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Bridging the Gap Between Reading Theory and Innovating Teacher Practice

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Experienced teachers possess wide-ranging knowledge about how best to effectively teach vulnerable children to read. Reading research also provides extensive information on what constitutes best-practice instruction. This paper reports on an ARC research grant that aimed to bridge the gap between theory and practice involving researchers and teachers of Prep (Foundation) to Year 3 working together to develop a set of principles towards optimising reading instruction for all students, and particularly at-risk readers. Now freely available for use by interested parties, the principles document is intended as a resource for ongoing use and exploration by educators and researchers. This paper first discusses the vital need for and the challenges of optimising early literacy learning of at-risk Anglophone students; then details the collaborative research that established the set of principles. It includes discussion of the strengths and challenges of the research, ways forward for enhancing the use of the principles, and models of collaborative knowledge building into the future.

Keywords: *Education, Teachers, Reading, Early Literacy Learning*

Introduction

Reading is a key fundamental skill. To read well enacts sociocultural and cognitive dimensions for relatively effortless access to the words and worlds of diverse texts (Rennie, 2016). This skill enables enjoyable reading at length for pleasure, and efficient reading and actioning in school, official and work activities (Hempenstall, 2016; Manuel & Carter, 2015). Reading and writing overlap and interact vigorously as children actively construct meaning, using and building their own voice and worldviews as they appraise, and interact with those of others.

Whilst all children have many and diverse life experiences, many enter school with low language skills and have low literate cultural capital (Prochnow, Tunmer & Arrow, 2015). Such students

have fewer literacy experiences with favourite stories, books, shared discussions exploring characters, descriptions, alternative story lines, and the vagaries of print (Ehri, 2014).

Children at risk of reading and writing difficulties commonly need support in multiple areas. These include vocabulary and language skills; word-reading; and cognitive processing skills used in literacy such as verbal short-term and working memory, phonological awareness, executive function skills, metacognition and strategy use (Carlson, Jenkins, Li, & Brownell, 2013; Ehri, 2014). Whilst often needing considerable skill development and sufficient practice to enable automisation of skills, at-risk readers also need this learning to be motivating and engaging, supporting them to be active learners taking control of their learning (Dickinson, 2011). Language disadvantage at the start of reading instruction is also likely heightened in Australia and other Anglophone nations where children start school and formal word-reading instruction at much younger ages than most nations, thus they have had less time to build literacy experiences.

"Researchers may produce evidence to support the former [causal claims supported by experimental research results], but those on the practice side must figure out whether a program can work for them and, if so, what they need to put in place to get it to do so" (Joyce & Cartwright, 2020, p. 1046). In this paper, the authors will detail the collaborative development of principles of reading instruction substantiated on the perspectives of four research-based models of reading development, together with the findings from empirical studies as well as the utilization of teacher expertise to bring coherence to reported research findings for application in classroom practice (Hiebert & Morris, 2012; Knight & Galletly, 2020). The principles of instruction can be utilised to enhance the quality of instructional programs for all students by supporting teachers to teach skills not only to the lowest performers in their classrooms, but also challenging high-achieving students to be interpretive, critical and creative readers of complex text.

Reading Instruction

Formal reading instruction begins in the first school years, with children's reading and literacy development in those early years vitally important for future development. Many studies report that reading achievement in the early school years strongly predicts reading and literacy achievement in later school years (Christopher et al., 2015). Children who are keen readers achieve higher learning outcomes (Manuel & Carter, 2015; Program for International Student Assessment (PISA), 2002).

Initially, the cognitive load of transferring meaning using reading and writing in English is high, as working memory needs to be shared between meaning making and word decoding roles (Knight, Galletly, & Gargett, 2017a, 2017b; Luke & Freebody, 2000). Fortunately, as word decoding becomes increasingly proficient and more automatic, the need for working memory allocated to decoding words disappears. Skilled reading instruction in the early years is a careful strategic balancing of time building language skills, word reading, and integrating both in reading comprehension (Knight, Galletly, Morris & Gargett, 2018).

This teaching scenario creates multiple challenges including a greater student need for teacher support; an ongoing need to teach decoding whilst also building language and literacy skills; using texts with limited word-reading levels to encourage student independent reading practice; the need to carefully differentiate instruction, and matching texts and tasks to students' current word-reading and word-writing levels. A further teaching challenge for primary school teachers is the

need for skilled instruction in emotionally supportive learning environments across all subject areas dependent on mastering English reading and writing (McGuinness et al., 2014; Seligman, 2007).

Most Australian children have a successful start to reading and literacy, steadily building skills and confidence. They are strongly empowered by their early literacy progress and achievement. However, not all students are successful. For those students who do not progress satisfactorily, reading and literacy development can be disheartening as they struggle with year-level literacy and learning tasks (Manuel & Carter, 2015). This can lead to feelings of failure and acquired helplessness which can lead to increasing disengagement over time (Prochnow, Tunmer, & Chapman, 2013; Rennie, 2016). There is value then in prioritising successful reading development of at-risk readers across the early years of schooling to promote successful, confident, resilient students able to effectively use literacy and learning skills across schooling and life.

