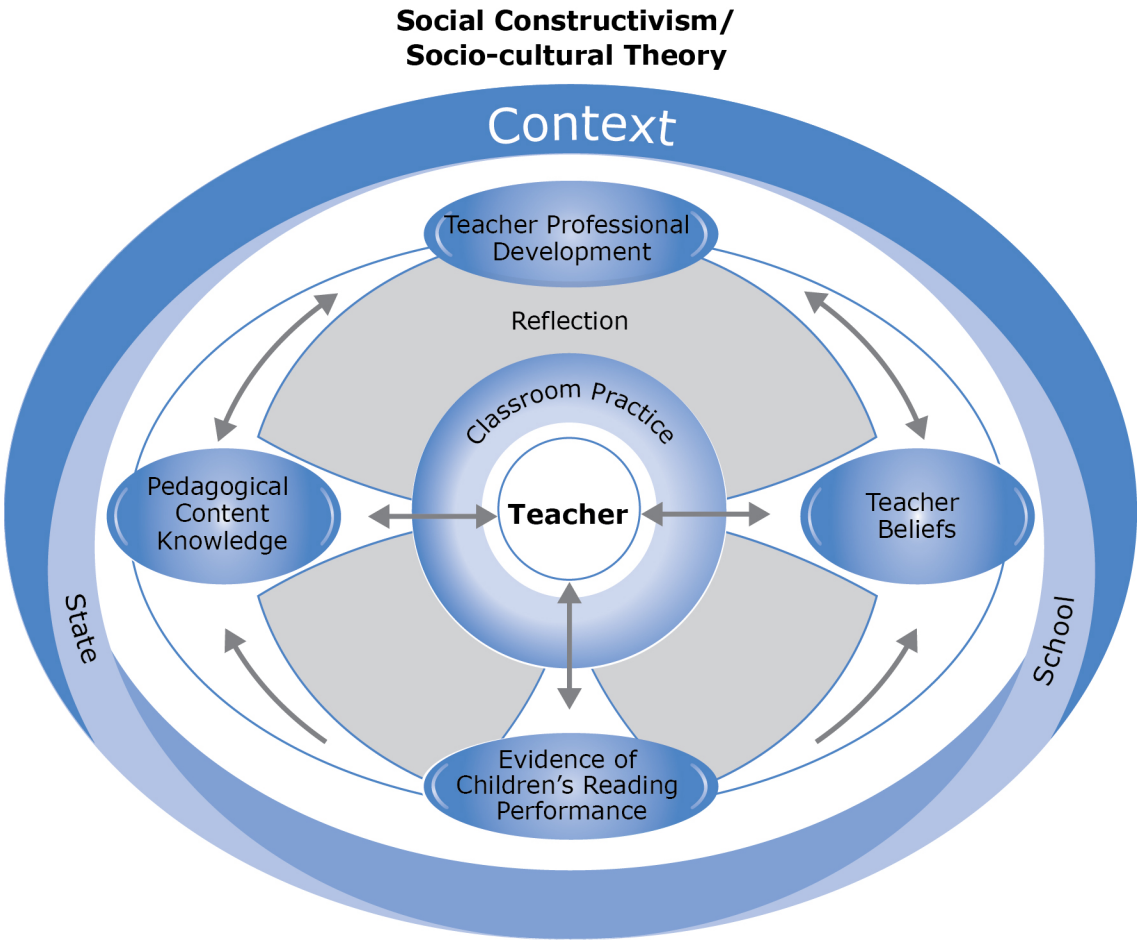
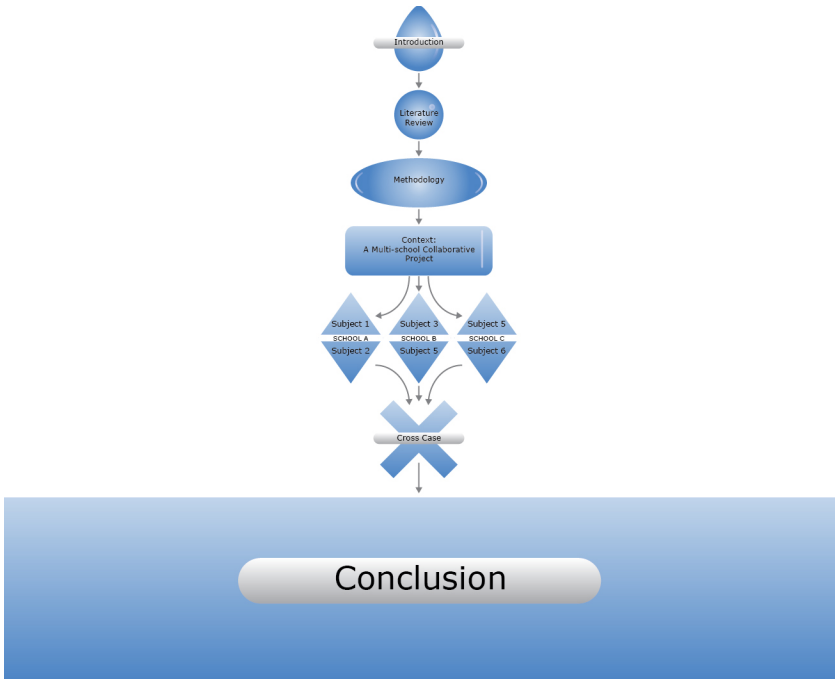


Figure 8.1. Revised conceptual framework

8.8. Chapter Summary

The triangulation of data from surveys, observations, interviews and document analysis has provided information on how teachers constructed their teaching practice in response to the characteristics of a professional learning experience. This has led the Researcher to reconceptualise the significance of certain elements in this process. In particular, it highlights the importance of professional learning facilitators ensuring that they are both cognisant of, and willing to, address individual differences in teachers' needs, and the contextual factors that influence teachers' beliefs and practice. Further, the ability to respond to changes in circumstances to enhance the fidelity of implementation is an important attribute in delivering professional learning. In addition, opportunities to reflect on beliefs and practice in the context of the professional development and evidence of children's reading performance need to be explicitly identified in the structure of the professional learning and appropriately scaffolded.

CHAPTER 9: CONCLUSION



In concluding this thesis, an overview of the research is provided, including the significance of research into supporting teachers to implement research-based reading instruction. Key findings from the research are discussed as well as the limitations of this research and implications for practice and future research.

9.1. Research Overview

The impetus for this study was research highlighting the impact of poor reading skills on children's life outcomes (Lyon, 2002; Stanovich, 1986) and the need for early intervention (Coyne et al., 2004; Juel, 1988; Torgesen, 2000) to overcome these difficulties before patterns of failure are established. Of particular concern is the continuing dissention over how to teach reading (Buckingham et al., 2013; Goodman, 1989; Hempenstall, 2005) and the adherence to approaches that have been shown to be ineffective (Coltheart & Prior, 2007), particularly when we consider Australia's poor performance and continuing decline in reading scores on international literacy assessments (OECD, 2009, 2012)

Research has consistently identified the need to teach phonics as an integral part of reading instruction, rather than an add-on (Adams, 1990; Juel, 1988; Konza, 2010b), with programs using a synthetic phonics approach being shown to be the most effective (Engelmann &

Carnine, 1991; R. S. Johnston & Watson, 2005; L. C. Moats, 2000). Despite the research, there is ongoing resistance to this approach within some sectors, leading Buckingham, Wheldall and Beaman-Wheldall (2013) to suggest that in Australia "There appears to be an ideological hegemony among university education faculties and state education departments that actively or passively works against implementing effective evidence based reading instruction" (p. 25).

Professional learning is advocated as an effective way of changing teacher practice (Ingvarson et al., 2005) with the intention of improving student outcomes (Lyons & Pinnell, 2001) and there has been considerable research into what constitutes effective professional learning (Fullan et al., 2006; Hackling et al., 2007; Timperley, 2011). Professional learning differs from the more traditional forms of professional development in the amount of time spent in the process of learning. In traditional professional development the participant spends anything from one hour to several days receiving information that is intended to improve their ability to teach. In professional learning, the process is more aligned with action research in that professional development is integrated with opportunities to practise, receive feedback, reflect and further refine practice.

The lack of quantitative research into reading interventions is often lamented (Buckingham et al., 2013), but research in schools is a complicated process, particularly controlling for the numerous variables that can impact on outcomes. It could equally be argued that isolating the research from these variables would not give researchers a true insight into how the interventions will actually be implemented across different settings. In order to address the limitations of research that relies on either quantitative or qualitative measures, this Researcher elected to use a mixed method case study. This methodological approach enabled the researcher to identify the factors that facilitated or impeded the development of increased teacher knowledge, alignment of teachers' beliefs about reading instruction with the research, and teachers' adoption of researched-based approaches to reading instruction in their classrooms. Information from various surveys was gathered from all of the teachers involved in the Project to establish an overall context for the case studies. Case study teachers were recruited from the participants of the Project and six teachers from three schools volunteered to participate; two case study teachers in each school. The case studies provided the opportunity to explore the teachers' survey responses and student outcomes in conjunction with classroom observation, interviews, and document analysis.

9.2. Summary of Answers to Research Questions

This research determined how participation in a professional learning intervention on effective reading instruction impacted on teachers' beliefs, reading pedagogical content knowledge, and classroom practice and, in the process, identified conditions that impacted on the success of this process.

Research question 1: How did the Project impact on teachers' beliefs about reading teaching and learning?

The instruments used to measure beliefs did not indicate any significant changes to teachers' beliefs about how to teach reading. However, observations did identify practices indicative of changes in beliefs about how to teach reading. This suggests that the survey measures were not suitably sensitive to measure the changes in beliefs that were occurring. It was evident that entrenched teacher beliefs have a significant impact on actions and, in the case of this professional learning, when they are not explicitly addressed there is unlikely to be substantial change to existing beliefs (Assertion 8.1).

Research question 2: How did the Project impact on teachers' reading pedagogical content knowledge?

There are indicators for some teachers that PCK changed as a consequence of their involvement in the Project, but this was not consistent for all teachers. Beliefs have a considerable influence on pedagogical content knowledge as they determine the way teachers interpret the curriculum, the type of knowledge they privilege and the way they perceive the children they teach. As such, it would be reasonable to expect that a failure to change beliefs would result in PCK remaining the same; however, when teachers were engaged with the Project, enacting the recommendations, it was evident that changes in PCK had occurred. This further highlights the limitations of purely quantitative measures of determining beliefs and the role of enactment in changing practice (Assertion 8.2).

Research question 3: How did students' reading performance influence teachers' classroom practice and beliefs about reading teaching and learning?

Providing teachers with data on student outcomes resulting from changes in practice can be one way of influencing beliefs, but teachers generally did not perceive there to be improvements in reading skills for target students or did not link improvement to the Project. Consequently, the data on student performance did not appear to impact on teachers' beliefs or practice for reading teaching and learning in the Project. In order for student performance

to influence practice, the presentation of data in this professional learning needed to be provided in a timelier manner with support for those teachers who lacked the PCK to interpret the data. Support was also required for teachers to identify the links between the students' performance and their classroom practice (Assertion 8.3).

Research question 4: How did involvement in the Project impact on teachers' classroom reading practices within a whole-class context, and with the children identified as having reading difficulties?

Changes in teaching practice for both whole-class teaching of reading and small group instruction were observed in two of the case study teachers. Where there were changes in classroom practice for the other teachers it was only for the target students rather than in terms of whole-class instruction. Teachers who did not change their whole-class teaching practice maintained the belief that teaching children with reading difficulties is different from teaching reading in a whole-class setting and, therefore, is best supported in withdrawal programs (Assertion 8.4).

Research question 5: What factors facilitated or inhibited changes in the teacher's beliefs, knowledge and practice?

This research identified that an overarching condition necessary for the transformation of teachers' beliefs, knowledge and practice is support from the school and wider educational community for the changes advocated by the professional learning. Other conditions include differentiating the professional learning based on teachers' needs and concerns to ensure relevance; providing incentives relevant to teachers' needs; and time to enact new approaches and reflect on the outcomes as part of a teaching and learning cycle (Assertion 8.5). Relevance can be achieved by identifying the teachers' stage of professional growth as well as the contextual factors that influence teaching practice. Opportunities to enact new knowledge and reflect on outcomes are important to support teachers' engagement with professional learning. The incentives that motivate engagement can also differ for participants and therefore need to be differentiated. A positive working relationship between the facilitators and recipients of professional learning is also important in ensuring teacher engagement with the professional learning (Assertion 8.6). In this context, prevailing beliefs about reading teaching and learning were also significant to the way that teachers engaged with the professional learning. Developing a positive working relationship includes establishing a common understanding of the objectives and realistic goals for the professional learning (Assertion 8.6).

