



**CATHOLIC
EDUCATION
MELBOURNE**

TIER 2 LITERACY INTERVENTIONS IN AUSTRALIAN SCHOOLS

A REVIEW OF THE EVIDENCE
Version 2.0

Table of Contents

ACKNOWLEDGMENTS	3
INTRODUCTION	4
INTERVENTION SUMMARIES	10
ARROWSMITH PROGRAM	11
CATCH UP LITERACY	13
CORRECTIVE READING – DECODING	14
ERIK (ENHANCING READING INTERVENTION KNOWLEDGE).....	16
FAST FORWARD	18
GUIDED READING	20
LEVELLED LITERACY INTERVENTION.....	21
LITTLE LEARNERS LOVE LITERACY.....	23
MULTILIT: PRELIT.....	24
MULTILIT: MINILIT.....	25
MULTILIT: READING TUTOR	27
MULTILIT: MACQLIT PROGRAM	29
PHONOLOGICAL AWARENESS FOR LITERACY (PAL)	31
PERI (PHONOLOGICAL EARLY READING INTERVENTION).....	32
QUICKSMART.....	33
QUICK60	35
READING RECOVERY.....	37
READING OUR WAY.....	39
TOE BY TOE.....	40
WORDS THEIR WAY	41
SUMMARY OF FINDINGS	42
CONCLUSION	45
GLOSSARY	46
REFERENCES	47



Acknowledgments

This review was commissioned by Catholic Education Melbourne. The author, Kate de Bruin, would like to thank the Catholic Education Melbourne staff members who contributed to the review, and for their commitment to evidence-informed practice in literacy interventions. The author would also like to thank Professor Pamela Snow for her valued contribution to the shaping of this revised review.



INTRODUCTION

The purpose of this review is to summarise the empirical evidence for a range of literacy intervention practices and programs that are in use in schools in Australia. The review is designed to support schools and teachers in selecting interventions that are appropriate and that are evidence-based practices. It focuses on interventions that are currently in use as Tier 2 support, as classified under a *Response to Intervention* (RTI) multi-tier framework. The review evaluates the alignment of each intervention with effective instructional practices and summarises the existing research evaluating the outcomes of each intervention.

What does evidence-based practice mean?

In education, evidence-based practice refers to professional practices that are informed by evidence and data. In practical terms, this use of evidence and data has two components and includes the following:

- **Using instructional practices that have been demonstrated as effective through a sufficient quantity of high-quality research evidence**

An important way that schools can honour and respect the instructional time of teachers and students is by implementing practices that are the most efficient use of instructional time and effective for achieving the best outcomes for students. For a practice to be deemed 'evidence-based' there must be one or more systematic reviews demonstrating that a consistently significant benefit has been shown across multiple rigorously-designed peer-reviewed studies involving sufficient numbers of participants. These components are all important as they indicate that the research findings are trustworthy, that they are unlikely to be influenced by bias and that any beneficial impact can be confidently attributed to the practice or intervention under investigation. Educators can therefore be reasonably assured that when using these practices and interventions with fidelity, there will be valuable improvements in the targeted outcomes. Educators who are interested to find out whether particular practices are evidence-based can access such information through online resources such as:

- the Teaching and Learning Toolkit (Australia) <https://evidenceforlearning.org.au>
- the What Works Clearinghouse (United States) <https://ies.ed.gov/ncee/wwc/>.

However, not all practices and interventions have been systematically reviewed, making the task of decision-making for educators more difficult. This difficulty is compounded by the paywalls that hinder many teachers' access to peer-reviewed journals in which research evaluations of interventions are published. For this reason, Catholic Education Melbourne requested that a review of the available research evidence examining targeted literacy interventions used in Catholic schools be undertaken, leading to the development of the review presented within this document. Where prior systematic reviews of particular practices and interventions exist, the findings have been provided and summarised in this document. In the absence of systematic reviews on particular interventions, a summary of the available empirical evidence to date has been provided, along with a commentary on the consistency of the results, as well as any concerns regarding the rigour of the research design, sample size or potential sources of bias.



- **Using data from progress screening to identify students who are underachieving with regard to particular skills or knowledge, and to match them to the right intervention**

Another cornerstone of evidence-based practice in education is using data and evidence of student achievement to guide the selection and implementation of targeted support to students. This is achieved by universally screening all students to identify those performing below benchmarks. Conducting regular universal screening means that schools can identify student underachievement in key areas such as literacy, and ensure that the implementation of effective and efficient interventions is timely. Timely intervention to address students' underachievement in this way is vital to prevent the widening of achievement gaps that may lead to longer-term academic failure. It is very important that reliable universal screening tools are used to identify the particular area of need, in order to match the right intervention to the student and support progress in the specific area of underachievement. Information about screening and progress-monitoring tools may be accessed through a range of online sources such as:

- the RTI Action Network's overview of screening and assessment in RTI <http://www.rtinetwork.org/essential/assessment>
- Australian Council for Education Research's (ACER) evaluation of diagnostic literacy tools <https://bit.ly/2ZxvJLV>
- Spelfabet <https://www.spelfabet.com.au/phonics-resources/10-assessments/>
- the Center on Multi-tiered System of Support's 'Response to Intervention' pages on universal screening and progress monitoring <https://mtss4success.org/essential-components>.

The Response to Intervention framework

Response to Intervention (RTI) is a model of service delivery in schools that uses a needs-based approach to identify students who are struggling academically and allocate targeted supports to meet these needs accordingly. The model represents a clear departure from the historical method of allocating students access to academic supports and interventions on the basis of their disability classification and funding status. Schools employing an RTI framework use data from reliable assessments to conduct universal progress monitoring and identify students who are underachieving in a timely manner. This data is then used to provide students with access to evidence-based academic support along a continuum of increasingly intensive interventions on the basis of need. As such, it is strongly aligned with the two elements of evidence-based practice outlined above – the use of data to match students to the right support, and the use of effective evidence-based practices to target specific areas of underachievement.

The increase in the intensity of interventions within RTI is achieved by extending the duration and the frequency of intervention support sessions, as well as the length of time students participate in these intervention programs. Increasing intensity is also achieved by reducing the size of the group receiving the intervention from whole-class, to small groups, to individual students. Student progress is monitored using reliable and standardised measures to identify whether they are receiving sufficient high-quality instruction to support their progress and to enable them to return to a lower tier of support once their progress is satisfactory, or to increase the intensity of support if needed.