Many factors impact children's learning which create difficulties for research endeavouring to establish the impact of individual factors relating to reading instruction (Kennedy, 2010; Prochnow et al., 2013). These factors include individual student's strengths and weaknesses in language, literacy, and motivation; difficulties achieving uninterrupted learning time; balancing national curriculum and local curriculum requirements with an individual's learning needs; teacher: student ratios; teacher education, knowledge and expertise; the characteristics of and differences of reading instruction at individual teacher, class and school level; and year-by-year contrasts in instruction.

Optimising Reading Instruction

OECD data show that Australian children have more than 300 extra school hours every school year with Australian teachers having 200 more class contact hours than Finland and other high achieving, regular orthography nations (OECD, 2015). There is thus value in working to optimise classroom reading instruction for all students, and particularly at-risk and struggling readers, through exploring potential principles towards optimising instruction. Whilst teachers have always been aware of the complexity of successful literacy instruction, increasingly researchers are valuing and exploring the complexity of literacy instruction. As Freebody (2005, pp.176-177) explains:

> *When a teacher engages a pedagogy - brings an activity to life with a set of practices - that teacher is settling, however consciously or explicitly, on a particular compromise, one that goes at least some way to balancing a number of imperatives: managing the props and students' bodies and attention, 'delivering' the syllabus, allowing for self-expression, protecting all individuals physically and emotionally, catering to individual differences, monitoring learning and achievement, motivating students to learn, and all the rest. Effective teachers … appreciate that it is the movement back and forth between and among activities and practices that adds texture and portability to learning…and the recontextualising and reconfiguring that these movements offer students…. it is what teachers can do when the knowledge and repertoire are 'in their hands', and … the artfulness of the dynamics that really reveals their professional sophistication.'*

Whilst there are already many methods of instruction available, principles are needed which both reflect latest research knowledge, teacher expertise and which are relevant to local context. The

research described in this paper worked to establish a list of principles relevant to the Australian education context.

With many Australian children starting school with language weakness, teachers often struggle to supply the scaffolding and intervention at-risk readers need (Dickinson, 2011; Knight & Galletly, 2020). Increasingly, intervention and professional development research is emphasising teachers need to skilfully differentiate instruction, so it meets each child's instructional needs.

Collaborative research, where teachers and university researchers liaise to build knowledge has particularly strong potential for effective knowledge building in the study of complex processes such as reading development (Anwaruddin, 2015; Glasswell, Singh, & McNaughton, 2016; Knight et al., 2017b). Increasing numbers of research studies are focused on optimising models of professional development (Lynch, Madden, & Knight, 2014). Lynch et al (2014) discuss three key themes of effective professional development, namely the role of professional dialogue (discussing and reflecting on practice), collaboration (teachers working together in partnerships), and learning teaching content in context (learning new ideas and exploring them in classroom teaching).

The Bridging the Gap research study, discussed below, used these three themes. Focussed on bridging the gap between current teaching practice, expert teacher knowledge and research-based reports on reading instruction, the four-year research study used collaborative learning and exploration by regional Queensland teachers and researchers to develop principles of reading instruction likely to be useful for working to improve Australian classroom reading instruction for students in Foundation to Year 3 classes.

The Bridging the Gap Research Study

The Bridging the Gap research study focussed on building a cohesive knowledge base and derived principles of effective P-3 reading instruction for all students, and particularly at-risk readers in the regular classroom. The research aim was to generate principles to underpin effective, manageable and sustainable classroom practices.

The research emphasised both teacher knowledge, built from teaching experience and training, with what the empirical literature reports about reading instruction for students. Its key goal was to 'bridge the gap' between these knowledge bases, with researchers working with teachers to discuss and reflect on their professional judgments separate to and in conjunction with professional development enabling teachers to reflect on reading research.

Study Design

The study combines standard mixed method research components (surveys, focus group and individual interviews) with a range of techniques and procedures designed to facilitate collaborative research between academics and practicing teachers. The study employs the criteria set by Denzin & Lincoln (2006) for quality interpretive inquiry by foregrounding trustworthiness and authenticity. There was in-depth qualitative examination of the beliefs and practices of high-performing teachers by extended engagement, scheduled observation and active reflection utilising multiple cycles of progressive analysis on the proposed principles of effective classroom reading instruction.

The focus group interviews were analysed by content, with emerging categories established in order to identify and delineate the broad patterns that emerged within the large data set. Assertions and assumptions arising from the analyses were discussed with teachers and other relevant industry

personnel. Interview data were analysed using pattern matching and domain and taxonomic analysis.

In total, 393 teachers participated in the research. This consisted of 311 teachers who responded to the initial surveys on teacher perspectives of reading instruction, 60 expert teachers identified by school principals who participated in professional development activities and focus group discussions, 10 personnel nominated by the Government Education department who had deep expertise in literacy education and 12 teachers who implemented the principles in their classrooms. The study had three phases which were completed as follows.