9.3. Contribution to Knowledge

This research revealed that there are numerous factors that interact to influence how and to what extent a teacher will engage with professional learning. As illustrated by the revised conceptual framework (Figure 8.1), there is interplay between the professional development sessions, beliefs, pedagogical content knowledge and evidence of children's performance. At the centre of this process is the teacher and his or her classroom practice, which is influenced by all of these factors but which also exerts an influence through the process of enactment and reflection. Awareness of the influence of these factors will enable the conveners of professional learning to identify potential supports and impediments to their objectives and assist with the development of effective professional learning.

The complexities of conducting professional learning around reading instruction for teachers within an educational system that had a history of commitment to whole language constructivist pedagogy were also revealed. Although the educational system has moved towards a more explicit approach, many teachers developed their entrenched beliefs about reading teaching and learning based on the earlier model. Being cognisant of existing beliefs and confident to challenge these beliefs if they lead to ineffective practice is necessary to achieve the intended outcomes of the professional learning.

The importance of individualising professional learning on the basis of teachers' level of professional growth and needs was also highlighted in this research, and supports earlier literature on professional learning that also urges individualisation (Cunningham, Zibulsky, & Callahan, 2009; Hall & Loucks, 1978). The teachers' responses to the professional learning in this research were mediated by their individual beliefs and knowledge and the context in which they taught. Consistent with previous research on the impact of coaching (Hathaway, 2009; Kise, 2006; Neuman & Cunningham, 2009) there were indications, in the situations where a member of the Project team was invited to support teachers, that one to one coaching could provide the opportunity to differentiate the professional learning on the basis of teachers' needs. In these situations, the Project team member was able to assist teachers to understand and contextualise the information from the Project.

The rate at which teachers' changed their practice highlights the necessity of providing sufficient time for enactment of the recommendations in the professional learning and, subsequently, scaffolding for reflection. The six months for enactment and reflection was not sufficient for all teachers to fully engage with the professional learning. Time was also a factor in teachers' interpretation of the impact of their teaching on student outcomes. Some

teachers lacked the necessary skills to interpret performance data and required additional support to understand and reflect on the implications of this data. This research also highlighted that change can continue to occur after the professional learning has concluded and this indicates the need to provide teachers with a framework that they can use to reflect on their practice beyond their involvement in the professional learning.

9.4. Limitations

A number of limitations should to be outlined in relation to this research, including how representative the case studies are of teachers generally, the types of assessment measures used, the data collected and the reliability of the responses provided by participants.

The advantages of case studies are also their limitations: that is, they provide rich data on specific phenomenon in specific contexts (Lincoln & Guba, 2002; Yin, 2009). This research involved six teachers, all female, in three schools within an Australian capital city. While primary school teaching is predominantly a female profession, male teachers' engagement with professional learning is also important to consider as, without this component to the research, it is not evident whether male teachers might respond to professional learning in quantitatively different ways to female teachers. In addition, the use of metropolitan schools does not provide information on delivering professional learning in rural and regional areas, which has unique challenges in Australia due to the remoteness of many schools.

The forms of data collection also need to be considered in terms of their limitations. Self-report measures are often criticised for being unreliable (Onafowora, 2005) as teachers can be reluctant to express beliefs that may be considered unpopular or out-dated, and some may not have the skills to express their beliefs (Gess-Newsome, 2002). Additionally, when asked to report on their practice, teachers will often select approaches that reflect what is being promoted as effective practice rather than their actual practice (Bos et al., 2001). As such, this caution should be applied to both measures of teacher beliefs. Interview responses, like self-report measures, can be influenced by what the teachers think the Researcher wants to hear. Observations of classroom practice can supplement this information, but this approach also has its limitations as observations are undertaken at specific points in time and the researcher can only report on the snapshot of teaching practice at that time.

Student assessment data were only collected from teachers who were involved in the Project and then only for those students identified as experiencing difficulty developing reading skills. Therefore, it was not possible to compare student growth between students being taught

using explicit instructional methods and those consistently being taught using less explicit approaches.

A further consideration when collecting data is that the importance of completing surveys and questionnaires accurately is not always appreciated by research participants (Konza, 2012b). This can lead to inaccurate data, such as the instance where the celebratory wine was opened before teachers completed the final survey instruments. In this instance it is impossible to determine whether the lack of improvement in teacher knowledge and skills was a failure of the professional learning or a failure to make the Project participants aware of the importance of the data.

This case study research only serves to illuminate how some teachers responded to specific stimuli in specific contexts. Despite these limitations, the information gathered in this process is useful in identifying factors that can impact on the efficacy of professional learning to align beliefs with research and develop the knowledge and skills necessary for teaching reading effectively.

9.5. Implications and Recommendations

The practice of professional learning

The significance of this research is that it highlights a number of factors that can influence the efficacy of professional learning in reading teaching and learning. One of the factors that this Researcher perceived to be the most significant was the Project team's hesitancy in explicitly addressing the socio-cultural context for reading instruction in the state in which this research occurred. This resulted in some of the participants interpreting the content and purpose of the professional learning from a different paradigm than the Project team intended.

The influence of feedback and the opportunities this provides for reflection is also highligted in this research. Feedback from the Project team on teachers' PCK, and on their classroom practice and clear, timely feedback on the children's reading performance was necessary to ensure that teachers engaged with the professional learning and benefitted from this engagement. It is asserted by this resesarcher that feedback on PCK should be based on identifying limitations in teachers' knowledge of content and pedagogy for teaching children to read. Feedback on classroom practice can be facilitated by observations and coaching with a focus on encouraging teachers to reflect on what they do and what beliefs inform this practice. Similarly, feedback on children's reading performance should focus on assessment outcomes,

supporting teachers to interpret the data and encourage reflection on what this indicates about teaching practice.

It was evident in this research that the process of enacting, receiving feedback and reflecting on learning in order to change beliefs and improve PCK, and subsequently impact on practice, requires time. As such, professsional learning interventions need to be undertaken over extended periods of time to facilitate this process. Ensuring that implementation occurs early in first term and continues into term 4, after the second round of data collection, would provide a more realistic time-span for change. Continuing professional learning into a second year could also be contemplated, but there are staffing and funding implications to be considered when exploring this option.

Future research

This Researcher has asserted that differentiating professional learning would increase its efficacy, but this is a complicated process and further research is required to determine how differentiation is best achieved. There were indications that coaching could provide the opportunity to scaffold reflection and individualise the professional learning and, as such, the role of coaching in facilitating differentiated learning for teachers warrants further research. In addition, the unpacking of student performance data was a challenge for some teachers in the Project and the facilitators of professional learning would benefit from research into the best way of presenting these data to teachers.

The Project team and the Researcher assumed that increasing teacher knowledge of literacy constructs and effective reading instruction would be evident in all student-teacher interactions relating to reading instruction. This, however, was not the case and further research is required to determine the relationships between withdrawal and whole class teaching and the mechanism for ensuring that the skills for teaching reading in one context can be transferred to another context when required.

9.6. Concluding Comments

Professional learning is often advocated as a panacea for all that ails the education system and the teachers who work within this system are held responsible for making the changes necessary to revive the system. Reading is consistently identified as a specific area in need of improvement, and this has lead to an emphasis on professional learning and professional development in reading instruction for teachers. Professional learning is a complex process and, while the models currently being advocated contain vital elements required for success, it

is fundamentally about individuals and the way they engage with the experiences offered to them. The aspects of individual differences and relationships are often downplayed, as making provision for either is time-consuming and complex, and results unpredictable and potentially chaotic, but this research highlights the significant impact these factors have on how people engage with the learning experiences presented to them.

Despite the difficulties inherent in providing effective professional learning in the area of literacy instruction, there is a great need to persist in these endeavours. Supporting teachers to develop the practices required to deliver quality instruction assists students to develop the independent reading skills necessary for their academic and personal success. Student progress links directly to a teacher's motivation to teach and, therefore, has the potential to result in a new level of commitment and personal satisfaction for teachers.

REFERENCES

Abrahamson, E. (2004). *Change without pain*. Boston: Harvard Business School Press.

ACARA. (n.d.). My Schools. Retrieved 9th of August, 2011, from http://www.myschool.edu.au/SchoolSearch.aspx

Adams, M. J. (1990). *Beginning to read: Thinking and learning about print*. Cambridge, MA: MIT Press.

Al Otaiba, S., Connor, C., Lane, H., Kosanovich, M. L., Schatschneider, C., Dyrlund, A. K., . . . Wright, T. L. (2008). Reading First kindergarten classroom instruction and students' growth in phonological awareness and letter naming-decoding fluency. *Journal of School Psychology, 46*(3), 281-314. doi: DOI: 10.1016/j.jsp.2007.06.002

Alessi, G. (1988). Diagnosis diagnosed: A systemic reaction. *Professional School Psychology, 3*(2), 145-151.

Anderson, R. C., Hiebert, E., Scott, J., & Wilkinson, I. (1985). Becoming a nation of readers: The report of the Commission on Reading. Champaign, IL: Center for the Study of Reading.

Annandale, K., Bindon, R., Handley, K., Johnston, A., Lockett, L., & Lynch, P. . (2004). *First steps: Reading map of development*. Port Melbourne: Harcourt.

Apel, K., & Swank, L K. (1999). Second chances: Improving decoding skills in the older student. *Language, Speech & Hearing Services in Schools, 30*(3), 231-243.

Archer, A. L., & Hughes, C. A. (2011). *Explicit Instruction : Effective and Efficient Teaching*. New York: Guilford Publications.

Argyris, C., & Schon, D. (1974). *Theory in practice: Increasing professional effectiveness*. San Francisco, CA: Jossey-Bass.

Ashman, A., & Elkins, J. (2009). *Education for Inclusion and Diversity* (3rd ed.). Sydney: Prentice Hall.

Australian Council for Educational Research, (ACER). (2013). Literacy and numeracy interventions in the early years of schooling: A literature review. NSW, Australia: Department of Education and Communities.

Australian Government Department of Education, Employment and Workplace Relations. (2009). *Belonging, being and becoming: The early years learning framework for Australia*. ACT, Australia: Commonwealth of Australia.

Australian Institute of Health and Welfare. (2011). *Young Australians: Their health and wellbeing* (Vol. PHE 140). Canberra: AIHW.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.* Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman.

Bandura, A. (2006). Guide for constructing self-efficacy scales. In F. Pajares & T. Urdan (Eds.), *Self-efficacy beliefs of adolescents* (Vol. 5, pp. 307-337). Greenwich, CT: Information Age Publishing.

Barker, C., Pistrang, N., & Elliott, R. (2005). Self-Report Methods *Research Methods in Clinical Psychology*: John Wiley & Sons, Ltd.

Beard, R. (1998). National Literacy Strategy: Review of research and other related evidence. UK: DfEE Publications.

Becker, H. S. (1952). The career of the Chicago schoolteacher. *The American Journal of Sociology, 57*(5), 470-477.

Becker, W., & Engelmann, S. (1978). Analysis of achievement data on six cohorts of low income children from 20 school districts in the University of Oregon Direct Instruction Follow Through Model (Technical Report #78-1): University of Oregon, Office of Education.

Bell, J. (2005). *Doing your research project. A guide for first-time researchers in education, health and social science. (4th ed.)*. Berkshire, England: Open University Press.

Berliner, D.C. (2006). Our impoverished view of educational reform. *Teachers College record, 108*(6), 949–995.

Berman, P., & McLaughlin, M. W. (1977). *Federal programs supporting educational change. Vol. Ill: Factors affecting implementation and continuation* (Report No. R-1589/7 HEW). Santa Monica, CA: Rand Corporation.

Biemiller, A. (1994). Some observations on beginning reading instruction. *Educational Psychologist, 29*, 203-209. doi: 10.1207/s15326985ep2904_4

Binks-Cantrell, E., Washburn, E. K., Joshi, R. M., & Hougen, M. (2012). Peter effect in the preparation of reading teachers. *Scientific Studies of Reading, 16*(6), 526–536. doi: 10.1080/10888438.2011.601434

Board of Education. (1921). *The Teaching of English in England [the Newbolt Report]*. London: HMSO.

Bogdan, R. C., & Biklen, S. K. (1992). *Qualitative research for education: An introduction to theory and methods*. Boston: Allyn & Bacon.

Bond, G. L., & Dykstra, R. (1967). The co-operative research program in first grade reading instruction. *Reading Research Quarterly, 2*, 5-142.

Bos, C., Mather, N., Dickson, S., Podhajski, B., & Chard, D. (2001). Perceptions and knowledge of preservice and inservice educators about early reading instruction. *Annals of Dyslexia, 51*, 97-120.

Bost, L. W., & Riccomini, P. J. (2006). Effective instruction: An inconspicuous strategy for dropout prevention. *Remedial and Special Education, 27*(5), 301-311.