The RTI model contains three tiers of support:

- **Tier 1** refers to the core instructional practices that are provided to all students. These should be high-quality and effective practices supported by evidence. Where Tier 1 does involve effective practices, research has shown that these should be sufficient to meet the needs of approximately 80% of students to make good progress (Mellard, McKnight & Jordan 2010). These practices should prevent reading failure for as many students as possible and avoid their referral for additional intervention.
- **Tier 2** interventions are evidence-based practices that effectively target specific areas of student learning and should be offered to students whose screening data shows that they are *somewhat* below benchmarks. Tier 2 interventions should effectively complement and supplement Tier 1 core instruction to provide instruction that is sufficiently intensive and efficient to support learning progress and return students to Tier 1 support only. Tier 2 interventions should also operate preventatively, ensuring that achievement gaps do not widen any further (Wanzek, Al Otaiba & Gatlin 2016) and avoiding long-term and persistent academic failure (McIntosh & Goodman 2016). Research suggests that approximately 15% of students require this form of targeted Tier 2 support to complement and supplement Tier 1 approaches and target specific areas of underachievement (Mellard, McKnight & Jordan 2010).
- **Tier 3** interventions are highly intensive and individualised interventions that are provided to students who are performing *far* below benchmarks and for whom Tier 2 supports have been insufficient to support satisfactory progress. The highly intensive nature of Tier 3 interventions means that these involve more time and sessions per week and are typically delivered in one-to-one contexts, making them resource-intensive. Research suggests that these are required by only a very small number of students, approximately 5% of the school population (Mellard, McKnight & Jordan 2010).

The above percentages of students needing Tier 2 and Tier 3 supports vary in schools where there are higher numbers of disadvantaged students (Abbott & Wills 2012), or when Tier 1 teaching is less than optimal (Chard 2012). The success of RTI depends on a strong foundation at Tier 1, providing effective and evidence-based core literacy instruction to all students (Chard 2012). The importance of this cannot be overstated. If high-quality Tier 1 instruction is not in place, then too many students end up requiring interventions at Tiers 2 and 3 as a consequence. Tiers 2 and 3 are not intended to compensate for an absence of consistent or quality teaching at Tier 1, but rather to address gaps in student achievement by intensifying students' access to quality teaching and support.

Key components of literacy instruction and intervention at Tier 2

This review focuses on the evidence base for Tier 2 literacy interventions. Australia has not widely adopted the three-tier support model of RTI in literacy, with Australian students more likely to either receive whole-class literacy instruction (comparable to Tier 1) or intensive one-to-one literacy instruction (comparable to Tier 3) with a clear gap of Tier 2 service delivery in between (Buckingham, Beaman-Wheldall & Wheldall 2014). The intervention review presented here represents a key opportunity to fill in the gap between these tiers by providing an overview of the effectiveness of Tier 2 programs for supporting students with moderate reading disabilities and difficulties, reserving Tier 3 interventions only for those needing support that is more intensive. Although Tier 2 interventions are typically group-based programs, a small number of one-to-one interventions have been included for evaluation as they are designed or used to provide short-term support for students *somewhat* below reading benchmarks, rather than sustained support for students assessed as *far* below year-level benchmarks.

Tier 2 interventions are usually offered to small groups of students or individuals for 20 to 40 minutes, two to four times per week and run for a minimum of five weeks. Data on student achievement should be collected regularly, using valid and reliable tools to identify the most appropriate intervention that meets students' specific needs, as well as to monitor the impact of the intervention on their progress.



Interventions should target students' identified needs regarding the specific skill components in which students have been identified as achieving below benchmarks.

These skill components are often known as the 'five keys' to reading, or the 'big five', and include:

- phonemic awareness
- phonics
- fluency
- vocabulary
- text comprehension.

They have consistently been identified as the core elements of effective reading instruction by several large-scale reviews of the academic evidence on literacy (Armbruster et al. 2003; Hempenstall 2016; Meiers et al. 2013; Rowe 2005).

Mastery of the big five is essential in order for students to become skilled readers. Some components, such as phonemic awareness and phonic decoding, are considered foundational to the development of the other components, such as fluency and comprehension (Castles, Rastle & Nation 2018). This aligns with the 'simple view of reading', namely that reading comprehension is made up of the ability to decode written words and the ability to comprehend written language (Gough & Tunmer 1986). This model proposes there is a developmental progression from pre-reading to skilled reading in which some students may require targeted intervention in pivotal skills (Castles, Rastle & Nation 2018; Tunmer & Hoover 2019). It is therefore very important that interventions are matched to specific areas of student underachievement. Schools and teachers should use reliable assessments to identify the specific areas of literacy in which students are underachieving, and use this data to select the most appropriate Tier 2 literacy intervention and monitor their progress. This will ensure that pivotal basic skills, such as decoding, are acquired to support subsequent skill development, such as fluency, and lead to the desired outcome of producing skilled readers. It also ensures that resources and support are not wasted and that interventions are targeted correctly to achieve the desired outcome.

To support schools in making these appropriate selections, the summary provided for each intervention reviewed within this document indicates which of the big five components of literacy is the *intended focus* of an intervention. The summary also outlines what research has found regarding *observed outcomes* from interventions for students in terms of improvements in their literacy skills. That is, a summary is provided explaining whether the outcome of the intervention was aligned with the claims made about its use. A summary is also provided regarding the strength and consistency of that evidence in order to indicate how much confidence schools can have that these outcomes are likely for their own students.

Instructional methods for teaching literacy

In addition to summarising the existing evidence for a range of Tier 2 literacy interventions, this review includes a discussion of the *instructional methods* used within each intervention, and whether these align with the evidence about the most effective practices for teaching students in literacy. This information is included in order to enable schools to identify not only whether there was sufficient evidence regarding any outcomes of the intervention, but also whether the methods used to teach students were aligned with those supported by research evidence for the effective teaching of literacy. This information is particularly important in light of the absence of (quality) research evaluations of particular interventions, as it permits further consideration of the value of using these interventions in place of others.



Instructional practices that are aligned with the evidence on literacy skills acquisition

A number of systematic reviews have found that explicit or direct instruction are evidence-based practices for teaching literacy skills, particularly (but not exclusively) for the foundational code-based skills of phonemic awareness and phonics (Armbruster et al. 2003; Hattie 2009; National Institute of Child Health and Human Development 2000; Rose 2006; Rowe 2005). When teachers use explicit or direct instruction for teaching a specific skill, it means that they teach in a highly-structured and carefully-sequenced manner that incorporates:

- presenting lessons that are systematically sequenced to present new information by building from simple to more complex concepts
- highlighting important details of the concept or skill
- teaching complex skills in manageable pieces
- providing scaffolds for more difficult tasks
- giving precise instructions
- modelling concepts or procedures
- providing opportunities to practice (including both guided and independent practice)
- providing feedback
- re-teaching and clarifying where needed
- regular reviewing of material (Hempenstall 2016; Rosenshine 2010).

Explicit instruction in literacy teaching is consistent with the simple view of reading, namely that effective word reading (decoding) skills are vital foundational skills that must be taught to students who require expertise in these in order to become skilled readers. Research shows that explicit or direct instruction methods are highly efficient and effective for teaching the big five reading skills, making clear that these are important to implement for all students at Tier 1, and particularly vital for use in Tier 2 interventions with students at risk of reading failure (Torgesen 2002). For this reason, a note has been made within the intervention summaries regarding their alignment with these evidence-based practices.

Instructional practices that are not aligned with the evidence on literacy skills acquisition

Several interventions that were examined within this review used instructional methods that are not aligned with the evidence about effective practices for teaching literacy skills. These fell within two groups.