Phase 1: Surveys and Discussion

Phase 1 of the research focused on gathering knowledge of teacher perspectives on reading instruction through surveys and preparing a discussion paper summarising teachers' perceptions and research-based knowledge about principles of reading instruction.

Surveys

The Phase 1 surveys were offered to all teachers of Prep to Year 3 in a region of Queensland. Four surveys were constructed and completed by 311 teachers. The anonymous surveys consisted of 130 items rated on a 5-point likert scale ranging from not important to essential. Issues covered included the importance of different skills such as oral language, phonics, phonemic awareness, comprehension and vocabulary; the difficulty teaching reading skills; types of student grouping used; characteristics of students; the role of instructional supports; differentiating classroom instruction; usefulness of curriculum resources; approaches to classroom instruction; proportion of students with delayed reading**;** perceptions of best practice reading instruction; and key issues for improving reading. Twelve short answer questions required teachers to, for example, list activities and strategies which interest and engage students with delayed reading; and listing instructional adjustments used to support students in the classroom.

Results of the surveys included the following:

- Most teachers in the region prioritise reading instruction, including teaching of reading comprehension (95%), word reading (80-95%), language skills for reading (92%), and reading of meaningful texts (93%).
- Most teachers prioritise explicit instruction of reading skills (80-92%) and value additional adult support for planning instruction (90%).
- Most teachers were receiving between 0 and 5 hours per week of teacher aide support, on average, for reading instruction.
- A majority of teachers (70%) felt at-risk readers were making reasonable progress, although reading instruction would improve if more in-class support was provided (90%).
- Many participants felt additional resourcing was needed towards making reading instruction more effective for at-risk readers, including additional teachers, teacher aides, speech language pathologists, educational psychology supports, and planning time (62-75%).
- Some teachers felt current resourcing and instruction was insufficient for meeting the needs of students showing significantly delayed reading skills (children with 6-12 months delay, 40%; 12-24 months delay, 62%).

The survey results were used as a guide to areas of need for Phase 2 knowledge building and incorporated in discussions across the study.

Research Discussion Paper

The discussion paper prepared from Phase 1 used an extensive review of the research literature as well as working collaboratively with a consultation group of 10 teachers with deep expertise in literacy education to identify relevant classroom issues.

The discussion paper had three sections including a section describing the research and definitions used in the study, a section explaining four models guiding principles of reading instruction, and a section listing four groups of instructional principles, namely general instructional principles and principles of instruction of reading comprehension (including independent reading), word reading (including fluency), and language skills for literacy (including language reasoning).

The four models

The four research-based models used across the study were tools for reflecting on reading development, difficulties and instruction:

- The Literacy Component Model (Knight, Galletly, & Gargett, 2019; see Figure 1), building on the Simple View of Reading (Gough & Tunmer, 1986).
- Orthographic Advantage Theory (Knight et al., 2019; see Figure 2)
- Cognitive Load Theory (Centre for Education Statistics and Evaluation [CESE], 2017; Paas, Van Gog, & Sweller, 2010); and
- Marzano and Pickering's (1997) Dimensions of Learning (DoL) framework (see Figure 3).

The four models were introduced in the research discussion paper, later used in Phase 2 professional development sessions, then accepted in Phase 3 for use in the final principles developed.

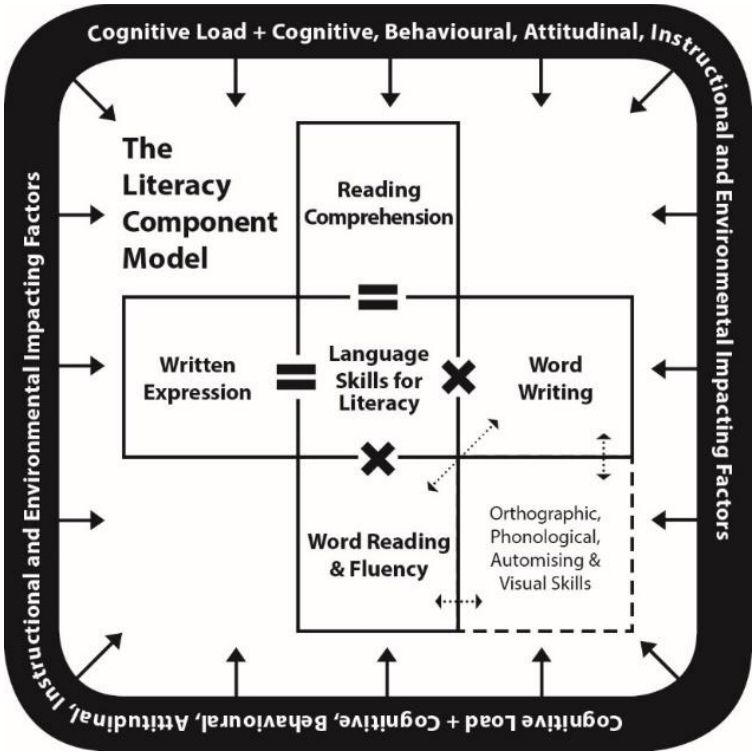

Figure 1. Literacy Component Model (Knight et al., 2019).