Bradley, D. (2008). Review of Australian Higher Education, Final Report. Canberra: Department of Education, Employment and Workplace Relations.

Bradley, L., & Bryant, P. (1983). Categorizing sounds and learning to read: A causal connection. *Nature, 301*, 419-421.

Bransford, J., Brown, A., & Cocking, R. (2000). *How people learn: Brain, mind, experience and school.* Washington, DC: National Academy Press.

Bronfenbrenner, U. (1994). Ecological models of human development. In M. Gauvain & M. Cole (Eds.), *Readings on the development of children* (2 ed.). New York: Freeman.

Brook, C., & Lock, G. (2010). Reflective practice, professional learning, and educational partnerships: Effecting change in classroom settings. In E. M. Ng (Ed.), *Comparative blended learning practices and environments* (pp. 188-203). Hershey, PA: Information Science Reference.

Buckingham, J., Wheldall, K., & Beaman-Wheldall, R. (2013). Why Jaydon can't read: The triumph of ideology over evidence in teaching reading. *Policy, 29*(3), 21-32.

Budin, S. G., Mather, N., & Cheesman, E. (2010). Examining promising practices to improve linguistic knowledge and inform practice. *Perspectives in Language, 36*(4), 13-17.

Burns, R. B. (2000). *Introduction to research methods* (4th ed.). Frenchs Forest, N.S.W: Longman.

Burns, Robert. (1759-1796). To a Mouse. In A. Allison, W., H. Barrows, C. Blake, R., A. Carr, J., A. Eastman, M. & H. English, M. (Eds.), *The Norton Anthology of Poetry* (3rd ed., pp. 511-512). New York: Norton and Company. (Reprinted from: 1970).

Bynner, J. (2004). Literacy, numeracy and employability: Evidence from the British birth cohort studies. *Literacy and Numeracy Studies, 13*(1), 31-48.

Cambourne, B. (1988). *The whole story: natural learning and literacy acquisition.* Auckland: Ashton Scholastic.

Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin, 56*(2), 81-105.

Carlisle, J. F., Cortina, K. S., & Katz, L. A. (2011). First-grade teachers' response to three models of professional development in reading. *Reading & Writing Quarterly, 27*(3), 212-238. doi: 10.1080/10573569.2011.560482

Carnine, D. (1982). *Approaches to reading: Psycholinguistics and Direct Instrnction methods.* Paper presented at the Conference of the Australian Association for Direct Instruction, Kuringai CAE, NSW.

Carnine, D., Silbert, J., Kame'enui, E., & Tarver, S. (2004). *Direct instruction reading* (4th ed.). Upper Saddle River, NJ: Pearson.

Chall, J. S. (1967). *Learning to read: The great debate*. New York: McGraw-Hill.

Chall, J. S. (1983). *Stages of reading development*. New York: McGraw-Hill.

Choi, P. L., & Tang, S. Y. F. (2009). Teacher commitment trends: cases of Hong Kong teachers from 1997 to 2007. *Teaching and Teacher Education, 25*, 767-777.

Christie, K. (2009). Professional development worth paying for. *Phi Delta Kappan, 90*(7), 461-463. doi:1668412951

Christle, C. A, & Yell, M. L. (2008). Preventing youth incarceration through reading remediation: Issues and solutions. *Reading & Writing Quarterly, 24*(2), 148-176. doi: 10.1080/10573560701808437

Christou, C., Eliophotou-Menon, M., & Philippou, G. (2004). Teachers' concerns regarding the adoption of a new mathematics curriculum: An application of CBAM. *Educational Studies in MathematicS, 57*(2), 157-176.

Chudgar, A., & Luschei, T. F. (2009). National Income, Income Inequality, and the Importance of Schools: A Hierarchical Cross-National Comparison. *American Educational Research Journal,, 46*(3), 626-658.

Clarke, D., & Hollingsworth, H. (2002). Elaborating a model of teacher professional growth. *Teaching and Teacher Education, 18*(8), 947-967.

Clay, M. M. (1987). Implementing Reading Recovery: Systemic adaptions to an education innovation. *New Zealand Journal of Educational Studies, 22*, 35-58.

Clay, M. M. (1998). *The challenge of literacy improvement*. Paper presented at the NSW Department of Education and Training State Literacy Strategy Conference, Sydney, Australia.

Cochran, K ., DeRuiter, J., & King, R. (1993). Pedagogical content knowing: an integrative model for teacher preparation. *Journal of Teacher Education, 44*(4), 263-271. doi: 10.1177002248719304400 4004

Coe, R. (2002). *It's the Effect Size, Stupid: What effect size is and why it is important*. Paper presented at the Annual Conference of the British Educational Research Association, University or Exeter, England.

Coltheart, M. (2005). Analysing developmental disorders of reading. *Advances in Speech-Language Pathology, 7*(2), 49-57.

Coltheart, M. (2006). Dual route and connectionist models of reading: An overview. *London Review of Education, 4*(1), 5-7. doi: 10.1080/13603110600574322

Coltheart, M., Curtis, B., Atkins, P., & Haller, M. (1993). Models of reading aloud: Dual-route and parallel-distributed-processing approaches. *Psychological Review, 100*(4), 589-608.

Coltheart, M., & Prior, M. R. (2007). *Learning to read in Australia*. Canberra: The Academy of the Social Sciences in Australia.

Corbin, J. M., & Strauss, A. (1990). Grounded theory research: Procedures, canons, and evaluative criteria. *Qualitative Sociology, 13*(1), 3-21. doi: 10.1007/BF00988593

Cowling, K., & Cowling, H. (1993). *Toe by Toe: A highly Structured Multi-sensory Reading Manual for Teachers and Parents*. Baildon; Great Britain: Toe by Toe.

Coyne, M. D., Kame'enui, E., Simmons, D. C., & Harn, B. A. (2004). Beginning reading intervention as inoculation or insulin: First-grade reading performance of strong responders to kindergarten instruction. *Journal of Learning Disabilities, 37*(2), 90−103.

Creswell, J. W. (2005). *Educational Research: Planning, conducting, and evaluation quantitative and qualitative research.* (2nd ed.). Upper Saddle River, NJ: Merrill/Prentice Hall.

Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Thousand Oaks, California: Sage Publications.

Cross, R. (2010). *A Social, Cultural and Political Framework for Educational Research Methodology*. Paper presented at the Contemporary Approaches to Research in Mathematics, Science, Health and Environmental Education Symposium 2010.

Crotty, M. (1998). *The foundations of social research : meaning and perspective in the research process*. St. Leonards, N.S.W: Allen & Unwin.

Cunningham, A. E., Perry, K. E., Stanovich, K. E., & Stanovich, P. J. (2004). Disciplinary knowledge of K-3 teachers and their knowledge calibration in the domain of early literacy. *Annals of Dyslexia, 54*, 139-172. doi: 10.1007/s11881-004-0007-y

Cunningham, A. E., Zibulsky, J., & Callahan, M. D. (2009). Starting Small: Building Preschool Teacher Knowledge that Supports Early Literacy Development. *Reading and Writing: An Interdisciplinary Journal, 22*(4), 487-510. doi: 10.1007/s11145-009-9164-z

Cunningham, A. E., Zibulsky, J., Stanovich, K. E., & Stanovich, P. J. (2009). How teachers would spend their time teaching Language Arts: The Mismatch Between Self-Reported and Best Practices. *Journal of Learning Disabilities, 42*(5), 418-430. doi: 10.1177/0022219409339063

Daniel, S. S., Walsh, A. K., Goldston, D. B., Arnold, E. M., Reboussin, B. A., & Wood, F. B. (2006). Suicidality, school dropout, and reading problems among adolescents. *Journal of Learning Disabilities, 39*(6), 507-514.

Darling-Hammond, L. (2000). Teacher Quality and Student Achievement. *Education Policy Analysis Archives, 8*(1), 1-44. http://epaa.asu.edu/ojs/article/view/392

Davis, A. (2013). To read or not to read: Decoding Synthetic Phonics. In Philosophy of Education Society of Great Britain (Ed.), *Impact: Philosophical persectives on education policy* (Vol. 20, pp. 1 - 37). UK: Wiley-Blackwell.

de Lemos, M. (2005). Effective strategies for the teaching of reading: What works, and why. *Australian Journal of Learning Disabilities, 10*(3), 11-17.

de Lemos, M. (2013). How children learn to read: A position statement. *Learning Disabilities Australia Bulletin, 45*(2), 14-15.

DeFord, D. E. (1985). Validating the construct of theoretical orientation in reading instruction. *Reading Research Quarterly, 20*, 351-367.

Denzin, N. K. (2002). The interpretive process. In M. A. Huberman & M. B. Miles (Eds.), *The qualitative researcher's companion* (pp. 349-366). Thousand Oaks: California: Sage Publications.

Department of Education. (2013). Focus 2014 Directions for schools: An initiative of the Director General's Classroom First Strategy. from http://portal.det.wa.edu.au

Department of Education (WA). (2010). Primary Directorate: Practical support for primary teachers. Retrieved 20 June 2010, from http://www.det.wa.edu.au/curriculumsupport/primary/detcms/navigation/literacy/resources-for-teachers/

Department of Education Science and Training. (2005). National Inquiry into the Teaching of Literacy. Canberra: Australian Department of Education Science and Training.

Dickinson, D. K., Golinkoff, R. M., & Hirsh-Pasek, K. (2010). Speaking out for language: Why language Is central to reading development. *Educational Researcher, 39*(4), 305-310. doi: 10.3102/0013189x10370204

Education and Skills Committee. (2004). Teaching children to read. Minutes of evidence taken before Education and Skills Committee, House of Commons, United Kingdom Parliament. Retrieved 25 July, 2010, from http://www.publications.parliment.uk/pa/cm200304/cmselect/cmeduski/uc1269-i/uc126902.htm

Education Department, Western Australia. (1936). *The Curriculum for Primary Schools*. Perth: Education Department, Western Australia.

Ehri, L. C. (1979). Linguistic insight: Threshold of reading acquisition. In T. Waller & G. MacKinnon (Eds.), *Reading research: Advances in research and theory* (Vol. 1, pp. 63-114). New York: Academic Press.

Ehri, L. C. (1998). Grapheme-phoneme knowledge is essential for learning to read words in English. In J. L. Metsala & E. C. Ehri (Eds.), *Word recognition in beginning literacy* (pp. 3 - 40). Mahwah, NJ: Erlbaum.

Eisenhardt, K. M. (2002). Building theories from case study research. In M. A. Huberman & M. B. Miles (Eds.), *The qualitative researcher's companion* (pp. 5-36). Thousand Oaks; California: Sage Publications.

Engelmann, S., & Carnine, D. W. (1982). *Theory of instruction: Principles and applications*. New York: Irvington.

Engelmann, S., & Carnine, D. W. (1991). *Theory of instruction: Principles and applications*. Eugene, OR: ADI Press.

Evans, D., Moore, C., & Strnadova, I. (2007). University-school partnerships: Literacy and students with additional learning needs. In A. Simpson (Ed.), *Future directions in literacy: International conversations conference 2007* (pp. 57-71). Sydney: University of Sydney Press.

Fessler, R. (1995). Dynamics of teacher career stages. In T. R. Guskey & M. Huberman (Eds.), *Professional development in education* (pp. 171-192). New York: Teachers College Press.

Field, A. P. (2010). *Discovering statistics using SPSS* (3rd ed.). London, England: SAGE.

Fielding-Barnsley, R. (2010). Australian pre-service teachers' knowledge of phonemic awareness and phonics in the process of learning to read. *Australian Journal of Learning Difficulties, 15*(1), 99-110. doi: 10.1080/19404150903524606

Fielding-Barnsley, R., & Purdie, N. (2005). Teachers' attitude to and knowledge of metalinguistics in the process of learning to read. *Asia-Pacific Journal of Teacher Education, 33*(1), 65-76. doi: 10.1080/1359866052000341133

Fields, B. A. (1995). Teacher resistance: a barrier to special and remedial education support services. *Australian Journal of Remedial Education, 27*(2), 13-18.

Fishman, B. J., Marx, R. W., Best, S., & Tal, R. T. (2003). Linking teacher and student learning to improve professional development in systemic reform. *Teaching and Teacher Education, 19*(6), 643-658. doi: http://dx.doi.org/10.1016/S0742-051X(03)00059-3

Flesch, R. (1955). *Why Johnny can't read--and what you can do about it* (1st ed.). New York: Harper.