The first group shared an approach in which students' literacy instruction was provided in an implicit and incidental manner through exposure to books and reading – and many of these included teaching the memorisation of whole 'sight words', such as high-frequency words. These strategies are not supported by empirical research which suggests that they are inefficient and ineffective. For example, evidence suggests that exposure to books is not sufficient to increase reading competence (Hattie 2009). While it is beneficial for all children to enjoy well-read stories and to have positive experiences with print materials in ways that provide pleasurable experiences for them and motivate them to engage further with reading, research is clear that exposure to print with implicit instruction is a considerably less effective means of teaching students how to read than explicit instruction (Hattie 2009). Additionally, this group of interventions tended not to provide clear and deliberate instruction in using code-based strategies, but rather used minimally guided and incidental instruction that taught students to use contextual clues for identifying unfamiliar words. This aligns with the multi-cueing model of reading in which students are taught to rely on contextual 'cues' to identify unfamiliar words, such as:

- semantic cues (drawing on prior knowledge of the story, e.g. 'Does it make sense?')
- syntactic cues (drawing on prior knowledge of grammar and logic, e.g. 'Does that sound right?')



- graphophonic cues (drawing on sound-letter conventions, e.g. ‘What is the first letter?’) (Hempenstall 2003).

Research on the most effective means of teaching reading has found that incidental and implicit instruction is less efficient than explicit instruction because it takes much longer and requires more practice, as well as making more demands on students’ working memory (Hempenstall 2016). Systematic reviews show that explicit instruction in code-based word recognition skills achieves superior results when compared to instructional methods that emphasise context and meaning, with the latter having a negligible impact on word recognition or on comprehension (Hattie 2009).

The second group shared an approach to addressing reading underachievement in students that might be termed ‘brain training’. The brain-training interventions examined for this review drew on a shared concept based in neuroplasticity. The instructional model adopted by neuroplasticity interventions is grounded in the assumption that reading difficulties are underpinned by neurological deficits that can be overcome through targeted training which produces changes in the brain structure, such as growing new neural connections. In brain-based training programs, particular cognitive tasks are provided, typically through computer-based and online platforms, which are repeated over a period of time with the goal of creating these structural changes in the brain.

The producers of these brain-training interventions propose that these structural changes result in the transfer of improvements in performance to other cognitive tasks, such as reading. However, neuroplasticity research lacks consistent or compelling evidence of such a transfer of cognitive skills and the majority of claims made about the programs are not supported (Rossignoli-Palomeque, Perez-Hernandez & González-Marqués 2018). Furthermore, there is no established link between growing new dendrites and any change in learning disability deficits, nor is there any evidence that growing new dendrites produces gains in literacy skills (Alferink & Farmer-Dougan 2010). Thus the claims that neuroplasticity-based training can treat the underlying causes of reading disabilities are not supported by robust evidence of their effectiveness and therefore this instructional approach is not considered to be evidence-based.

The summary for each intervention examined within this review includes a discussion of whether the teaching methods used are aligned with evidence-based literacy instruction and draws on the information above.



INTERVENTION SUMMARIES

This section presents information on each of the 20 interventions that have been reviewed. The intervention programs were selected for review if they met one or more of the following conditions:

- they were identified as ‘promising’ or ‘effective’ by the What Works Clearinghouse (WWC), UK National Foundation for Educational Research (NFER), Australian Council for Educational Research (ACER), or the Evidence for Learning organisation
- they are in use in Australian schools
- they were requested by Catholic Education Melbourne.

For each identified intervention, a search of academic and ‘grey’ (unpublished) primary research studies literature was conducted, as well as an examination of existing high-quality secondary research syntheses that had already been produced by academic researchers or by organisations such as the WWC, NFER, ACER, or the Evidence for Learning organisation. Where these existing secondary research syntheses existed, their findings have been reported here. In the absence of any high-quality secondary syntheses from these organisations, a research synthesis was completed by the author. The quality of the primary research studies was considered by using the following principles outlined by the Department for International Development (2014):

- *conceptual framing* (whether is it aligned with established theories about learning and literacy)
- *transparency* (whether the methods, design and data were clearly and transparently reported)
- *appropriateness* (whether the research design was appropriate for confidently determining whether any change in students’ literacy outcomes could be attributed to the intervention)
- *reliability and validity* (whether the measures used were reliable and consistent, and whether they actually measured the outcomes they intended to measure).

Where primary research was deemed to be of sufficient quality, the findings were summarised and the body of evidence was synthesised across all included studies.

A separate summary has been provided for each intervention in this review. The summaries for each intervention include the following elements:

- i. an intervention description derived from the publishers’ information provided
- ii. a description of the target students for the intervention, as identified by the program publishers
- iii. an overview of the intervention’s alignment with any of the five elements of quality literacy instruction
- iv. a review of the evidence base that considers the strength of the evidence through considerations such as:
 - a. whether it was peer-reviewed research
 - b. whether the research was commissioned and by whom
 - c. the quality of the research design
 - d. whether repeated findings of benefit were shown
- v. a summary of the evidence base for using the intervention at Tier 2 is reported for each intervention with reference to the intended outcomes for improving students’ specific literacy skills, indicating whether the evidence base is large, moderate, small or insufficient.



ARROWSMITH PROGRAM

Program description

Arrowsmith is an organisation that offers an program which is described as being for use with students with an average IQ and who have specific learning disabilities (such as dyslexia and dyscalculia), as well as other difficulties such as those associated with attention, organisation and reasoning. The program includes a suite of offerings that can be run full-time (four periods per day, five days per week) or part-time (four to six hours per week) and is intended to run over several years. The program is implemented through computer-based exercises, auditory exercises and pen-and-paper exercises. Lessons include auditory, sequencing, articulation and reasoning tasks. Additional assessments are provided by the organisation on an annual basis to report on student progress.

Students' engagement in the interventions are typically run over three or more years by teachers trained by Arrowsmith, making this program inconsistent with the features of a Tier 2 intervention that is typically run three to five days per week for eight to 10 weeks (Hosp et al. 2016). This program has been included for review at the request of Catholic Education Melbourne.

Alignment with effective literacy instruction

The theoretical basis that the Arrowsmith program developers draw on when claiming their approach is effective for addressing learning disabilities, is neuroplasticity (Arrowsmith Program 2017a) – the stimulation of new structures and connections in the brain (see *Introduction*). The program developers propose that their cognitive exercises can grow new dendrites (nerve branches) in the parts of the brain needed to overcome learning disabilities and change students' capacity to learn. They argue that the computer exercises produce these structural changes and therefore increase brain function in targeted areas which they propose addresses the underlying cause of any learning deficits (Arrowsmith-Young 2013).

The Arrowsmith program does not explicitly or systematically teach any of the five key literacy skills.

Implementation in Australia

According to the Arrowsmith organisation, the program operates in 20 schools in Australia, mostly private schools, with a smaller number of Catholic schools and one government school.

Research evidence

In spite of its more than 30-year history, there are no high-quality (peer-reviewed) evaluations that are available for review relating to the Arrowsmith program. The Arrowsmith organisation lists seven case studies and small-group evaluations in its research summary (Arrowsmith Program 2017b) that relate to literacy outcomes. One evaluation refers to a two-year school trial based in the Sydney Catholic school system with 20 students. However, no evaluation methods or data are provided to substantiate the claims made for its success. None of the case studies or small-group evaluations relating to literacy outcomes reported in their research summary meet the minimum standards for research design. One small-scale evaluation of the program was initiated for the Vancouver School Board in Canada which was discontinued after the students showed little progress, with some demonstrating negative effects in the first eight months (Siegel 2012).