The Literacy Component Model (Knight et al., 2020) extends the Simple View of Reading (Reading Comprehension = Word Reading x Language Skills for Reading; Gough & Tunmer, 1986) to include writing, spelling, phonological and orthographic awareness, and impacting factors. It emphasises five key literacy components: reading comprehension, word reading, language skills for literacy, word writing, and written expression. For reading instruction, it emphasises three components, namely reading comprehension, language skills, and word reading. Teachers in the study reported that the Literacy Component Model was a powerful tool to use in establishing and mapping children's progress on reading components and making decisions about their instructional needs. *The Literacy Component Model* [Principle 10] *which shows common patterns of strengths and weaknesses found in children with reading difficulties is part of our School's Improvement Agenda* (Participant teacher, phase 3). Teachers engaged with this model, finding it extremely useful to use language tests and word-reading tests to consider their students' range of achievement along language and word reading dimensions, to create groups with similar instructional needs, and more precisely individualise instruction for each student (Carlson et al., 2013; Knight & Galletly, 2020).

Orthographic Advantage Theory (Knight et al., 2019) considers the impact of English's very high level of orthographic complexity (relative to other nations' orthographies), on Anglophone children's learning to read. It emphasises the very high cognitive load of learning to read and write words and complete literacy tasks involving word reading and writing. Orthographic Advantage Theory establishes managing high cognitive load successfully as being a key challenge of effective reading instruction for Anglophone at-risk readers. Teachers appreciated the logic of this model, it being easier to develop early literacy skills in regular-orthography nations; there being much more teaching, learning and cognitive load involved in Australian children's word-reading, spelling and early literacy development; and children with delayed reading skills and low confidence being at-risk of being overwhelmed by ongoing high cognitive task load and low success.