Flyvbjerg, B. (2006). Five Misunderstandings About Case-Study Research. *Qualitative Inquiry, 12*(2), 219-245. doi: 10.1177/1077800405284363

Foorman, B. R., & Torgesen, J. K. (2001). Critical elements of classroom and small-group instruction promote reading success in all children. *Learning Disabilities Research & Practice, 16*(4), 203-212. doi: 10.1111/0938-8982.00020

Formentin, P. J. (1993). *Let's decode inservice manual*. Perth, Western Australia: Edith Cowan University Bookshop.

Fullan, M., Hill, P., & Crévola, C. (2006). *Breakthrough*. Thousand Oaks, California: Corwin Press [Sage Distributor].

Geertz, C. (1973). *The interpretation of cultures: selected essays*. New York: Basic Books.

Gess-Newsome, J. (2002). Examining Pedagogical Content Knowledge. *Science & Technology Education Library, 6*, 3-17.

Gillard, J. (2010). Literacy and numeracy pilot forum (Speech delivered at the National Press Club). Retrieved 24 May 2010, from Department of Education, Employment and Workplace Relations website: http://www.deewr.gov.au/Ministers/Gillard/Media/Speeches/Pages/Article_100318_150832.aspx

Goodman, K. S. (1967). Reading: A psycholinguistic guessing game. *Journal of the Reading Specialist, 6*, 126-135.
Goodman, K. S. (1989). Whole Language Is Whole: A Response to Heymsfeld. *Educational Leadership, 46*(6), 69-70.
Gough, P. B., & Tunmer, W. E. (1986). Decoding, reading, and reading disability. *Remedial and Special Education, 7*(January/February), 6-10.
Greenough, W. T. (1976). Enduring brain effects of differential experience and training. In M. R. Rosenzweig & E. L. Bennett (Eds.), *Neural Mechanisms of Learning and Memory* (pp. 255-278). Cambridge, MA: MIT Press.
Grossman, P. (1990). *The making of a teacher: Teacher knowledge and teacher education*. New York: Teachers' College Press.
Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qulitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 105-117). Thousand Oaks, CA: Sage.
Gudmundsdottir, S. (1990). Values in pedagogical content knowledge. *Journal of Teacher Education, 41*(3), 44-52. doi: 10.1177/002248719004100306
Guskey, T. R. (1988). Teacher efficacy, self concept, and attitudes towards the implementation of instructional innovation. *Teaching and Teacher Education, 4*(1), 63-69.
Hackling, M. W., Peers, S., & Prain, V. (2007). Primary Connections: Reforming science teaching in Australian primary schools. *Teaching Science, 53*(3), 12-16.
Hackling, M. W., & Prain, V. (2005). *Primary Connections: Stage 2 Trial: Research Report*. Canberra: Australian Academy of Science.
Hall, G. E., & Hord, S. M. (2001). *Implementing Change: Patterns, Principles and Potholes*. Boston: Allyn and Bacon.
Hall, G. E., & Loucks, S. (1978). Teacher concerns as a basis for facilitating and personalizing staff development. *Teachers College record, 80*, 36–53.
Harper, H., & Rennie, J. (2009). 'I had to go out and get myself a book on grammar': A study of pre-service teachers' knowledge about language. *Australian Journal of Language and Literacy, 32*(1), 22-37.
Hashweh, M. Z. (2005). Teacher pedagogical constructions: a reconfiguration of pedagogical content knowledge. *Teachers and Teaching, 11*(3), 273 - 292. doi: 10.1080/13450600500105502
Hatch, J. A. (2002). *Doing qualitative research in educational settings*. Albany, NY: State University of New York.
Hathaway, J. I. (2009). *Starting where teachers are: The influences of beliefs in the literacy coaching relationship.* (Doctor of Philosophy Dissertation), Vanderbilt University, Nashville, Tennessee.
Hattie, J. (2003). *Teachers Make a Difference, What is the research evidence?* Paper presented at the 2003 - Building Teacher Quality: What does the research tell us?, Melbourne, Australia.
Hattie, J. (2009). *Visible learning: a synthesis of over 800 meta-analyses relating to achievement*. London: Routledge.
Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research, 77*(1), 81-112. doi: 10.3102/003465430298487
Hempenstall, K. (2005). The Whole Language-Phonics controversy: A historical perspective. *Australian Journal of Learning Disabilities, 10*(3 & 4), 19-33.
Hempenstall, K. (2009). Research-driven reading assessment: Drilling to the core. *Australian Journal of Learning Difficulties, 14*(1), 17-52. doi: 10.1080/19404150902783419
Hill, H. C., Ball, D. L., & Schilling, S. G. (2008). Unpacking Pedagogical Content Knowledge: Conceptualizing and measuring teachers' topic-specific knowledge of students. *Journal for Research in Mathematics Education, 39*(4), 372-400.

Hill, H. C., Rowan, B., & Ball, D. L. (2005). Effects of teachers' mathematical knowledge for teaching on student achievement. *American Educational Research Journal, 42*, 371-406.

Hojat, M., & Xu, G. (2004). A visitor's guide to effect sizes: Statistical significance versus practical (clinical) importance of research findings. *Advances in Health Sciences Education, 9*, 241-249.

Huberman, M. (1989a). On teachers' careers: Once over lightly, with a broad brush. *International Journal of Educational Research, 13*(4), 347-362. doi: 10.1016/0883-0355(89)90033-5

Huberman, M. (1989b). The professional life cycle of teachers. *Teachers College record*(91), 31-57.

Huberman, M. (1989). The professional life cycle of teachers. *Teachers College record, 91*(1), 31-57.

Ingvarson, L., Meiers, M., & Beavis, A. (2005). Factors affecting the impact of professional development programs on teachers' knowledge, practice, student outcomes & efficacy. *Education Policy Analysis Archives, 13*(10), 1-28. http://epaa.asu.edu/epaa/v13n10/

Jensen, B. (2010). *Investing in our Teachers, Investing in our economy*. Melbourne: Grattan Institute.

Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. *Journal of Mixed Methods Research, 1*(2), 112-133. doi: 10.1177/1558689806298224

Johnston, J. (2002). *Sounds to Learn*. Perth, Western Australia: R.I.C.

Johnston, R. S., & Watson, J. E. (2005). A seven year study of the effects of synthetic phonics teaching on reading and spelling attainment *Insight* (Vol. 17). Edinburgh: Scottish Executive Education Department.

Johnston, R. S., & Watson, J. E. . (2003). Accelerating reading and spelling with synthetic phonics: A five year follow up *Insight* (Vol. 4). Edinburgh: Scottish Executive Education Department.

Joshi, R. M., Binks, E., Hougen, M., Dahlgren, M. E., Ocker-Dean, E., & Smith, D. L. (2009). Why elementary teachers might be inadequately prepared to teach reading. *Journal of Learning Disabilities, 42*(5), 392-402. doi: 10.1177/0022219409338736

Judge, T. A., Jackson, C. L., Shaw, J. C., Scott, B. A., & Rich, B. L. (2007). Self-efficacy and work-related performance: The integral role of individual differences. *Journal Of Applied Psychology, 92*(1), 107-127. doi: 10.1037/0021-9010.92.1.107

Juel, C. (1988). Learning to read and write: A longitudinal study of 54 children from first through fourth grades. *Journal of Educational Psychology, 80*, 437-447.

Kagan, D. M. (1992). Implications of research on teacher belief. *Educational Psychologist, 27*(1), 65-90. doi: 10.1207/s15326985ep2701_6

Kathie, F. N. (2006). *Differentiating in the high school*. Thousand Oaks, CA: Corwin Press.

Kington, A., Reed, N., & Sammons, P. (2013). Teachers' constructs of effective classroom practice: variations across career phases. *Research Papers in Education*, 1-23. doi: 10.1080/02671522.2013.825309

Kise, J. A. G. (2006). *Differentiated coaching: A framework for helping teachers change*. housand Oaks, CA: Corwin Press.

Knowles, M. S., Holton III, E. F., & Swanson, R. A. (2012). *The Adult Learner* (7 ed.). Hoboken: Taylor and Francis.

Konza, D. (2006). *Teaching children with reading difficulties* (2nd ed.). Tuggerah, N.S.W: Social Science Press.

Konza, D. (2010a). Screening of teacher phonological awareness. Perth, WA: Fogarty Learning Centre, Edith Cowan University.

Konza, D. (2010b, August). Understanding the reading process, *Research into Practice*. Retrieved from http://www.decs.sa.gov.aau/literacy
Konza, D. (2012a). *The Literacy Practices Guide: A "smart tool" for principals*. Paper presented at the National conference of the Australian Council for Educational Leaders, Brisbane.
Konza, D. (2012b). Researching in Schools: Ethical Issues. *The International Journal of the Humanities, 9*(6), 77-85. http://www.Humanities-Journal.com
Konza, D., Fried, L., & McKennariery, K. (2013). Principals as Literacy Leaders (PALL) in South Australian Department of Education and Child Development Schools 2012-2013: Final Report. Perth, WA: Fogarty Learning Centre, Edith Cowan University.
Konza, D., Fried, L., Michael, M., & Main, S. (2011). Clarkson Collaborative Project. Joondalup, Western Australia: Fogarty Learning Centre, Edith Cowan University.
Kruger, J., & Dunning, D. (1999). Unskilled and unaware of it: How difficulties in recognizing one's own incompetence lead to inflated self-assessments. . *Journal of Personality and Social Psychology, 77*(6), 1121-1134. doi: 10.1037/0022-3514.77.6.1121
Lam, T. C. M., & Bengo, P. (2003). A comparison of three retrospective self-reporting methods of measuring change in instructional practice. *American Journal of Evaluation, 24*(1), 65-80. doi: 10.1177/109821400302400106
Leone, P. E., Krezmien, M., Mason, L., & Meisel, S. M. (2005). Organizing and delivering empirically based literacy instruction to incarcerated youth. *Exceptionality Education Canada, 13*(2), 89-102. doi: 10.1207/s15327035ex1302_3
Levitt, K. E. (2001). An analysis of elementary teachers' beliefs regarding the teaching and learning of science. *Science Education, 86*(1), 1-22. doi: DOI: 10.1002/sce.1042
Lewis, L., Parsad, B., Carey, N., Bartfai, N., Farris, E., & Smerdon, B. (1999). Teacher quality: A report on the preparation and qualifications of public school teachers (No. 1999-080) (pp. 79 -135). Washington DC: U.S. Department of Education, Office of Educational Research and Improvement, NCES.
Lincoln, Y. S., & Guba, E. G. (2002). Judging the quality of case study reports. In M. A. Huberman & M. B. Miles (Eds.), *The qualitative researcher's companion* (pp. 205-216). Thousand Oaks; California: Sage Publications.
Loucks-Horsley, S. , Hewson, P. W., Love, N., & Stiles, K. E. (1998). *Designing professional development for teachers of science and mathematics*. Thousand Oaks, CA: Corwin Press.
Louden, W., & Rohl, M. (2006). Too many theories and not enough instruction: Perceptions of pre--service preparation for literacy teaching in Australian schools. *Literacy, 40*(66--78).
Louden, W., Rohl, M., & Hopkins, S. (2008). *Teaching for growth: Effective teaching of literacy and numeracy*. Perth: The Graduate School of Education, University of Western Australia.
Loughran, J., Milroy, P., Berry, A., Gunstone, R., & Mulhal, P. (2001). Documenting science teachers' pedagogical content knowledge through PaP-eRs. *Research in Science Education, 31*(2), 289-307.
Lyon, R. G. (1997). Critical Conceptual and Methodological Considerations in Reading Intervention Research. *Journal of Learning Disabilities, 30*(6), 578-588. doi: 10.1177/002221949703000601
Lyon, R. G. (2001). *Measuring success: Using assessments and accountability to raise student achievement*. Paper presented at the House Committee on Education and the Workforce, Subcommittee on Education Reform, 107th Congress. Retrieved from http://www.nrrf.org/lyon_statement3-01.htm
Lyon, R. G. (2002). Learning difficulties and early intervention strategies for Subcommittee of Education Reform. Washington, DC: Committee on Education and the Workforce, House of Representatives.
Lyon, R. G., & Fletcher, J. M. (2001). Early Warning System. *Education Matters*, 22-29.