Summary

- The Arrowsmith program is not aligned with the five core components of literacy instruction, nor is it aligned with evidence-based instructional methods.
- The current evidence base for the Arrowsmith program is weak and does not support its use as a literacy intervention.



CATCH UP LITERACY

Program description

The Catch Up Literacy intervention program is designed for students who are reading significantly below their expected year level. It is not intended for beginning readers, but rather those aged 6–14 years. It is described as including a focus on blending phonemes (combining letter sounds into words), segmenting phonemes (separating words into letter sounds) and memorising whole words. The program consists of 15-minute sessions in which students engage with appropriate reading material matched to them from their own or the schools' collections. Sessions can be run by learning support officers (LSOs) and involve:

- three minutes of prepared reading
- six minutes of the student reading out loud
- discussions of the text between the student and the LSO
- six minutes of linked writing.

The program resources include ongoing monitoring and assessment resources and is designed to evaluate student progress through standardised assessments. The program is designed to run over approximately seven months.

Alignment with effective literacy instruction

Catch Up Literacy sessions address some of the key elements of literacy such as phonics, fluency and text comprehension. However, these are not taught systematically, but rather use incidental teaching and multi-cueing (National Council for Special Education 2014).

Implementation in Australia

Catch Up Literacy is in use in a number of Australian schools.

Research evidence

Two large-scale evaluations have been conducted to evaluate Catch Up Literacy. One was conducted independently by the National Foundation for Educational Research (Rutt, Kettlewell & Bernardinelli 2015) in a high-quality evaluation involving over 500 students in 15 schools. This evaluation found that while students' reading confidence and attitude to school improved, there was no significant gain in literacy attainment. An additional evaluation (Holmes et al. 2012) used a less robust design and drew on data reported by schools and included 3134 students. These authors reported significant gains in students' word-reading accuracy.

Summary

- Catch Up Literacy shows modest alignment with the core components of literacy instruction (phonics and comprehension) however these are not taught using evidence-based instructional methods.
- The current evidence base is moderate but conflicting regarding the use of Catch Up Literacy as a Tier 2 literacy intervention to improve word recognition.



CORRECTIVE READING – DECODING

Program description

Corrective Reading is a literacy intervention program designed to promote the reading accuracy (decoding), fluency and comprehension skills of students in Year 3 or higher, who are reading below their year level. Target students are those who read without accuracy or fluency, or who misidentify or omit words. The program has four levels that are designed address students' decoding skills and six levels that address students' comprehension skills. This review focuses on the decoding strand of the Corrective Reading program. It operates on a direct instruction model, using lessons that are sequenced and scripted. Corrective Reading can be implemented in small groups of four to five students or in a whole-class format for students in primary and secondary school. The program is intended to be taught in 45-minute lessons, four to five times a week. It is a direct instruction program run by teachers trained specifically in the Corrective Reading program implementation. The lessons are tightly scripted and both teacher and student resource books are included in the kits which are available from <https://www.mheducation.com.au/schools/direct-instruction/decoding-and-comprehension/corrective-reading-decoding>.

Alignment with effective literacy instruction

Corrective Reading – Decoding is described by the publishers as addressing phonemic awareness, phonics skills, comprehension and fluency. It uses the effective teaching methods of explicit and systematic skills instruction.

Implementation in Australia

Corrective Reading is used in many schools in Australia.

Research evidence

A number of evaluations of Corrective Reading have been conducted and most of these have focused on the decoding program.

The What Works Clearinghouse (WWC) reviewed the evidence for Corrective Reading produced by evaluations using high-quality research designs. One WWC review was on the impact on beginning readers in Years 1 to 3 (WWC 2007). In this evaluation, the WWC found potentially positive effects in the alphabetic decoding and fluency domains for young readers. The WWC also reviewed Corrective Reading for older learners in Years 4 to 12 (WWC 2010a) but found no discernible effects on alphabetic decoding, reading fluency, or comprehension for adolescent learners.

There are a very large number of studies using weaker research designs and these have typically reported positive findings for literacy attainment in terms of gains in fluency, accuracy and comprehension. These findings covered students in primary, middle and high school, and included students with and without disabilities (Marchand-Martella, Martella & Przychodzin-Havis 2005). Because of the small sample sizes and weaknesses in design in each of these studies, some caution should be exercised in interpreting them. However the large number of studies, and the consistency of their positive findings, lends support for the program.



Of particular relevance to this review is an Australian study of Corrective Reading conducted in Melbourne Catholic and government primary schools (Hempenstall 2008) using a less robust design, but a moderately large number of students. Based on the results for 206 middle- to upper-primary school students with reading disabilities, this study concluded that there were statistically significant, and educationally important, gains in students' phonemic awareness and word attack skills.

Summary

- Corrective Reading shows strong alignment with the five core components of literacy (phonemic awareness, phonics, comprehension, vocabulary and fluency) and uses evidence-based instructional methods.
- A moderately large, but mixed-quality, body of research evidence exists supporting the use of Corrective Reading as a Tier 2 literacy intervention to improve students' fluency and alphabetic decoding skills in primary and secondary school students, with stronger evidence for primary school students.



ERIK (ENHANCING READING INTERVENTION KNOWLEDGE)

Program description

Early Reading Intervention Knowledge (ERIK) is a literacy intervention designed for use with primary school students in Years 1 to 5. It contains three pathways and students are placed in one of these depending on the assessment of their needs identified through the Neale Analysis of Reading Ability (Neale 1999) and York Assessment of Reading for Comprehension (Snowling, Stothard & Clarke 2010) as follows:

- a phonological pathway is assigned to students who need to develop these skills, e.g. identifying and manipulating units of oral language such as words and syllables. Each session teaches specific phonological and phonemic skills
- an orthographic pathway is assigned to students needing to develop skills in understanding the relationship between sounds in speech and the letters that represent those sounds (also known as phonological thinking). Each session teaches word-reading skills and their use in reading and writing activities
- an oral language pathway is assigned to students needing to develop oral language knowledge and skills relevant to text comprehension. Each session teaches a comprehension strategy, first in oral language contexts and then applied to reading.

Each intervention pathway consists of up to 60 lessons and is taught in sessions of 30 to 45 minutes, three to five days a week.

Professional learning is recommended for teachers to implement ERIK. Please contact Hanya Senjov for further details hsenjov@cem.edu.au.

Alignment with effective literacy instruction

ERIK is described by the program developer as addressing text comprehension, phonemic awareness and phonics, comprising several of the five key elements of literacy. It also incorporates an oral language focus which is recognised as foundational to the development of decoding skills and comprehension. It uses explicit and systematic skills instruction.

Implementation in Australia

ERIK is run in many primary schools in the Catholic education system.

Research evidence

The ERIK program arose from research that was jointly conducted between the Catholic Education Office and the University of Melbourne.