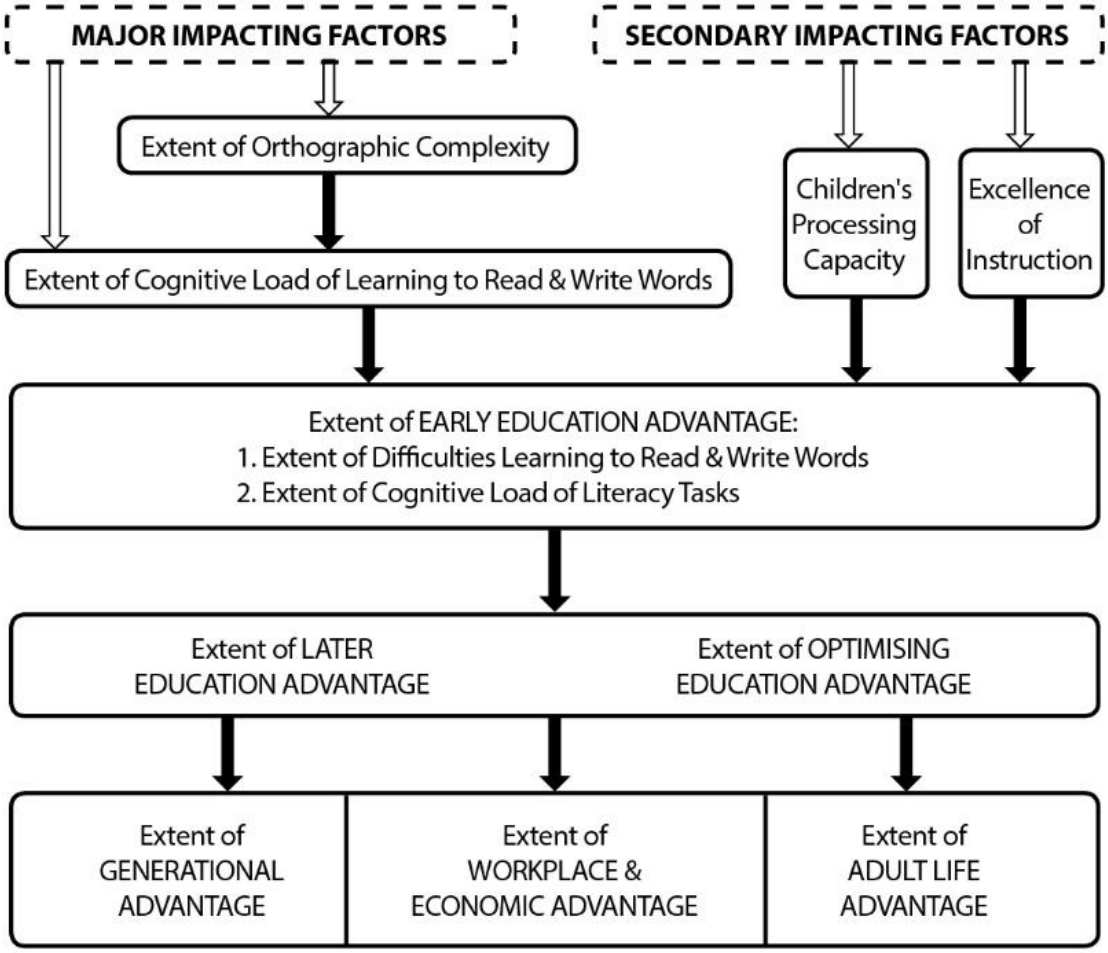

Figure 2. Orthographic Advantage Theory (Knight et al., 2017a, 2019).

Cognitive Load Theory (CESE, 2017; Paas et al., 2010) outlines the importance when teaching of ensuring that students' processing capacity is not overwhelmed during learning. It is emphasised that educators need to focus on effectively integrating the three cognitive-load aspects of teaching and learning, namely children's processing capacity (working memory), curriculum content load, and reading lesson task load (the complexity of learning tasks used for teaching the curriculum content). For effective learning by at-risk readers, for example, the combined cognitive load of curriculum content plus lesson task should not exceed children's processing capacity (Knight, Galletly, Morris & Gargett, 2018). Teachers embraced this model in the development of principles, leading to a strong focus on the very different instructional needs of high-achieving and lower-achieving readers. Confident high-achieving students, with stronger cognitive processing, executive function and metacognitive skills, coped well and indeed thrived with literacy learning that involved relatively high cognitive load. For at-risk and struggling readers however, managing cognitive load was pivotal if they were to be strongly engaged in literacy learning and make genuine strong progress (Knight et al., 2017a, 2017b; Knight & Galletly, 2020).

Marzano and Pickering's (1997) Dimensions of Learning framework was utilised for its power in supporting teachers to consider the five key aspects of successful as opposed to unsuccessful skill development in at-risk readers including:

- *DoL 1 Attitudes and Perceptions = Motivation and Engagement.*
- *DoL 2 Acquiring and Integrating Knowledge = Focussed Skill Development.*
- *DoL 3 Extending and Refining Knowledge = Scaffolded Generalising of Skills.*

- *DoL 4 Using Knowledge Meaningfully = Extensive Authentic Skill Usage.*
- *DoL 5 Habits of Mind = Empowering Metacognitive Thinking (at all levels of instruction).*

Teachers also engaged strongly with this model, seeing the Dol-2-to-4 progression as a key goal of effective teaching for all children, and modifying the extent of time spent in each dimension in the model to emphasise the differing instructional needs of high-achieving and slower-progress readers (See Figure 3).

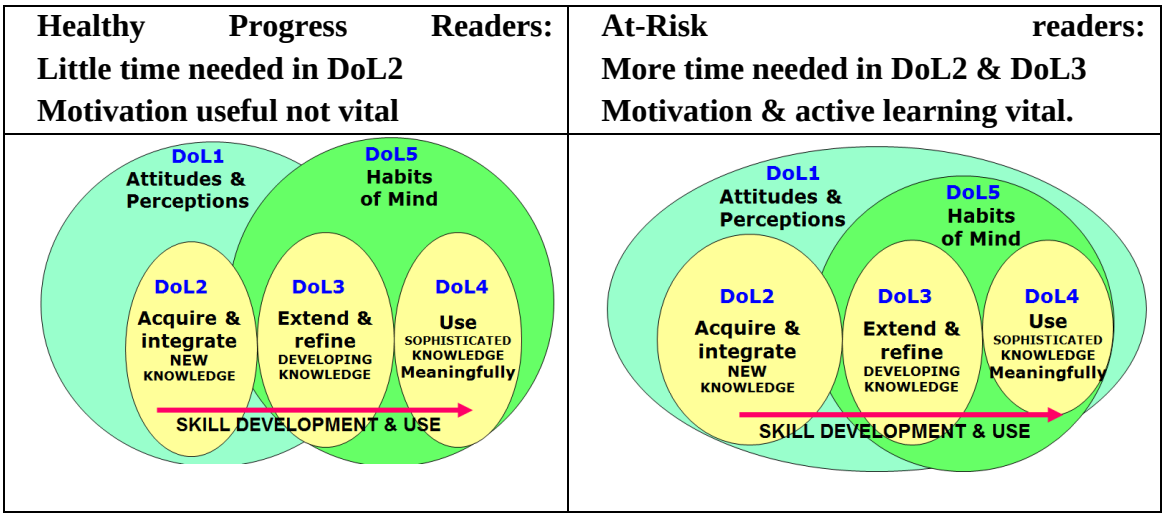

Figure 3. Marzano and Pickering's (1997) five Dimensions of Learning (DoL) model, modified to show the instructional needs of healthy-progress and low-progress readers (Knight et al., 2017b).