Lyons, C. A., & Pinnell, G. S. (2001). *Systems for change in literacy education: A guide to professional development*. Portsmouth, NH: Heinemann.
Marchand-Martella, N. E., Slocum, T. A., & Martella, R. C. (2004). *Introduction to direct instruction*. USA: Pearson.
Marks, R. (1990). Pedagogical content knowledge: from a mathematical case to a modified conception. *Journal of Teacher Education, 41*(3), 3-11.
Marzano, R. J., Pickering, D. J., & Pollock, J. E. (2001). *Classroom instruction that works: Research-based strategies for increasing student achievement*. Alexandria, VA: Association for Supervision and Curriculum Development.
McCormick, J., & Barnett, K. (2006). *Relationships between teacher career stages/states and locus of control: A multilevel analysis*. Paper presented at the Annual Conference of the Australian Association for Research in Education, Adelaide.
McCutchen, D., & Berninger, V. (1999). Those who know, teach well: Helping teachers master literacy-related subject-matter knowledge. *Learning Disabilities Research and Practice, 14*, 215-226.
McCutchen, D., Harry, D. R., Cunningham, A. E., Cox, S., Sidman, S., & Covill, A. E. (2002). Reading Teachers' content knowledge of children's literature and phonology. *Annals of Dyslexia, 52*, 207-228.
McDonald, T. (2010). *Classroom management: Engaging Students in Learning*. Melbourne, Victoria: Oxford University Press.
McGeown, S. P., & Medford, E. (2013). Using method of instruction to predict the skills supporting initial reading development: Insight from a synthetic phonics approach. *Reading and Writing*, 1-18. doi: 10.1007/s11145-013-9460-5
McGrath, R., & Meyer, G. (2006). When effect sizes disagree: The case of r or d. *Psychological Methods, 11*(4), 386-401.
McKenna, M. C., & Stahl, K. A. D. (2009). *Assessment for reading instruction* (2nd ed.). New York, NY: The Guildford Press.
Merriam, S. B. (1988). *Case study research in education: A qualitative approach* (1st ed.). San Francisco: Jossey-Bass.
Merriënboer, J. J. G., & Bruin, A. B. H. (2014). Research Paradigms and Perspectives on Learning. In J. M. Spector, M. D. Merrill, J. Elen & M. J. Bishop (Eds.), *Handbook of Research on Educational Communications and Technology* (pp. 21-29). New York: Springer.
Mesmer, H.A., & Griffith, P.L. (2006). Everybody's selling it – But just what is explicit, systematic phonics instruction? *The Reading Teacher, 59*(4), 366 -376.
Miles, M. B., & Huberman, M. (1994). *Qualitative data analysis: An expanded sourcebook*. Thousand Oaks, CA: Sage Publications.
Mills, G. E. (2007). *Action research: A guide for the teacher researcher* (3rd ed.). Upper Saddle River, N.J: Pearson Merrill Prentice Hall.
Ministerial Council for Education, Early Childhood Development and Youth Affairs. (2009). National Assessment Program: Literacy and Numeracy. http://www.naplan.edu.au/verve/_resources/NAPLAN_2009_National_Report.pdf
Moats, L. C. (1999). Teaching reading is rocket science: What expert teachers of reading should know and be able to do. Washington, DC: American Federation of Teachers.
Moats, L. C. (1994). The missing foundation in teacher education: Knowledge of the structure of spoken and written language. *Annals of Dyslexia, 44*, 81-102.
Moats, L. C. (2000). Whole Language lives on: The illusion of balanced literacy. *2010*(25 July), i-21. http://files.eric.ed.gov/fulltext/ED449465.pdf
Moats, L. C. (2009). Still wanted: Teachers with knowledge of language. *Journal of Learning Disabilities, 42*(5), 387-391.
Moon, J. A. (2008). *Critical thinking: an exploration of theory and practice*. New York: Routledge.

Mullis, I. V. S., Martin, M. O., Foy, P., & Drucker, K. T. (2012). PIRLS 2011 International Results in Reading. Chestnut Hill, MA: TIMSS & PIRLS International Study Center, Boston College.

National Reading Panel. (2000). *Teaching Children to read: An evidence based assessment of the scientific research literaure on reading and its implications for reading instruction*. Washington, DC: National Institute of Child Health and Human Development.

Neal, D. (1988). *Educheck*. Beecroft: Author.

Neilson, R. (2003a). *Astronaut Invented Spelling Test*. NSW, Australia: Author.

Neilson, R. (2003b). *Sutherland Phonological Awareness Test - Revised*. NSW, Australia: Author.

Neuman, S. B., & Cunningham, L. (2009). The impact of professional development and coaching on early language and literacy instructional practices. *American Educational Research Journal, 46*(2), 532-566. doi: 10.3102/0002831208328088

OECD. (2009). What students know and can do: Student performance in reading, mathematics and science (Vol. 1). Paris: Organisation for Economic Cooperation and Development.

OECD. (2012). What students know and can do: Student performance in reading, mathematics and science. (Vol. 1). Paris: Organisation for Economic Cooperation and Development.

Onafowora, L. L. (2005). Teacher efficacy issues in the practice of novice teachers. *Educational Research Quarterly, 28*(4), 34-43.

Opfer, V. D., Pedder, D. J. , & Lavicza, Z. (2011). The influence of school orientation to learning on teachers' professional learning change. *School Effectiveness and School Improvement, 22*(2), 193 - 214. doi: 10.1080/09243453.2011.572078

OSEP Technical Assistance Centre on Effective Schoolwide Interventions. (nd). Response to Intervention.

Pajares, M. F. (1992). Teachers' beliefs and educational research: Cleaning up a messy construct. *Review of Educational Research, 62*(3), 307-322.

Pearson, P. D. (2004). The Reading Wars. *Educational Policy, 18*(1), 216-252. doi: 10.1177/0895904803260041

Piasta, S. B., & Wagner, R. K. (2010). Learning letter names and sounds: Effects of instruction, letter type, and phonological processing skill. *Journal of experimental child psychology, 105*(4), 324-339. doi: 10.1016/j.jecp.2009.12.008

Podhajski, B., Mather, N., Nathan, J., & Sammons, J. (2009). Professional development in scientifically based reading instruction, teacher knowledge and reading outcomes. *Journal of Learning Disabilities, 42*(5), 403-417. doi: 10.1177/0022219409338737

Ramey, S. L., & Ramey, C. T. (2008). Establishing a science of professional development for early education programs: The knowledge application information system theory of professional development. In L. M. Justice & C. Vukelich (Eds.), *Achieving excellence in preschool literacy instuction*. London: The Guildford Press.

Raskin, J. D. (2002). Constructivism in psychology: Personal construct psychology, radical constructivism, and social constructionism. In J. D. Raskin & S. K. Bridges (Eds.), *Studies in meaning: Exploring constructivist psychology* (pp. 1-25). New York , NY: Pace University Press.

Richardson, V., Anders, P., Tidwell, D., & Lloyd, C. (1991). The relationship between teachers' beliefs and practices in reading comprehension instruction. *American Educational Research Journal, 28*, 559-586.

Richter, D., Kunter, M., Klusmann, U., Lüdtke, O., & Baumert, J. (2011). Professional development across the teaching career: Teachers' uptake of formal and informal learning opportunities. *Teaching and Teacher Education, 27*(1), 116-126.

Richter, D., Kunter, M., Klusmann, U., Lüdtke, O., & Baumert, J. (2014). Professional development across the teaching career. In S. Krolak-Schwerdt, S. Glock & M. Böhmer (Eds.), *Teachers' professional development* (pp. 97-121): SensePublishers.

Rigg, D. (2009). *Phonic and sight word sequence: Cracking the print-basis of reading and spelling*. Perth: PLD Organisation Pty. Ltd.

Ritchie, D., & Davies, A. (2012). THRASS Charts. Perth, Western Australia: The THRASS Institute Australasia and Canada.
Rogoff, B. (2003). *The cultural nature of human development*. New York: Oxford University Press.
Rohl, M., & Greaves, D. (2005). How are pre-service teachers in Australia being prepared for teaching literacy and numeracy to a diverse range of students? *Australian Journal of Learning Disabilities, 10*(1), 3-8. doi:10.1080/19404150509546780
Rokeach, M. (1976). *Beliefs, attitudes, and values: A theory of organization and change*. San Francisco: Jossey-Bass.
Rose, D. (2006). *Literacy and equality in the classroom.* Paper presented at the Future Directions in Literacy Conference, Sydney, NSW.
Rose, J. (2006). Independent review of the teaching of early reading: Final report. Retrieved 12 March, 2010, from http://www.standards.dcsf.gov.uk/phonics/rosereview/
Rose, J. (2009). Identifying and teaching children and young people with dyslexia and literacy difficulties. Nottingham, UK: Department for Children, Schools and Families.
Rosenshine, B. V. (2012). Principles of Instruction: Research-based strategies that all teachers should know. *American Educator, Spring*, 12-39.
Rosenshine, B. V., & Stevens, R. (1984). Classroom instruction in reading. In P. D. Pearson (Ed.), *Handbook of Reading Research* (3rd ed., pp. 376-391). New York: MacMillan.
Sallinger, T., Mueller, L., Song, M., Jin, Y., Zmanch, C., Toplitz, M., . . . Bickford, A. (2010). Study of teacher preparation in early reading (NCEE 2010-4036). Washington, DC: The National Center for Education, Evaluation and Regional Assistance, Institute of Educational Sciences, U.S. Department of Education.
Schroeder, C. M., Scott, T. P., Tolson, H., Huang, T., & Lee, Y. (2007). A meta-analysis of national research: Effects of teaching strategies on student achievement in science in the United States. *Journal of Research in Science Teaching, 44*(10), 1436-1460. doi: 10.1002/tea.20212
Schwarzer, R., & Hallum, S. (2008). Perceived teacher self-efficacy as a predictor of job stress and burnout: Mediation analyses. *Applied Psychology: An International Review, 57*, 152-171 (Special Issue: Health and Well-Being). doi: 10.1111/j.1464-0597.2008.00359.x
Shankweiler, D., Lundquist, E., Katz, L., Stuebing, K. K., Fletcher, J. M., Brady, S., . . . Shaywitz, B. A. (1999). Comprehension and decoding: Patterns of association in children with reading difficulties. *Scientific Studies of Reading, 3*(1), 69-94. doi: 10.1207/s1532799xssr0301_4
Shannon, P. (1994). People who live in glass houses. In C. B. Smith (Ed.), *Whole Language: The debate* (pp. 97-120). Bloomington, IN: ERIC.
Shaywitz, B. A., Shaywitz, S. E., Blachman, B. A., Pugh, K. R., Fulbright, R. K., Skudlarski, P., . . . Gore, J. C. (2004). Development of left occipitotemporal systems for skilled reading in children after a phonologically- based intervention. *Biological Psychiatry, 55*(9), 926-933. doi: DOI: 10.1016/j.biopsych.2003.12.019
Shaywitz, S. E. (2003). *Overcoming dyslexia: A new and complete science-based program for reading problems at any level*. New York: Alfred A. Knopf.
Shulman, L. S. (1986). Those who understand: Knowledge growth in teaching. *Educational Researcher, 15*(2), 4-14.
Shulman, L. S. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review, 57*(1), 1-22.
Shulman, L. S., & Shulman, J. H. (2004). How and what teachers learn: a shifting perspective. *Journal of Curriculum Studies, 36*(2), 257-271. doi: 10.1080/0022027032000148298
Simos, P. G., Fletcher, J. M., Sarkari, S., Billingsley-Marshall, R. L., Denton, C. A., & Papanicolaou, A. C. (2007). Intensive instruction affects brain magnetic activity