There have been several evaluations of ERIK using data from Catholic school students in Melbourne (McCusker, Connell & Dalheim 2009; Munro 2015; Munro 2006). Each reported strong and positive outcomes for many students involved in the phonological awareness and orthographic processing pathways, with benefits for improved reading accuracy and comprehension but not for fluency.



While these findings are positive, all of the studies used research designs that contain some weaknesses and were conducted by the organisations involved in its development. For this reason, the findings must be treated with some caution as they have not been replicated by other research teams or in more robust evaluations. One evaluation has been published in a peer-reviewed study (Munro 2017) in which strong effects were reported for students' reading accuracy and comprehension, however this was also authored by the program designer. There have been no independent evaluations of ERIK.

Summary

- ERIK shows strong alignment with several of the five core components of literacy (comprehension, phonemic awareness and phonics) and uses evidence-based instructional methods.
- A small and low-quality body of research evidence exists regarding the use of ERIK as a Tier 2 literacy intervention to improve reading accuracy and comprehension in primary school students.



FAST FORWARD

Program description

Fast ForWord is a program that is described by the publishers as developing reading and oral language skills in students with an auditory processing disorder, ADHD or dyslexia. It is a computer-based intervention designed for daily use over 16 weeks, in sessions of 30 to 100 minutes. There are three series: Fast ForWord Language, Fast ForWord Literacy and Fast ForWord Reading. They are all software-based. Each incorporates computer games that are intended to build elements of cognition including memory, attention and phonological awareness.

Alignment with effective literacy instruction

Fast ForWord does not explicitly or systematically teach literacy skills. Both the Language and the Literacy series primarily focus on cognitive skills such as memory, attention, processing and sequencing. The Reading series primarily addresses processing but also contains some components attending to phonological awareness, decoding and comprehension, although these are not explicitly or systematically taught.

Implementation in Australia

Fast ForWord programs are used in Australian schools.

Research evidence

Fast ForWord has been well studied through systematic reviews with fairly consistent findings that it is ineffective.

Cirrin and Gillam (2008) evaluated Fast ForWord Language and found that it did not produce significant changes in language processing or expressive or receptive language skills. This was supported by another meta-analysis by Sisson (2009) who found no significant effects on students' academic performance.

Controversially, the What Works Clearinghouse (WWC) reviewed nine studies meeting research standards that demonstrated some positive findings for letter-sound knowledge improvement, no effects for fluency and mixed effects for comprehension (WWC 2010b). However, it is important to note that seven of the nine studies were evaluations by the corporate developers, meaning that there were only two where this bias was eliminated. A peer-reviewed critique of the WWC evaluation has been published, indicating that the evaluations by the developers should have been excluded from that review, casting some doubt on the WWC evaluation (McArthur 2008).

A subsequent stringent evaluation of the evidence base for Fast ForWord found no evidence that the program had any impact on students' reading (Strong et al. 2011), a finding which supports the reviews conducted prior to the contested review by the WWC.

It is also important to note that all three of the Fast ForWord series are based on the claim that oral language difficulties often arise from a rapid auditory temporal processing and memory deficit, and that this can be treated with neuroplasticity-based training. This is not supported by research, as outlined in the review of the Arrowsmith program. The idea underlying neuroplasticity-based training is that it would increase auditory processing and memory efficiency. The claim is that the activities involved in the training will result in an increase in brain function in the targeted areas, producing changes in brain structure and neural growth. The studies in which these claims are based have been critiqued as flawed and the assertion that neuroplasticity-based training can treat the underlying causes of reading disabilities has been



described as a misrepresentation of neuroscience (Bowers 2016). This has also been discussed in the summary of the Arrowsmith program.

Summary

- The Fast ForWord program shows minimal alignment with core components of literacy instruction (phonological awareness, decoding and comprehension) but these are not taught using evidence-based instructional methods.
- A large body of evidence on the Fast ForWord program suggests that it is ineffective as a Tier 2 literacy intervention for improving oral language skills or phonological awareness.



GUIDED READING

Program description

Guided Reading was developed in New Zealand as part of their approach to literacy and has been in use as a general term for decades. It is frequently used to refer to the approach commonly used as an embedded Tier 1 classroom practice in which teachers work with small groups of about four to eight students in Years F to 6, based on the approach outlined by Fountas and Pinnell (1996). It is therefore intended by the publishers to be used as a universal classroom practice. Although Guided Reading is not designed for Tier 2 intervention, some Australian schools are using it that way with the intention of supporting students who are reading below benchmarks for decoding or comprehension.

The key elements of a Guided Reading lesson are:

- establishing a teaching objective or focus
- selecting a suitable guided reading text
- introducing the text prior to reading
- having students read the text independently
- discussing the text as a group
- responding to the text independently
- reflecting on student learning (Ciuffetelli 2018).

Alignment with effective literacy instruction

Guided Reading incorporates a focus on vocabulary and comprehension which are two of the key elements of literacy. However, these are not explicitly or systematically taught, but rather use methods associated with incidental teaching and exposure.

Implementation in Australia

Guided Reading is widely used in Australian primary schools.

Research evidence

Two peer-reviewed studies have evaluated the impact of Guided Reading as a Tier 2 intervention, both containing methodological weaknesses (Denton et al. 2014; Young 2018). From these studies, Guided Reading appears to be beneficial for student decoding and comprehension, but not fluency. Importantly, one study (Denton et al. 2014) compared Guided Reading to explicit skills instruction and found that explicit instruction produced greater gains in decoding, fluency and comprehension.

Summary

- Guided Reading shows modest alignment with some of the core components of literacy instruction (vocabulary and comprehension) however these are not taught using evidence-based instructional methods.
- A weak evidence base exists evaluating the use of Guided Reading as a Tier 2 intervention for decoding and reading comprehension.



LEVELLED LITERACY INTERVENTION

Program description

Levelled Literacy Intervention is a Tier 2 intervention that is described by the publishers as being designed for small groups of three readers in Years F to 12 and who are not meeting benchmarks for reading. This summary focuses on the program used for students in Years F to 2. The program runs for 30 minutes per day for 12 to 18 weeks, using a lesson format that incorporates:

- reading a matched book
- comprehension activities and assessments
- word activities
- writing.

The program operates in conjunction with other commercial products such as the Fountas and Pinnell Prompting Guides (Fountas & Pinnell 2017b). It uses sets of levelled readers also provided by the publisher that are matched to students using the Fountas and Pinnell Benchmark System (Fountas and Pinnell 2017a) which recommends students' placement in a 'level' on the basis of the number of errors students make in oral reading or comprehension.

Alignment with effective literacy instruction

Levelled Literacy Intervention is described by the publishers as addressing word recognition and comprehension, which are two of the key elements of literacy. These are taught during the 'word activities' components of lessons, however this is achieved through the use of contextual cues rather than explicitly and systematically teaching word identification skills, and the intervention emphasises engagement through exposure to reading rather than addressing specific literacy skills. The intervention is therefore not aligned with evidence-based literacy instruction.

Implementation in Australia

Levelled Literacy Intervention is in use in Australian schools.