Challenges in the empirical literature

Major reviews (e.g., Bowers, 2020; Hattie, 2008; Marzano, 1998; Snow, Burns, & Griffin, 1998; Swanson, 1999) as well as hundreds of individual research papers report a myriad of research related to at-risk readers. There is, however, little empirical evidence about general principles of reading instruction that lead to effective reading outcomes for all students. As such, "teachers and researchers should consider alternative methods of reading instruction" (Bowers, 2020).
Considering the lack of rigorous research findings applicable to Australian classroom instruction contexts, the decision was made to nonetheless make a relatively exhaustive list of relevant instructional principles to be considered by the teachers in Phase 2. Many principles were derived from reading-research studies and reviews which list principles of reading instruction from individual research studies. Others were derived using logical reflection of reading instruction from the perspectives of the four research-based models listed above as well as the initial results reported in the surveys in terms of the salience to teachers of the use of teaching strategies.

Phase 2: Collaborative Knowledge Building

Phase 2 of the research focussed on multiple means of knowledge building. One means was knowledge dissemination of what the research base suggests are key issues and principles of effective instruction, and enabled teachers to reflect on these issues and principles during professional development days. The professional development and discussion groups involving 60 high-knowledge F-3 teachers considered current practices in relation to identifying successful instructional principles for effective differentiated reading instruction to occur in the real-world of the classroom.

The four professional development days, one per school term, focused on exploring reading research about effective principles of instruction, with separate days focused on reading comprehension, language skills for reading, word reading, and supporting children with significant reading difficulties. To ensure a strong focus on reading instruction for at-risk readers across the year, one requirement for teacher attendees was to commit to providing focused instruction for up to five at-risk and struggling readers from their class across the year. This involved assessing the students at the beginning and end of the year and reflecting on the instruction provided and progress made (Hamilton-Smith, Gargett & Webb, 2015).

A second means, key to the research aim of bridging the gap between teacher expertise and reading research knowledge, was gathering teachers' ideas and recommendations of principles towards optimising reading instruction, including their reflections on how well the reading-research principles presented in professional development matched with their understandings and experience. This was done through surveys, and discussion group meetings held once per term as a follow-up to each professional development day. The guiding questions relating to optimising progress for at-risk readers, reading comprehension, word reading, and language skills instruction were how well the principles fitted with teacher understandings; the gaps; any new ideas; which principles would have the most impact on students' literacy skills; and general comments.

For discussion group meetings, the term 'principles' was expanded to include skills, strategies, activities, resources and ideas that teachers found or considered useful for classroom reading instruction. Teacher reading, reflections and responding individually to the researchers was a further means of knowledge building. A further consultation group of 10 educational leaders with deep expertise in literacy education acting in an advisory role across the duration of the study, together with a focus group of twelve teachers worked to merge the research base and teacher generated principles, teacher feedback, submissions and contributions to create a draft principles document.

The surveys invited participants to list key issues regarding improving the teaching and learning of reading skills for all Prep-Yr3 students, including healthy progress through to those with severe (12-24months) delays. There was consistent feedback that significant factors in children's reading difficulties involved automising, maintaining and generalising skills. Other aspects included student inattentiveness, lack of motivation, anxiety, and learned helplessness. Participants suggested that alleviating difficulties included differentiated instruction, mastery skills, awareness of cognitive load of the task, rewarding success, instructional intensity, guided practice, instilling self-belief, and building confidence. These influences were included in the principles document.

Collaborative Learning Across Phase 2

Teachers and researchers indicated that they enjoyed the learning they did across the study. Teachers joined in vigorously in the learning and discussion of the four professional development days; and reported the resources, including word-reading, language, and cognitive processing tests were useful for working with their focus children to build reading and reading comprehension skills. They expressed satisfaction with the progress focus children in their classes made across the study.

There was also limited small scale evidence that student outcomes were starting to improve. For example, this research utilised a small study of 45 teachers working with 172 students (103 post-test) from the lowest quartile (based on NAPLAN results) in their regular classes. Results showed strong effect sizes for: knowledge of letter names (0.66); knowledge of sounds (0.82); sight vocabulary (0.88); and reading benchmarks (1.0) (Hamilton-Smith et al., 2015).

Researchers learned much from teachers' insights and comments. Some were about the study, for example test data being found useful or not for tailoring instruction so learning time. Others were observations about patterns teachers noted that seem useful ideas for future research, such as acquired helplessness seeming more common for word-reading weakness than language skills weakness; and phonological awareness being a linkage between reading and maths difficulties.

Phase 3: Exploring the Principles

Phase 3 of the Bridging the Gap research study focused on exploring the usefulness of the principles in practice. Data was gathered from 12 purposively selected class teachers (F-3) nominated by the employing authority based on assessments that indicated their students consistently met reading outcomes as measured by systemic and national reading assessments. The principles were implemented by the teachers to gauge their impact on meeting the instructional needs of all readers.