associated with reading fluency in children with dyslexia. *Journal of Learning Disabilities, 40*(1), 37- 48.
Slater, C. L., & Nelson, S. W. (2013). Awareness of self and others in principal preparation: An international perspective. In C. L. Slater & S. W. Nelson (Eds.), *Understanding the Principalship: An International Guide to Principal Preparation (Advances in Educational Administration, Volume 19)* (pp. 291-312). UK: Emerald Group Publishing Limited.
Slavin, R., & Smith, D. (2008). *Effects of sample size on effect size in systematic reviews in education*. Paper presented at the annual meetings of the Society for Research on Effective Education, Crystal City, Virginia.
Smith, F. (1978). *Understanding reading : a psycholinguistic analysis of reading and learning to read* (2nd ed.). New York: Holt, Rinehart, and Winston.
Smith, F. (1992). Learning to Read: The Never-Ending Debate. *Phi Delta Kappan, 73*(6), 432-441.
Smith, M. L., & Shepherd, L. A. (1988). Kindergarten readiness and retention: a qualitative study of teachers' beliefs and practices. *American Educational Research Journal, 25*(3), 307-333.
Smylie, M. A. (1988). The enhancement function of staff development: Organizational and psychological antecedents to individual teacher change. *American Educational Research Journal, 25*(1), 1-30.
Snow, C. E., Burns, M. S., & Griffin, P. (Eds.). (1998). *Preventing reading difficulties in young children*. Washington, DC: National Academy Press.
Snow, C. E., Griffin, P., & Burns, M. S. (Eds.). (2005). *Knowledge to support the teaching of reading. A model of professional growth in reading education*. San Francisco: Jossey-Bass.
Snowling, M. J., Gallagher, A., & Frith, U. (2003). Family risk of dyslexia is continuous: Individual differences in the precursors of reading skill. *Child Development, 74*(2), 358-374. doi: 10.1111/1467-8624.7402003
Sparks, R. L., Patton, J., & Murdoch, A. (2014). Early reading success and its relationship to reading achievement and reading volume: replication of '10 years later'. *Reading and Writing, 27*(1), 189-211. doi: 10.1007/s11145-013-9439-2
Spear-Swerling, L., & Sternberg, R. J. (1996). *Off track: When poor readers become "learning disabled".* Boulder, CO: Westview Press.
Stake, R. E. (2005). Case studies. In N. K. Denzin & Y. S. Lincoln (Eds.), *The SAGE handbook of qualitative research* (3rd ed., pp. 435-454). Thousand Oaks: Sage Publications.
Stanovich, K. E. (1986). Matthew effects in reading: Some consequences of individual differences in the acquisition of literacy. *Reading Research Quarterly, 21*(4), 360-407.
Stanovich, K. E. (1988). The right and wrong places to look for the cognitive locus of reading disability. *Annals of Dyslexia, 38*(1), 154-157.
Stanovich, K. E., & Cunningham, A. E. (1992). Studying the consequences of literacy within a literate society: The cognitive correlates of print exposure. *Memory & Cognition, 20*, 51–68.
Straub, E. T. (2009). Understanding technology adoption: Theory and future directions for informal learning. *Review of Educational Research, 79*(2), 625-649. doi: 10.3102/0034654308325896
Stuart, M. (2003). Fine tuning the National Literacy Strategy to ensure continuing progress in improving standards of reading in the UK: Some suggestions for change. Retrieved 13th July, 2013, from http://www.pgce.soton.ac.uk/ict/NewPGCE/IWB/PNS/content/downloads/publications/literacy/p_s/nls_phonics0303mstuart.pdf
Timperley, H. (2011). *Realsing the Power of Professional Learning*. Berkshire, UK: McGraw-Hill.
Tomlinson, C. A. (1999). *The differentiated classroom: Responding to the needs of all learners*. Alexandria, VA: Association for Supervision and Curriculum Development.

Tomlinson, C. A. (2003). *Fulfilling the promise of the differentiated classroom: Strategies and tools for responsive teaching*. Alexandria, VA: Association for the Supervision of Curriculum Development.

Torgesen, J. K. (1998). Catch them before they fall: Identification and assessment to prevent reading failure in young children. *American Educator, Spring/Summer*, 1-8.

Torgesen, J. K. (2000). Individual differences in response to early interventions in reading: The lingering problem of treatment resistors. *Learning Disabilities Research and Practice, 15*(1), 55-64.

Tschannen-Moran, M., & Woolfolk-Hoy, A. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and Teacher Education, 17*, 783-805.

Tschannen-Moran, M., Woolfolk-Hoy, A., & Hoy, W. K. (1998). Teacher efficacy: Its meaning and measure. *Review of Educational Research, 68*(2), 202-248.

Vellutino, F. R., Scanlon, D. M., Sipay, E. R., Small, S. G., Pratt, A., & Chen, R. . (1996). Cognitive profiles of difficult to remediate and readily remediated poor readers: Early intervention as a vehicle for distinguishing between cognitive and experiential deficits as basic causes of specific reading disability. *Journal of Educational Psychology, 88*(4), 601-638.

Vygotsky, L. (1962). Thought and word. In E. Hanfmann & G. Vakar (Eds.), Thought and language (pp. 119-153). Cambridge, MA, US: MIT Press.

Wade, B., & Moore, M. (1993). *Experiencing special education*. Buckingham, UK: Open University Press.

Wagner, R. K., & Torgesen, J. K. (1987). The nature of phonological processing and its causal role in the acquisition of reading skills. *Psychological Bulletin, 101*(2), 192-212. doi: 10.1037/0033-2909.101.2.192

Walsh, K., Glaser, D., & Wilcox, D. (2006). What education schools aren't teaching about reading and what elementary teachers aren't learning. from http://www.readingrockets.org/article/12625?theme=print

Westwood, P. (1995). Teachers' beliefs and expectations concerning students with learning difficulties. *Australian Journal of Remedial Education, 27*(2), 19-21.

Westwood, P. (2001). *Reading and learning difficulties: Approaches to teaching and assessment.* Camberwell, Victoria: Australian Council for Educational Research Ltd.

Westwood, P., Knight, B. A., & Redden, E. (2005). Assessing teachers' beliefs about literacy acquisition: The development of the Teachers' Beliefs About Literacy Questionnaire (TBALQ). *Australian Journal of Learning Disabilities, 10*(3 & 4), 77-85.

Wiersma, W., & Jurs, S. G. (2009). *Research Methods in Education: An Introduction* (9th ed.). New York: Allyn and Bacon.

Winch, G., Johnston, R., March, P., Ljungdahl, L., & Holliday, M. (2006). *Literacy: Reading, writing and children's literature* (3rd ed.). Sydney: Oxford University Press.

Wolf, M. (2007). *Proust and the squid: The story and science of the reading brain*. New York: Harper Collins.

Wolf, M., & Katzir-Cohen, T. (2001). Reading fluency and its intervention. *Scientific Studies of Reading, 5*(3), 211-239. doi: 10.1207/S1532799XSSR0503_2

Wyse, D., & Goswami, U. (2008). Synthetic phonics and the teaching of reading. *British Educational Research Journal, 34*(6), 691-710.

Yin, R. K. (1981). The case study as a serious research strategy. *Science Communication, 3*(1), 97-114. doi: 10.1177/107554708100300106

Yin, R. K. (2009). *Case study research: Design and methods* (4th ed.). Thousand Oaks, California: Sage Publications.

Ziomek-Daigle, J., & Andrews, P. G. (2009). Dropout prevention in the middle grades. *Middle School Journal, 40*(5), 54-60.

APPENDICES

Appendix A - National Inquiry into the Teaching of Literacy (NITL)

Recommendations relevant to current study:

1. The Committee recommends that teachers be equipped with teaching strategies based on findings from rigorous, evidence-based research that are shown to be effective in enhancing the literacy development of all children.

2. The Committee recommends that teachers provide systematic, direct and explicit phonics instruction so that children master the essential alphabetic code-breaking skills required for foundational reading proficiency. Equally, that teachers provide an integrated approach to reading that supports the development of oral language, vocabulary, grammar, reading fluency, comprehension and the literacies of new technologies.

3. The Committee recommends that literacy teaching continue throughout schooling (K-12) in all areas of the curriculum. Literacy must be the responsibility of all teachers across the curriculum, to provide an educationally sound program meeting the specific skill and knowledge needs of individual children from diverse backgrounds and locations.

5. The Committee recommends that all education authorities and school leaders examine their approaches to the teaching of literacy and put in place an explicit, whole-school literacy planning, monitoring and reviewing process in collaboration with school communities and parents.

6. The Committee recommends that all schools identify a highly trained specialist literacy teacher with specialised skills in teaching reading, to be responsible for linking the whole-school literacy planning process with classroom teaching and learning, and supporting school staff in developing, implementing and monitoring progress against individual literacy plans, particularly for those children experiencing reading and literacy difficulties.

8. The Committee recommends that Teaching Australia – Australian Institute for Teaching and School Leadership, in consultation with relevant professional associations, employers from the government and Catholic school sectors and representatives of the independent school sector, together with relevant teacher institutes and registration bodies, develop and implement national standards for literacy teaching, initial teacher registration, and for accomplished

teaching, consistent with evidence-based guides for practice. It is further recommended that these standards form a basis for the accreditation of teacher preparation courses.

15. The Committee recommends that schools and employing authorities, working with appropriate professional organisations and higher education institutions, provide all teachers with appropriate induction and mentoring throughout their careers, and with ongoing opportunities for evidence-based professional learning about effective literacy teaching.

16. The Committee recommends that a national program of literacy action be established to:

• *design* a series of evidence-based teacher professional learning programs focused on effective classroom teaching, and later interventions for those children experiencing reading difficulties;

• *produce* a series of evidence-based guides for effective teaching practice, the first of which should be on reading;

• *evaluate* the effectiveness of approaches to early literacy teaching (especially for early reading) and professional learning programs for practising teachers;

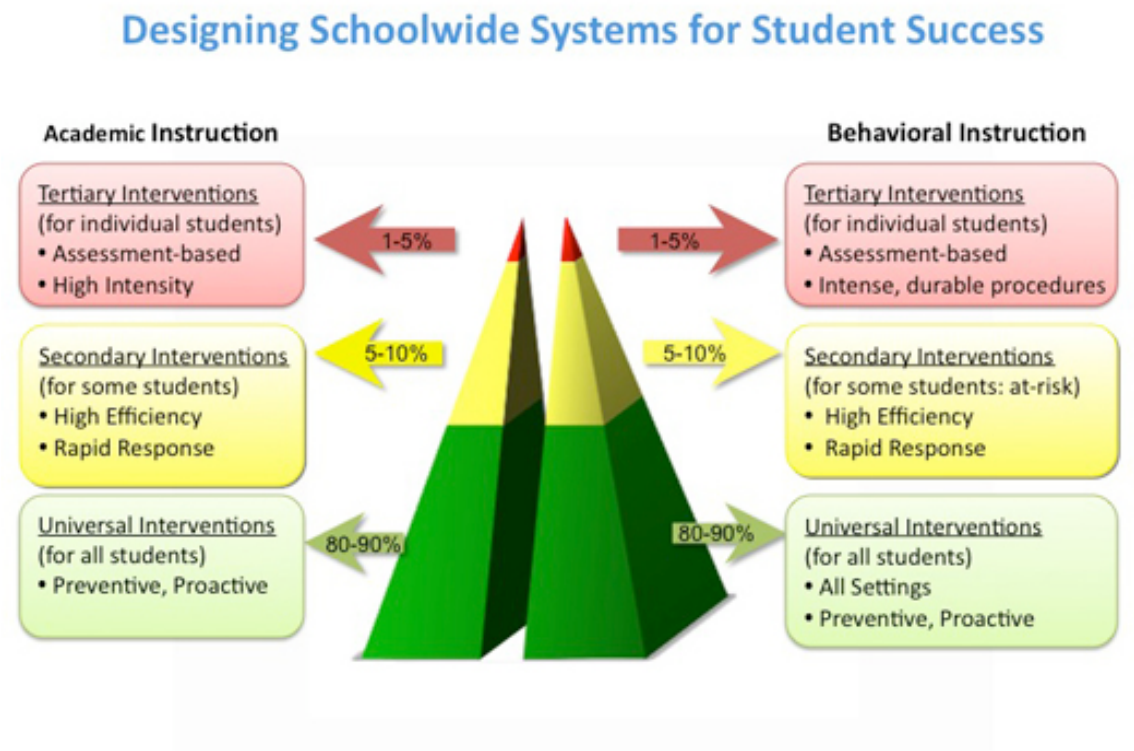
• *investigate* ways of integrating the literacies of information and communication technologies with traditional literacies in the classroom;

• *establish* networks of literacy/reading specialist Practitioners to facilitate the application of research to practice; and

• *promote* research into the most effective teaching practices to be used when preparing pre-service teachers to teach reading.

(Department of Education Science and Training, 2005)

Appendix B – Response to Intervention Model



(OSEP Technical Assistance Centre on Effective Schoolwide Interventions, nd)

Appendix C - Research Design

Improving Teachers' Reading Instruction through a Professional Learning Intervention

Overarching Research Question

How does the Professional Learning Project, focused on effective reading instruction to improve student outcomes, impact on teachers' beliefs, reading pedagogical content knowledge, and classroom practice?

Specific Research Questions

1. How does the Project impact on teachers' beliefs about reading teaching and learning?
2. How does the Project impact on teachers' reading pedagogical content knowledge?
3. How does students' reading performance influence teachers' classroom practice and beliefs about reading teaching and learning?
4. How does involvement in the Project impact on teachers' classroom reading practices within a whole-class context and with the children identified as having reading difficulties?
5. What factors facilitate or inhibit changes in teacher's beliefs, knowledge and practice?