Research evidence

The What Works Clearinghouse (WWC) has reviewed the evidence for Levelled Literacy Intervention for lower primary school students and observed that two evaluations of the program reported a positive impact in the areas of general reading achievement (including phonemic awareness, comprehension and vocabulary). They also found a promising impact on students' reading fluency but little impact on students' alphabetic decoding. The finding of little effect on decoding is an important one, as improving word recognition is one of the stated aims of the program and schools that adopt this program are typically using it in the assumption that it will improve students' ability to decode.

It is important to note that the WWC evaluation only included two studies and both were commissioned by the publishers, Heinemann Publishing, introducing the possibility of bias as the funders of the research have a stake in a positive outcome for the program. For this reason the findings should be treated with caution.



Summary

- Levelled Literacy Intervention shows modest alignment with two of the five core components of literacy instruction (phonics and comprehension) however these are not taught using evidence-based instructional methods.
- A moderate but weak evidence base exists to support the use of Levelled Literacy Intervention as a Tier 2 intervention for improving student comprehension and vocabulary. It is not an effective intervention for teaching decoding.



LITTLE LEARNERS LOVE LITERACY

Program description

Little Learners Love Literacy is a reading, writing and spelling program for beginning readers from Foundation year and up. It is designed for use with whole classrooms (Tier 1), however some schools are using it in small groups as a Tier 2 intervention hence its inclusion in this review. The program teaches phonemic awareness and phonics using a multi-sensory approach incorporating music, writing, cooking, games and the arts. The program resources include books, puppets, games, teacher lesson plans and 20 decodable books.

Alignment with effective literacy instruction

The program explicitly teaches phonemic awareness and phonics, making it aligned with one of the core components of literacy instruction.

Implementation in Australia

The program is used in some Australian schools.

Research evidence

There have been no evaluations conducted on Little Learners Love Literacy.

Summary

- Little Learners Love Literacy is aligned with two of the core components of literacy (phonemic awareness and phonics) and uses evidence-based instructional methods.
- Currently there is no evidence base reporting outcomes for the use of Little Learners Love Literacy as a Tier 2 intervention.



MULTILIT: PRELIT

Program description

MultiLit: PreLit (PreLit) is a program developed by the team at Macquarie University Special Education Centre. It is a Tier 2 intervention program designed for use in early childhood settings. The target students for this program are preschool children who lack emergent literacy skills. It is intended for use in a play-based early learning environment during the year prior to school entry, although it may also be used in school settings for children who arrive without emergent literacy skills. It can be implemented in one-on-one, small group or whole-class arrangements, and delivered by individuals, such as pre-school teachers, child care centre staff or parents, who have completed the comprehensive one-day training. The program consists of 108 scripted lessons that systematically teach phonological awareness skills and oral language skills in the format of a game. The lessons consist of:

- phonological awareness activities (identity tasks, blending and segmenting, as well as print awareness)
- oral language development activities (structured book reading using an interactive/dialogic reading approach that emphasises vocabulary development and print awareness through multiple readings and story comprehension activities) (Wheldall & Wheldall 2014).

The program is intended for implementation three to five times per week and takes 30 minutes, with each activity lasting for 15 to 20 minutes.

Alignment with effective literacy instruction

PreLit teaches some of the key components of reading. It uses explicit teaching methods for developing oral language development (vocabulary and comprehension) as well as phonemic awareness.

Implementation in Australia

PreLit is in use in Australian early learning centres.

Research evidence

Only one study has been conducted on the effectiveness of the PreLit program. This was not conducted with preschool children, who are the intended recipients of the program, but rather those in their Foundation year in eight Catholic schools in NSW (Wheldall et al. 2016). The study did not produce any clear findings, although tentative suggestions were made by the authors that it was beneficial in schools where no other systematic phonics programs were offered.

Summary

- PreLit focuses on oral language development that is critical for the development of the core literacy skills and teaches one of these (phonemic awareness) using evidence-based instructional methods.
- There is insufficient evidence regarding the outcome of using PreLit as a Tier 2 intervention for emergent literacy skills.



MULTILIT: MINILIT

Program description

MiniLit stands for ‘Meeting initial needs in literacy’. It is a Tier 2 program designed for students entering their first year of schooling and who are in the bottom quartile of reading skills assessments. Its purpose is to support students to read at the expected year level by the end of their first year at school. The program addresses all five key areas of effective literacy instruction: phonemic awareness, phonics, fluency, vocabulary and comprehension, although it focuses most closely on the first two. It is an initiative of the Macquarie University Special Education Centre.

MultiLit: MiniLit (MiniLit) contains two levels, each of which contains 40 lessons:

- level 1 teaches the basics of letter/sound knowledge and decoding skills for consonant-vowel-consonant words
- level 2 extends word-attack knowledge by teaching commonly used digraphs and longer words.

The intervention is designed for implementation four to five times per week for one-hour sessions with groups of four students, but can also be run one-on-one. There are three main components of each lesson: sounds and words activities, text reading and storybook reading. Student progress is evaluated fortnightly.

MiniLit resources include a kit containing teaching and assessment resources, two sets of 60 decodable readers to support the text reading activities and story cards to assist with the story-reading component of the lessons. These resources, and information about professional learning, are available from <https://multilit.com/programs/minilit-program/>.

Alignment with effective literacy instruction

MiniLit uses explicit and systematic instruction for teaching phonemic awareness and phonics, and also targets skill development in fluency, vocabulary and comprehension, meaning it is strongly aligned with all of the key elements of reading and with high-quality literacy instruction methods.

Implementation in Australia

The program is used in Australian schools.

Research evidence

Several high-quality and research evaluations (randomised controlled trials [RCTs]) of MiniLit have been conducted and published in peer-reviewed journals. These have reported significantly improved outcomes for young readers who struggle with reading. This research shows that the program adds more than an additional year’s worth of progress for MiniLit students in the areas of word recognition and spelling (Buckingham, Wheldall & Beaman-Wheldall 2014; Reynolds, Wheldall & Madelaine 2010). A large non-randomised trial consolidating seven years’ worth of students in MiniLit indicates a similarly large benefit (Wheldall et al. 2017). It should be noted that in each of these peer-reviewed studies, some of the authors were also involved in the program’s development.



A recent large-scale and high-quality (RCT) evaluation involving 232 students over two school terms was commissioned by Evidence for Learning and undertaken by a team of researchers from the University of Melbourne and the Murdoch Children’s Research Institute (Quach et al. 2019). While the findings of this trial have not been subject to peer-review, it was conducted and funded independently of the developers, and the principles of quality research were all evident, reducing the risk of bias. This evaluation found that students involved in MiniLit for 20 weeks made more substantial progress in phonemic awareness, letter-sound knowledge and decoding (regular and non-word reading) than students who did not undertake the intervention. Importantly, this progress was dependent on students’ attendance and participation within the program (at least four days out of five). The findings of this evaluation were consistent with previous research, strengthening support for the use of the program.

Summary

- The MiniLit program shows strong alignment with the five core components of literacy instruction (phonics, phonemic awareness, vocabulary, comprehension and fluency) and uses evidence-based instructional methods.
- There is a large and robust evidence base that provides support for the use of MiniLit as a Tier 2 intervention for improving accuracy in word recognition, phonemic awareness and phonic decoding in young readers, as well as showing some benefit for spelling.