Each participant was requested to trial 5 Principles of Instruction, including 1 principle from Cluster 1 (Teaching Smart)**;** 1 principle from Cluster 2 (Teaching for the Reading Heart); and from Cluster 3, 1 principle for the teaching of reading comprehension, 1 principle for teaching of word reading and fluency and 1 principle for teaching of language skills for reading (see Figure 4).

Teachers' planning documents, teaching activities, feedback and student records were considered during this phase in the final year of the study. Semi-structured interviews, surveys and focus group discussions centred on linking instructional principles with specific aspects of teaching. Questions specifically addressed the issues of content (factors regarding skills taught and monitoring of learning progress); teaching and learning (issues such as progress, timing, grouping, resources, possible changes) and reflecting (thoughts on the principles, practical usefulness, and insights about teaching and learning).

The Principles

A key outcome of the research, and its intended major final product, was the document *Reading Instruction Towards Optimising Reading Instruction for At-Risk Readers in Prep to Year 3* (Knight et al., 2017b). What was generated based on the research reviewed and the application to classrooms was an integrated, informed, strategic approach to improving all students' early reading skills.

Format

The Principles document has four sections. The first section describes the research study and the actions contributing to the draft principles. Section 2 discusses the key factors for consideration when teaching at-risk readers. The third section discusses the draft principles, while the final section discusses using the principles into the future.

The document includes and builds from the four models used across the study discussed earlier. The framework generated for listing the principles uses three categories, loosely equating to the How, Who and What of teaching at-risk readers (see Figure 4):

- Teaching Smart (How): Teach strategically and carefully to achieve effective learning
- Teaching for the Reading Heart (Who): Teach to maximise children's ownership, engagement and motivation for reading.
- Teaching for the Reading Brain (What): Teach strategically to achieve effective reading development.

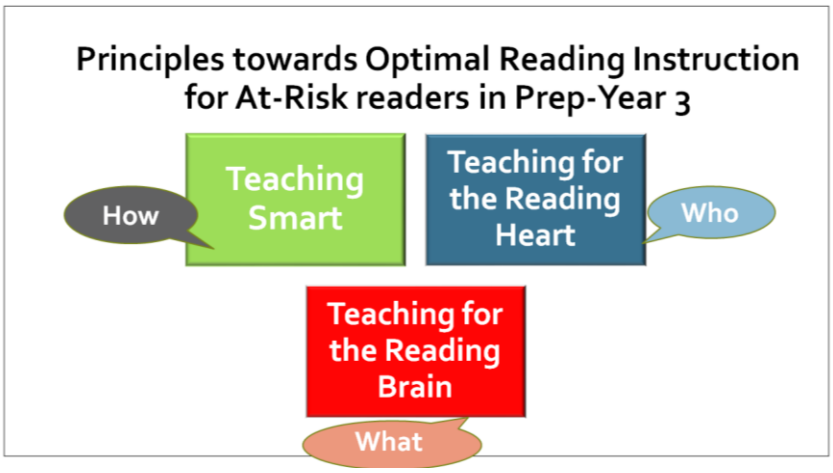

Figure 4. The framework principles (Knight et al., 2017b).

The briefest version of the instructional principles is the maxim "*give children what they need",* used to encapsulate effective differentiated reading instruction for all readers. It is identified as maximising teaching and learning time spent on subskills the student needs for effective progress; minimising learning time focussed on reading subskills making healthy progress; finding the learning time for the child's teaching and learning to be effective; and ensuring the road to reading is one of successful engaged learning.

Thirteen overarching principles are used, with these in themselves being titles for categories of principles (see Appendix A). The four overarching principles in Teaching for the Reading Brain (What), the largest section of the document, are linked using the Literacy Component Model. Each has a rationale and lists of key factors to consider, then detailing of principles and subprinciples, followed by examples towards teachers' use of the principles.

Principles impacting practice

Teachers trialling principles in Phase 3 were given full agency in selecting which principles to trial. Teachers provided feedback such that some changes were made at the school level, with for example the 'How' and 'Who' principles now used beyond literacy and incorporated into school practice generally.

> *"For me, the principles have already taken on a life of their own and are going to guide my teaching for years to come. I'm excited about all the different things I want to try and explore. Our school is keen to explore some of the principles systematically too, which should be really helpful"* (Teacher, phase 3).

Multiple schools are now using the Literacy Component Model and its five literacy components (reading comprehension, word reading, language skills for literacy, word writing, and written expression) as the framework for their school literacy programs. Further, many teachers and schools had integrated new principles and strategies into the SCORE reading comprehension strategy (Hamilton-Smith et al., 2010), which is used widely by schools in the region.

The participants asserted that the final principles were appropriate to all learners and could be applied in classrooms. Teachers acknowledged that further research would be valuable in establishing the rigour and usefulness of principles of reading instruction, with practicing teachers contributing as crucial partners in such research. Other topics for future research included exploring teacher and child workloads; and longitudinal monitoring of high-progress and low-progress readers in Anglophone and regular-orthography nations.