Phase	Data Collection Instruments	Source	Research Questions
Pre Stage One	*Theoretical orientation surveys* (TORP) (DeFord, 1985)	All teachers involved in the project	RQ 1
	Literacy block activity surveys		RQ 1 and 4
	Self-efficacy scale		RQ 1 and 2
	Survey of Literacy Constructs Related to Literacy Acquisition (Joshi et al., 2009)		RQ 3
	Phonological awareness screening (Konza, 2010a)		RQ 2
	Student assessment data using AIST, SPAT-R and *Educheck*		RQ 3
Phase One	*Theoretical orientation surveys* (TORP)	Case study participants	RQ 1

	Literacy block activity surveys, Self-efficacy scales *Survey of Literacy Constructs Related to Literacy Acquisition* Student assessment data using AIST, SPAT-R and *Educheck* **Classroom observations:** Audio recordings *Literacy Practices Guide* checklist to identify classroom literacy practices Observation of student work samples **Artefacts:** Teachers literacy programs		RQ 1 and 4 RQ 1 and 2 RQ 3 RQ 3 RQ 2 and 4 RQ 2 and 4 RQ 2 and 4
Phase Two	**Interviews** Audio recording of interviews with teachers regarding their current practices in reading instruction. **Classroom observations** Audio recordings *Literacy Practices Guide* checklist Observation of student work samples	Case study participants	RQ 1, 2, 3, 4 and 5 RQ 2, 3, and 4
Phase Three	*Theoretical orientation surveys* (TORP) DeFord Literacy block activity surveys Self-efficacy scale *Survey of Literacy Constructs Related to Literacy Acquisition* (Joshi et al., 2009) Phonological awareness screening Student assessment data using AIST, SPAT-R and *Educheck* Post-intervention questionnaire based on Ingvarson (Ingvarson et al., 2005). **Interviews** Audio recording of interviews with teachers regarding: Perspectives on the impact of the project on	All teachers involved in the project Case study participants	RQ 1 RQ 1 and 4 RQ 1 and 2 RQ 3 RQ 2 RQ 3 RQ 5 RQ 1, 2, 3, 4 and 5

	their PCK, beliefs about teaching reading and factors that impacted on their engagement with the project. Any changes in their reading instruction practices since their involvement in the project		
Phase Four (following year)	**Interviews** Audio recording of interviews with teachers regarding: Perspectives on the impact of the project on their PCK, beliefs about teaching reading and factors that impacted on their engagement with the project. Any changes in their reading instruction practices since their involvement in the project **Classroom observations** Audio recordings *Literacy Practices Guide* checklist Observation of student work samples	Case study participants	RQ 1, 2, 3, 4 and 5 RQ 2, 3, and 4

Appendix D - The DeFord Theoretical Orientation to Reading Profile

Directions: Read the following statements, and circle one of the number responses that will indicate the relationship of the statement to your feelings about reading and reading instruction. *SA 1 2 3 4 5 SD* (select *one* best answer that reflects the strength of agreement or disagreement--SA is strong agreement, and SD is strong disagreement)

1. A child needs to be able to verbalize the rules of phonics in order to assure proficiency in processing new words.	SA 1 2 3 4 5 SD
2. An increase in reading errors is usually related to a decrease in comprehension.	SA 1 2 3 4 5 SD
3. Dividing words into syllables according to rules is a helpful instructional practice for reading new words.	SA 1 2 3 4 5 SD
4. Fluency and expression are necessary components of reading that indicate good comprehension.	SA 1 2 3 4 5 SD
5. Materials for early reading should be written in natural language without concern for short, simple words and sentences.	SA 1 2 3 4 5 SD
6. When children do not know a word, they should be instructed to sound out its parts.	SA 1 2 3 4 5 SD
7. It is a good practice to allow children to edit what is written into their own dialect when learning to read.	SA 1 2 3 4 5 SD
8. The use of a glossary or dictionary is necessary in determining the meaning and pronunciation of new words.	SA 1 2 3 4 5 SD
9. Reversals (e. g., saying "saw" for "was") are significant problems in the teaching of reading.	SA 1 2 3 4 5 SD
10. It is good practice to correct a child as soon as an oral reading mistake is made.	SA 1 2 3 4 5 SD
11. It is important for a word to be repeated a number of times after it has been introduced to insure that it will become a part of sight vocabulary.	SA 1 2 3 4 5 SD
12. Paying close attention to punctuation marks is necessary to understanding story content.	SA 1 2 3 4 5 SD
13. It is a sign of an ineffective reader when words and phrases are repeated.	SA 1 2 3 4 5 SD
14. Being able to label words according to grammatical function (nouns, etc.) is useful in proficient reading.	SA 1 2 3 4 5 SD
15. When coming to a word that's unknown, the reader should be encouraged to guess based upon meaning and go on.	SA 1 2 3 4 5 SD
16. Young readers need to be introduced to the root form of words (run, long) before they are asked to read inflected forms (running, longest).	SA 1 2 3 4 5 SD
17. It is not necessary for a child to know the letters of the alphabet in order to learn to read.	SA 1 2 3 4 5 SD
18. Flashcard drill with sight words is an unnecessary form of practice in reading instruction.	SA 1 2 3 4 5 SD
19. Ability to use accent patterns in multi-syllable words (pho to graph, pho tog ra phy, and pho to graph ic) should be developed as a part of reading instruction.	SA 1 2 3 4 5 SD

20. Controlling text through consistent spelling patterns (The fat cat ran back. The fat cat sat on a hat.) is a means by which children can best learn to read.	SA 1 2 3 4 5 SD
21. Formal instruction in reading is necessary to insure the adequate development of all skills used in reading.	SA 1 2 3 4 5 SD
22. Phonic analysis is the most important form of analysis used when meeting new words.	SA 1 2 3 4 5 SD
23. Children's initial encounters with print should focus on meaning, not upon exact graphic representation.	SA 1 2 3 4 5 SD
24. Word shapes (word configuration, b i g) should be taught in reading to aid in word recognition.	SA 1 2 3 4 5 SD
25. It is important to teach skills in relation to other skills.	SA 1 2 3 4 5 SD
26. If a child says "house" for the written word "home," the response should be left uncorrected.	SA 1 2 3 4 5 SD
27. It is not necessary to introduce new words before they appear in the reading text.	SA 1 2 3 4 5 SD
28. Some problems in reading are caused by readers dropping the inflectional endings from words (e.g., jumps, jump*ed*).	SA 1 2 3 4 5 SD

Scoring Directions

1. Identify items 5, 7, 15, 17, 18, 23, 26 and 27.

2. Score all other items 1, 2, 3, 4, 6, 8, 9, 10, 11, 12, 13, 14, 16, 19, 20, 21, 22, 24, 25 and 28 by giving the number of points corresponding to the number circled in each item, i.e., if a 4 is circled, give 4 points, etc. Do not score items 5, 7, 15, 17, 18, 23, 26 and 27 when doing this.

3. Now score items 5, 7, 15, 17, 18, 23, 26 and 27 by reversing the process. If a 1 is circled, give 5 points. If a 2 is circled, give 4 points, a 3 = 3 points, a 4 = 2 points, and a 5 = 1 point.

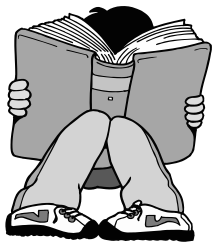
4. Add the total of the two scores for one total score and compare with the following scale.

- 0 - 65 points indicates a decoding perspective.
- 66 - 110 points indicates a skills perspective.
- 111 - 140 points indicates a whole language perspective.

Note: A score in the 85 - 120 range would probably indicate the ability to learn to use a balanced approach to reading instruction.

DeFord, D. E. (1985, Spring). TORP from Validating the construct of theoretical orientation in reading instruction (TORP). Reading Research Quarterly, 20(3), 351-367. Copyright 1985 by the International Reading Association. www.reading.org

Appendix E – Teaching Reading Self-Efficacy Survey



Your Personal Code: _____

Teaching Reading

There are no right, or wrong, answers and your spontaneous and honest responses are important for the success of the study. Your names will be removed once all the research data have been collated and you will not be identified individually to anyone outside of the research team or any other agency at any time without your permission. Your time and efforts are greatly appreciated.

1. **I know how to teach children to read.**

Strongly Disagree	Disagree	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5

2. **I can still teach reading even when there is a lack of support from home.**

Strongly Disagree	Disagree	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5

3. **I can teach students to read even if they are not interested in learning.**

Strongly Disagree	Disagree	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5

4. **If I try really hard I am able to successfully teach reading skills to even the most difficult students.**

Strongly Disagree	Disagree	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5

5. **I am confident enough in my own reading instruction that I can support colleagues who are experiencing difficulties in teaching reading.**

Strongly Disagree	Disagree	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5

6. **If a child isn't learning to read it is because I haven't taught them properly.**

Strongly Disagree	Disagree	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5

Appendix E – Survey of Language Construct Related to Literacy Acquisition

Your Personal Code _____

Please complete the following questions.

1. How would you rate your ability to teach phonemic awareness?
a. minimal b. moderate c. very good d. expert

2. How would you rate your ability to teach phonics?
a. minimal b. moderate c. very good d. expert

3. How would you rate your ability to teach fluency?
a. minimal b. moderate c. very good d. expert

4. How would you rate your ability to teach vocabulary?
a. minimal b. moderate c. very good d. expert

5. How would you rate your ability to teach comprehension?
a. minimal b. moderate c. very good d. expert

6. How would you rate your ability to teach children's literature?
a. minimal b. moderate c. very good d. expert

7. How would you rate your ability to teach literacy skills to English language learners (ELLs)?
a. minimal b. moderate c. very good d. expert

8. How would you rate your ability to teach using assessment to inform reading instruction?
a. minimal b. moderate c. very good d. expert

9. A phoneme refers to
a. a single letter b. a single speech sound c. a single unit of meaning d. a grapheme
e. no idea

10. If *tife* is a word, the letter "i" would probably sound like the "i" in:
a. if b. beautiful c. find d. ceiling e. sing f. no idea

11. A combination of two or three consonants pronounced so that each letter keeps its own identity is called:
a. silent consonant b. consonant digraph c. diphthong d. consonant blend
e. no idea

12. How many speech sounds are in the following words? For example, the word "cat" has 3 speech sounds 'k'-'a'-'t.' Speech sounds do not necessarily equal the number of letters.
a. box ____
b. grass ____
c. ship ____
d. moon ____
e. brush ____
f. knee ____
g. through ____

13. What type of task would the following be? “Say the word ‘cat.’ Now say the word without the /k/ sound.”
a. blending b. rhyming c. segmentation d. deletion e. no idea

14. A soft *c* is in the word:
a. Chicago b. cat c. chair d. city e. none of the above f. no idea

15. Identify the pair of words that begins with the same sound:
a. joke-goat b. chef-shoe c. quiet-giant d. chip-chemist e. no idea

(The next 2 items involve saying a word and then reversing the order of the sounds. For example, the word “back” would be “cab.”)

16. If you say the word, and then reverse the order of the sounds, *ice* would be:
a. easy b. sea c. size d. sigh e. no idea

17. If you say the word, and then reverse the order of the sounds, *enough* would be:
a. fun b. phone c. funny d. one e. no idea

18. All of the following nonsense words have a silent letter, except:
a. bamb b. wrin c. shipe d. knam e. phop f. no idea

19. For each of the words on the left, determine the number of syllables and the number of morphemes. (Please be sure to give both the number of syllables and the number of morphemes, even though it may be the same number.)

	# of syllables	# of morphemes
a. disassemble	____	____
b. heaven	____	____
c. observer	____	____
d. spinster	____	____
e. pedestal	____	____
f. frogs	____	____
g. teacher	____	____

20. Which of the following words has an example of a final stable syllable?
a. wave b. bacon c. paddle d. napkin e. none of the above f. no idea

21. Which of the following words has 2 closed syllables?
a. wave b. bacon c. paddle d. napkin e. none of the above f. no idea

22. Which of the following words contains an open syllable?
a. wave b. bacon c. paddle d. napkin e. none of the above f. no idea

23. Phonological awareness is:
a. the ability to use letter-sound correspondences to decode.
b. the understanding of how spoken language is broken down and manipulated.
c. a teaching method for decoding skills.

d. the same as phonics.
e. no idea

24. Phonemic awareness is:
a. the same as phonological awareness.
b. the understanding of how letters and sounds are put together to form words.
c. the ability to break down and manipulate the individual sounds in spoken language.
d. the ability to use sound-symbol correspondences to spell new words.
e. no idea

25. Morphemic analysis is:
a. an instructional approach that involves evaluation of meaning based on multiple senses
b. an understanding of the meaning of letters and their sounds
c. studying the structure, functions, and relations of meaningful linguistic units occurring in language
d. classifying and recording of individual speech sounds
e. no idea

26. Etymology is:
a. not really connected to the development of reading skills
b. the study of the history and development of the structures and meaning of words
c. the study of the causes of disabilities
d. the study of human groups through first-hand observation
e. no idea

27. Reading a text and answering questions based on explicit information found within the text describes:
a. inferential comprehension
b. literal comprehension
c. summarization
d. question generating
e. no idea

28. Questions that combine background knowledge and text information to create a response describes which of the following:
a. inferential comprehension
b. literal comprehension
c. morphemic analysis
d. reciprocal teaching
e. no idea