MULTILIT: READING TUTOR

Program description

MultiLit stands for ‘Making up lost time in literacy’ and is an initiative of the Macquarie University Special Education Centre. It is designed for students in Years 2 to 6 (or older students) who are making low progress in reading (two or more years behind in their reading age) and are placed in the bottom quartile. The program targets phonics (word attack) skills, sight-word recognition and supported book reading. It is appropriate for use with students who have a range of diverse reading support needs, including students who speak English as an additional language (EAL), as well as students with disability. Reading Tutor involves one-to-one tutoring, meaning that it is more aligned with a Tier 3 approach, although its duration of two school terms is more consistent with a Tier 2 approach. The lessons run for 30 to 45 minutes each, four days a week for a period of 20 weeks. These resources, and information about professional learning, are available from <https://multilit.com/programs/reading-tutor-program/>.

Alignment with effective literacy instruction

There are a number of elements to the program:

- word attack skills (10 to 15 minutes) – addressing phonemic awareness and phonics
- sight words (5 to 10 minutes) – developing automatic recognition of high-frequency words
- reinforced reading (15 to 20 minutes) – enhancing students’ independent reading skills by using matched-level reading materials and the pause-prompt-praise approach to implement a positive approach to teaching (Ellis, Wheldall & Beaman 2007).

The program uses explicit and systematic instruction for teaching fluency, phonics, phonemic awareness and comprehension.

Implementation in Australia

MultiLit is in use in Australian schools.

Research evidence

A program evaluation by the authors of the program found that students who participated in Reading Tutor in the MultiLit Centre made important gains in reading accuracy and comprehension as well as spelling, and that these were sustained over time (Wheldall & Beaman 2000). This evaluation found that MultiLit produced strong gains in students’ results for word reading, fluency and comprehension, and that this is maintained over time following completion of the program. Trials of MultiLit: Reading Tutor have also been published, reporting on small-group interventions run in external centres (Wheldall, Beaman & Langstaff 2010). Both showed students benefited in terms of word reading, accuracy, comprehension and fluency. All trials have been conducted by the program developers, which means that they should be treated with some caution.



Summary

- The MultiLit: Reading Tutor program shows strong alignment with the five core components of literacy instruction (phonics, comprehension, vocabulary, phonemic awareness and fluency) and uses evidence-based instructional methods.
- The evidence base regarding the outcomes of using MultiLit: Reading Tutor as a Tier 2 intervention is small and weak but suggests it may potentially benefit word reading, comprehension and fluency.



MULTILIT: MACQLIT PROGRAM

Program description

MultiLit: MacqLit (MacqLit) is a literacy program developed by the team at Macquarie University Special Education Centre. It evolved from the Reading Tutor program (see previous summary) and is designed as a small-group Tier 2 intervention for older readers who require additional intervention from Years 3 and above, all the way to secondary school. The target students for this program are those who fall in the bottom quartile on standardised measures of reading and who have particular difficulties with decoding and fluency, whether these are related to disability or not. The MacqLit program consists of 122 lessons that are scripted and can be implemented by teachers, learning support teachers, or learning support officers who have engaged in the two-day professional development workshop and acquired the materials. The lesson sequences consist of:

- letter-sound correspondences presented in an easy-to-hard sequence
- strategies for decoding multi-syllable words
- prefixes and suffixes
- generalising component skills through connected text reading.

Each lesson is designed to last one hour and for best results should be delivered at least four times a week.

It is recommended that students are provided with additional opportunities to practise their skills by reading one-on-one with a tutor for 20 minutes, preferably daily. This can be done in conjunction with reinforced reading. The resources, and information about professional learning, are available from <https://multilit.com/programs/macqlit/>.

Student progress is monitored through regular cumulative reviews built into the program.

Alignment with effective literacy instruction

MacqLit provides explicit or direct instruction in the key elements of reading – phonemic awareness, phonics, fluency, vocabulary and comprehension. It is aligned with effective literacy instruction methods.

Implementation in Australia

MacqLit is used in schools in Australia.

Research evidence

A small but high-quality trial of the school-based model was conducted by the developers (Buckingham et al. 2014; Buckingham, Beaman & Wheldall 2012), in which students were found to make large and important gains in phonological recoding (regular and irregular word reading). A smaller and less rigorous field trial found that students made significant gains in reading comprehension, word reading, accuracy and spelling (Bell & Wheldall 2019). All evaluations have been conducted by the program developers, meaning that the results should be treated with some caution.



Summary

- The MacqLit program shows strong alignment with two of the five core components of literacy instruction (phonemic awareness, phonics, fluency, vocabulary and comprehension) and uses evidence-based instructional methods.
- The evidence base regarding the outcomes of using MultiLit MacqLit as a Tier 2 intervention is small and weak but suggests that it may benefit word reading, comprehension and spelling.



PHONOLOGICAL AWARENESS FOR LITERACY (PAL)

Program description

Phonological Awareness for Literacy (PAL) is a literacy program developed by researchers at the University of Queensland. It was not designed for use in schools, but rather for implementation by speech pathologists in clinical settings. It is being included in this review as some schools are using this as a Tier 2 intervention run by teachers for students who are not meeting expected benchmarks in reading.

The target students for PAL are students aged between 7.5 and 13 years of age and who have specific difficulties with phonological awareness skills including identifying, segmenting and blending sounds, as well as letter-sound correspondence. It is not a comprehensive literacy program but focuses on phonological processing skills across a graduated sequence of increasingly complex levels:

- stage 1 focuses on simple words with regular spelling (two to three sound words)
- stage 2 focuses on more complex words (i.e. those requiring advanced segmentation, blending and manipulation skills) with regular spelling
- stage 3 focuses on the reading and spelling of multi-syllabic words where the spelling is not always regular. Rules for syllable breaking and the addition of grammatical morphemes are included in this stage.

Intervention group sizes are small with no more than four students recommended, and the sessions involve a mixture of individual and paired skill development practice. The program is scripted and incorporates ongoing assessment of progress.

Alignment with effective literacy instruction

PAL provides explicit or direct instruction in the key element of phonemic awareness through a focus on rhyme, onset and rime, segmentation, blending and manipulation of phonemes and syllables, as well as teaching sound-to-symbol correspondence conventions. It is therefore aligned with one of the core components of early literacy as well as effective literacy instruction methods.

Implementation in Australia

PAL is used in schools in Australia.

Research evidence

Only one peer-reviewed evaluation of PAL was identified (Leask & Hinchcliffe 2007). This evaluation was designed as a pilot study and was very small in scale (16 participants) and employed a weak research design; no larger-scale studies have followed. The 2007 study did not report the outcomes for students' phonological processing skills, but reported a benefit on spelling performance for students with spelling difficulties.

Summary

- The PAL program shows strong alignment with one of the five core components of literacy instruction (phonemic awareness) and uses evidence-based instructional methods.
- The evidence base regarding the outcomes of using PAL as a Tier 2 intervention is minimal and methodologically weak but suggests that it may benefit spelling.