Optimisation of instruction

The principles agreed upon by teachers and researchers, while verified as useful principles for classroom instruction, are not principles validated and established as effective for use in Australian classroom contexts. It seems important that the principles are not merely laid aside as research now completed, soon becoming passé. That the principles have been found valuable is evident in wide positive feedback on the Principles document, and ongoing usage of the principles and models used in the study by schools and educators involved in the research.

A major challenge for the future of education is how best should knowledge on effective reading instruction be built in Australia. There is an unfortunate divide between the richness of the reading research base proliferating internationally and the inappropriate paucity of research findings directly applicable to Australian classroom contexts. To meet the challenges of effective research establishing validated principles of instruction, there is a need for practitioners to collaborate, be immersed in and own it.

Conclusion

On becoming a reader, independently able to explore texts, a person's world flourishes where new worlds of interest, excitement and entertainment are opened. Additionally, in today's world of educational measurement, each child's success is education's success, for national, state, school and class reading outcomes ultimately rest on the reading skills of each individual child.

Expert instruction accommodates each student's uniqueness and meets his or her specific instructional needs. Sometimes classroom instruction is discovery. Sometimes it is explicit, directly teaching concepts and skills. Sometimes it is organisational, setting up contexts and conditions which expedite children's self-teaching.

To improve reading outcomes, there is a need to optimise classroom reading instruction. Towards this end, the current study used the twin supports of teacher expertise and experience in teaching young at-risk and struggling readers, and available research knowledge suggesting best-practice instruction.

This research study was a productive time of collaborative knowledge building reflecting on what should and should not be included in a set of principles towards optimal reading instruction. The principles established are far from final, being both an offering and opportunities for diverse forms

of knowledge building into the future as Australian educators focus on optimising school and classroom reading instruction for all students.

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Appendix A

The overarching principles listed here are headings only, with detailed lists of subprinciples, strategies, learning activities, and examples also included in the final research document (Knight et al, 2017 b).

Cluster 1. Teaching Smart: Teach strategically and carefully, to achieve effective learning:

- Ensure Successful Engaged Learning: Ensure successful and engaged learning
- Know the Child as a Learner: Build deep knowledge of the child's strengths, weaknesses, interests and passions
- Apply Knowledge Fundamentals: Use robust knowledge of factors for effective progressing of at-risk readers:
    a) Learning needs: The Component Model, the three components of reading (reading comprehension, word reading, language skills for reading), three categories of weak readers and their learning needs
    b) Cognitive load: Impacts of the very high cognitive load of learning to read English
    c) Common learning breakdowns: Difficulties mastering, maintaining & generalising skills; learned helplessness
- Enact Timely Strategic Action:
    a) Timely efficient intervention: Identify delays quickly and respond effectively, monitoring progress
    b) Monitoring & Assessment: Assess and monitor development of reading-related skills including literate cultural capital, language skills for reading, word reading and reading comprehension
    c) Differentiation: Differentiate instruction to provide the instruction the child needs
- Consider Learning Time:
    a) Achieve high instructional intensity: Achieve high rates of skill learning and pract per minute of learning time
    b) Maximise reading opportunities: Ensure large amounts of time spent reading
    c) Find the learning time for skills development, without missing other important learning
    d) Integrate multiple aspects of literacy to maximise learning 'time'
    e) Be strategic with resourcing: Use resourcing strategically to ensure effective reading instruction
    f) Involve community: Build strong community involvement in the reading development of at-risk readers
- Deliver Effective Pedagogy:
    a) Use explicit instruction: Teach new skills and content using explicit instruction
    b) Strategically generalise skills: Use three stages of teaching and learning to generalise learned skills: focussed skill development, scaffolded generalising of skills, and extensive authentic skill usage
    c) Maximise metacognition: Build metacognition of reading strategies as part of teaching those reading strategies

d) Avoid learning breakdowns: Monitor learning over time to ensure skills are used effectively long-term and have generalised through to authentic reading

Cluster 2. Teaching for the Reading Heart: Teach to maximise children's ownership, engagement and motivation for reading

- Ensure motivation & engagement: Ensure strong positive motivation & engagement for reading
- Build child ownership of learning: Build children's active owning of their learning
- Foster enjoyment: Keep learning enjoyable and stress-free to maximise learning and avoid learned helplessness

Cluster 3. Teaching for the Reading Brain: Teach strategically and carefully, to achieve effective reading development

- Use the Literacy Component Model (Reading Comprehension = Word Reading x Language Skills for Reading): Use the model in assessing, considering children's needs and planning optimal reading instruction
- Strategically teach reading comprehension & build independent reading: Teach reading comprehension strategically and carefully, to achieve effective independent reading
- Strategically teach word reading & fluency: Teach word reading strategically and carefully, to achieve fluent effective text reading
- Foster language skills for reading: Teach language skills strategically and carefully to achieve effective sophisticated reasoning