29. Moving beyond the text, questioning, and understanding the relationship that exists between the author and the reader describes:
a. inferential comprehension
b. reciprocal teaching
c. etymology
d. critical reading
e. no idea
30. Which of the following is a phonemic awareness activity?
a. having a student segment the sounds in the word cat orally
b. having a student spell the word cat aloud
c. having a student sound out the word cat

d. having a student recite all the words that they can think of that rhyme with cat
e. no idea
31. Which of the following is **not** a reciprocal teaching activity?
a. summarization
b. question-generating
c. using graphic organizers
d. clarifying
e. no idea

32. Which of the following is a semantic mapping activity?
a. concept of definition word web
b. hinks pinks
c. writing a brief definition of different terms
d. predicting
e. no idea

33. Instruction in summarizing will contribute to all of the following **except**:
a. readers more accurately identify main ideas
b. summarizing improves memory for what is read
c. ability to recall and answer questions improves
d. enhances student generation of inferential questions
e. no idea

34. What is the rule that governs the use of 'c' in the initial position for /k/?
a. 'c' is used for /k/ in the initial position before e, i, or y
b. the use of 'c' for /k/ in the initial position is random and must be memorized
c. 'c' is used for /k/ in the initial position before a, o, u, or any consonant
d. none of the above
e. no idea

35. What is the rule that governs the use of 'k' in the initial position for /k/?
a. 'k' is used for /k/ in the initial position before e, i, or y
b. the use of 'k' for /k/ in the initial position is random and must be memorized
c. 'k' is used for /k/ in the initial position before a, o, u, or any consonant
d. none of the above
e. no idea

36. Which answer **best** describes the reason for an *older* student's misspelling of the following words?
hav (for have) luv (for love)
a. the student spelled the word phonetically
b. the student has not been taught that English words do not end in v
c. the student is using invented spelling
d. the student must memorize the spellings of these irregular words
e. no idea

37. A morpheme refers to:
a. a single letter
b. a single speech sound
c. a single unit of meaning
d. a grapheme
e. no idea

38. What is the root in the word audience?
a. aud
b. ience
c. no root in the word audience
d. audible
e. no idea

39. For each of the words on the left, please list the prefix, root, and suffix. (You may use a dash to represent "none." If two fall under one category, please list both.) prefix root suffix
a. undetermined
b. uniform
c. under
d. unknowingly
e. conductor
f. disruption
g. immaterial

40. Question answering and question generation have been found in scientific research to improve all of the following skills **except**:
a. guide and monitor reading comprehension skills
b. instruction of specific word meanings with vocabulary practice
c. integrating and identifying main ideas through summarizing
d. some improvement in general reading comprehension on standardized comprehension tests
e. no idea

41. Story structure could best be taught using which of the following:
a. the use of questions and graphic organizers such as story maps
b. the focus should be on the characters in the story and less about the setting and things that happen in the story
c. repeated readings
d. simultaneous oral reading
e. relying specifically on a child's background knowledge

42. Comprehension monitoring would be considered similar to or the same as:
a. metacognitive awareness
b. examples and comparisons used to develop an understanding of an abstract idea
c. relating two or more sets of ideas
d. schema theory
e. no idea

43. Cooperative learning has been determined to be relevant in the area of instruction. This type of learning is described effectively in which of the following scenarios:
a. Students create individual travel posters to share with the classroom and "sell" them on the idea of travelling to their respective states and/or countries.
b. Each student generates vocabulary words as they look over their upcoming story for the following week and the teacher follows with a comprehensive list of their collection of words as a group.
c. Students are assigned to planet groups and generate reports and demonstrations about their particular planet.

d. I do not know how to effectively use cooperative learning.

Joshi, R. M., Binks, E., Hougen, M., Dahlgren, M.E., Ocker-Dean, E., & Smith, D.L. (2009)
Online Appendix for Article DOI: 10.1177/0022219409338736

Appendix G – Literacy Practices Guide (Konza, 2012a)

	LITERARY PRACTICES GUIDE YRS 2 - 4 Focus on securing letter/sound knowledge, word knowledge.	Not observed -	Some evidence √	Ample evidence √√
CLASSROOM	• Room design supports whole group, small group and individual instruction • Comfortable, well-organised informal reading area • Alphabet displayed • "Living" word walls • Word families displayed • Other words categorised (e.g. in themes) • High-interest fiction and non-fiction books available at variety of reading levels • Take home books • Books on tape • Evidence of community, family involvement, e.g. business or community partnerships, family reading nights, mentors			
	Comments			
STUDENT WORK	• Work responded to and dated • Reasonable student attempts at all tasks • Feedback is explicit, rather than simply "Good work" type comments." • Targeted feedback – page not covered in red • Correct model for incorrectly spelt words • • • •			
	Comments			
PROGRAM (LITERACY PLANNING DOCUMENT)	Planning for: • Explicit phonological awareness teaching where necessary, e.g. for particular individuals or groups • Explicit letter-sound teaching of • Explicit sight word teaching • Grouping of students • Use of technology to support literacy • • •			
	Comments			

	LITERARY PRACTICES GUIDE YRS 2-4 Focus on securing letter/sound knowledge, word knowledge.	Not observed -	Some evidence √	Ample evidence √√
READING INSTRUCTION OBSERVATION	• Purpose of lesson stated • Modelling of good oral reading practices (fluency, use of expression) • Whole class and targeted individual assistance • Clear Before, During and After reading strategies articulated • Explicit instruction of strategies to decipher multi-syllabic words, e.g. syllabifying; identifying known words parts • Use of graphic organisers, mind maps			
	Comments			
OTHER LEARNING AREA OBSERVATION Learning area:	• activating prior knowledge of content • Specific attention to content-specific vocabulary • Preview text layout of informational text • Whole class and targeted individual assistance • Use of graphic organisers • • • • •			
	Comments			
Assessment types used (e.g. teacher judgement, anecdotal notes, running records, portfolios, rubrics, alphabet checklists, phonological awareness assessments, standardised assessments, receptive vocabulary tests, oral language tests				

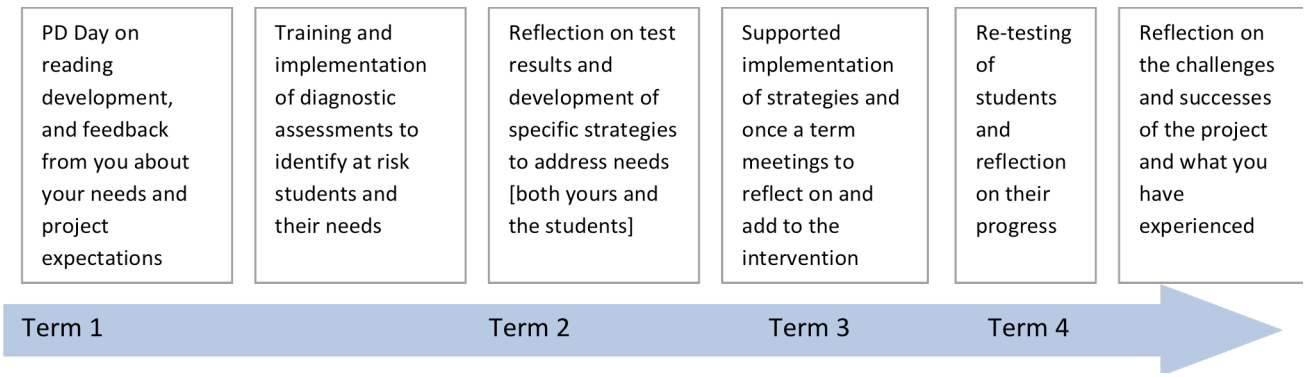
Appendix H - Original Project Overview

Aims:

By the end of the project, teachers will be able to;

- identify Year 2 students who are experiencing difficulty in the uptake of reading;
- develop and implement targeted intervention strategies, adding explicit teaching of early reading skills in the broader *First Steps* literacy approach
- monitor and measure the impact of the intervention.

Outline:



Project Activities

Timeline	Project Activity	Outcomes
Term 1,	Professional Learning and Project Planning Day	• Teachers will be provided with information about the project and given the opportunity to discuss their needs and expectations. • Teachers will learn about the key components of reading acquisition and effective learning and teaching strategies to facilitate this. • There will be the opportunity for teachers to network and build relationships with their colleagues from other schools within the cluster.
Term 1, Weeks 5 & 7	2 X 2 hour Check-in sessions with teachers, First Steps TTT and GIRL's	• Teachers, First Steps TTT and GIRL's will learn how to use the AIST, SPATR and *Educheck*.
Term 2, Week 3	2 hour Check-in Session	• Teachers will reflect on assessment data and begin planning
Term 2, Week 8	2 hour Check-in Session	• Teachers will discuss their progress • ECU will provide additional professional learning identified as required by teachers
Term 2, Weeks 4-11	Visit schools to meet with teachers who request individual school support to assist with analysis and interpretation of data results	• Teachers increase their understanding and interpretation of their data and the implications for planning an intervention for targeted students • ECU increases their understanding and awareness of each school's contexts and needs
Term 3, Week 2 & 3	Facilitate two whole cluster check in sessions presenting on key messages and explicit teaching strategies related to key issues from the data, including modelling of strategies and guided practice by teachers	• Teachers increase and consolidate their skills and understanding of what and how to explicitly teach reading to targeted students • Teachers can plan specific interventions for target students using strategies presented and learnt.
Term 3, Week 6	Present an expert session for First Steps Train the Trainers and GIRL's on how to synthesise testing data, theories underpinning the approach and how these teaching strategies fit into the broader First Steps framework.	• School literacy experts increase and consolidate their understanding of theories and frameworks for teaching reading strategies • Cluster builds their capacity on provide ongoing support to teachers on how to collect and review data, to inform the development and delivery of intervention plans using explicit teaching strategies.
Term 3, Week 10	Collaborative session sharing feedback on planning and implementation of intervention strategies. Facilitate sharing of ideas, successes and challenges between schools, and teachers can nominate specific topics to be addressed at the next session.	• Teachers build professional networks with colleagues from other schools and consolidate their skills and understanding of what and how to explicitly teach reading to targeted students • ECU collects information on teacher progress, needs and experiences in order to plan for final check in session.

Appendix I – Phonetic Alphabet Chart

Vowels

Symbol	Pronunciation	Example
i	as in 'peat'	pit
ʊ	as in 'put'	pʊt
ɪ	as in 'pit'	pɪt
u	as in 'pool'	pul
ɛ	as in 'pet'	pɛt
ɜ	as in 'pert'	pɜt
æ	as in 'pat'	pæt
ə	as in 'apart'	ə'pat
a	as in 'part'	pat
ɒ	as in 'pot'	pɒt
ʌ	as in 'putt'	pʌt
ɔ	as in 'port'	pɔt
æ̃	as in French 'vin'	væ̃
y	as in French 'rue'	ry
ɒ̃	as in 'bon voyage'	bɒ̃ vwaˈjaʒ

Diphthongs

Symbol	Pronunciation	Example
aɪ	as in 'buy'	baɪ
eɪ	as in 'bay'	beɪ
ɔɪ	as in 'boy'	bɔɪ
aʊ	as in 'how'	haʊ
oʊ	as in 'hoe'	hoʊ
ɪə	as in 'here'	hɪə
ɛə	as in 'hair'	hɛə
ʊə	as in 'tour'	tʊə

Consonants

Plosives

Symbol	Pronunciation	Example
p	as in 'pet'	pɛt
b	as in 'bet'	bɛt
t	as in 'tale'	teɪl
d	as in 'dale'	deɪl
k	as in 'came'	keɪm
g	as in 'game'	geɪm

Affricates

Symbol	Pronunciation	Example
tʃ	as in 'choke'	tʃoʊk
dʒ	as in 'joke'	dʒoʊk

Fricatives

Symbol	Pronunciation	Example
f	as in 'fine'	faɪn
v	as in 'vine'	vaɪn
θ	as in 'thin'	θɪn
ð	as in 'then'	ðɛn
s	as in 'seal'	sil
z	as in 'zeal'	zil
ʃ	as in 'show'	ʃoʊ
ʒ	as in 'measure'	'mɛʒə
h	as in 'heal'	hil
r	as in 'real'	ril

Nasals

Symbol	Pronunciation	Example
m	as in 'mail'	meɪl
n	as in 'nail'	neɪl
ŋ	as in 'sing'	sɪŋ

Semi-vowels

Symbol	Pronunciation	Example
j	as in 'you'	ju
w	as in 'woo'	wu

Laterals

Symbol	Pronunciation	Example
l	as in 'last'	last

Stress

Primary stress:

Symbol	Pronunciation	Example
ˈ	as in 'clatter'	ˈklætə

Secondary stress:

Symbol	Pronunciation	Example
ˌ	as in 'encyclopedia'	ɛnˌsɑɪkləˈpidiə

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