PERI (PHONOLOGICAL EARLY READING INTERVENTION)

Program description

Phonological Early Reading Intervention (PERI) is a program run to develop students' ability to develop beginning letter-sound links and develop word recognition strategies. The program is intended for beginning readers as well as older readers within the first three years of school who are experiencing difficulties. Teachers are provided with professional learning to support students in:

- manipulating sound patterns in words
- segmenting words into smaller parts
- sound blending
- manipulating sounds into new words
- phonemic recoding (the recoding of written, orthographic information into a sound-based code).

Alignment with effective literacy instruction

The program explicitly teaches phonological knowledge and skills that are foundational for skilled reading. It is aligned with effective literacy instruction methods.

Implementation in Australia

PERI is in use in some Catholic schools.

Research evidence

No published evaluations of PERI were identified.

Summary

- PERI is aligned with one of the core components of literacy (phonemic awareness) and uses evidence-based instructional methods.
- Currently there is no evidence base reporting outcomes for the use of PERI as a Tier 2 literacy intervention.



QUICKSMART

Program description

QuickSmart is a Tier 2 literacy intervention program that has been developed by the National Centre of Science, ICT, and Mathematics Education for Regional and Rural Australia (SiMERR) at the University of New England.

QuickSmart is designed for students in upper primary and lower secondary school who have reading difficulties and who are reading below the expected level. The developers of QuickSmart do not recommend the program for students with attention difficulties or those with below-average 'cognitive potential' (Graham et al. 2004). The program runs for small groups of students for three 30-minute lessons per week, over 30 weeks. The intervention is organised into sections lasting for three to four weeks duration (9–12 sessions) that centre on sets of focus words linked to a curriculum learning area, a quality literary text, or a theme of interest to the students. The focus words are incorporated into two or more passages of connected text relevant to the topic (Graham et al. 2004).

The lesson format involves the following:

- vocabulary (5 minutes)
- automatic word recognition (5 minutes)
- fluency – repeated reading (5 minutes)
- comprehension (5 minutes)
- assessment through the Cognitive Aptitude Assessment System (CAAS) which provides ongoing monitoring (5 minutes).

Students' progress is evaluated through CAAS, a computer-based assessment which is used to collect data on student performance upon entry into the program and then on an ongoing basis throughout their participation.

The materials and resources are available through the National Centre for Science, Information and Communication Technology, and Mathematics Education for Rural and Regional Australia (SiMERR National Centre) at the University of New England (<https://simerr.une.edu.au/quicksmart>). Commonwealth and state governments have funded its introduction and evaluation.

Alignment with effective literacy instruction

QuickSmart systematically and explicitly teaches phonic approaches to word recognition, as well as fluency in reading and comprehension. It is aligned with effective reading instruction methods.

Implementation in Australia

QuickSmart is used in Australian schools.



Research evidence

All evaluations of the QuickSmart program have been undertaken by the program developers and must be treated with caution due to potential bias. The QuickSmart team have used the huge datasets collected through CAAS and provided their analysis of these in a series of eight annual reports. These describe the outcomes of the intervention for students that compare the progress of student participants to their peers who are not involved in QuickSmart (SiMERR National Research Centre n.d.). The QuickSmart team typically describe student growth in the areas of reading fluency and accuracy of between two to four years of gain in a 30-week intervention period, and describe that these are maintained over time (Meiers et al. 2013). These evaluations are not peer-reviewed and while they draw on very large numbers of participants, the design of the evaluations is methodologically weak. In addition to these annual program reports, the developers of the program have reported the same data in two peer-reviewed papers (Graham et al. 2007; Graham, Pegg & Alder 2007). These studies did not use very strong research designs and as they also involved members of the QuickSmart team, their findings must be treated with caution.

Summary

- QuickSmart is strongly aligned with several of the core components of literacy (phonics, fluency, comprehension and fluency) and uses evidence-based instructional methods.
- A large but weak evidence base exists regarding the use of QuickSmart as a Tier 2 intervention for word recognition and fluency in reading and comprehension.



QUICK60

Program description

Quick60 is a Tier 2 reading intervention program that was developed in New Zealand and is designed for use with small groups of up to five students whose literacy skills are up to two years below their chronological age. The target students for this program are those in their first year of school with low literacy skills and vocabulary, and the program developers describe it as appropriate for use with students who have diverse literacy needs including those who speak English as a second language. It was developed as a modified version of the Reading Recovery program and therefore has several shared components, including an emphasis on reading skills being learnt in context. The adaptations were made to provide more intensive and explicit instruction in phonological awareness (Chapman, Tunmer & Prochnow 2001), as well as to develop an appropriate format for small-group delivery to enable more students to participate (Iversen, Tunmer & Chapman 2005). Quick60 can be delivered by a teacher or a learning support officer without any additional training.

The program involves a 60-lesson sequence that is designed to be run in a 90-minute literacy block for 32 weeks. Each lesson has seven components that remain consistent throughout the program: Quick Quiz, New Word, Quick Read, Quick Check, Quick Write, New Skill and New Book. The lessons are highly structured and all resources are available from <http://www.iversenpublishing.com/quick60-series-aus-xidc62542.html>.

The first 16 weeks use the following format:

- 10 minutes of oral language and vocabulary building
- 20 minutes of phonemic awareness/phonics activities/comprehension strategy instruction
- 50 minutes of guided reading and writing
- 10 minutes of spelling patterns.

The second 16 weeks use the following format:

- 60 minutes of guided reading
- 30 minutes of interactive and guided reading.

Alignment with effective literacy instruction

Quick60 contains some explicit and systematic teaching of phonics and phonemic awareness skills, comprehension strategies and fluency, but uses these in combination with incidental teaching methods that emphasise context.

Implementation in Australia

Quick60 is in use in Australian schools.



Research evidence

Three studies have been conducted evaluating the impact of Quick60 by comparing it to Reading Recovery, showing that it is more efficient and effective than Reading Recovery in developing phonological awareness. Two of these (Iversen & Tunmer 1993; Iversen et al. 2005) were conducted by the program developer, meaning that they must be treated with some caution. These studies compared Quick60 to Reading Recovery and found that it achieved similar outcomes using less time and resources. The third evaluation did not involve the original program developer and demonstrated that students who received the intervention in their Foundation year at school improved their reading age, vocabulary and reading accuracy (Chapman 2016a, 2016b). Since Quick60 has been adapted from Reading Recovery, this summary should be read in conjunction with the summary for that intervention for additional information.

Summary

- Quick60 is aligned with the core components of literacy (phonemic awareness and phonics) and uses some evidence-based instructional methods in conjunction with others that are less efficient.
- A small and poor-quality evidence base exists to support the use of Quick60 as a Tier 2 intervention to increase reading accuracy, word recognition, and phonemic awareness.



READING RECOVERY

Program description

Reading Recovery is Tier 2 reading intervention program for students in their second year of school. It is intended for students who are in the bottom quartile of literacy assessments. Each lesson involves reading familiar or novel stories, writing and assembling stories, as well as engaging in activities that manipulate sounds and letters. The program is designed for one-on-one daily intervention with students for a period of 30 minutes over 12 to 20 weeks. The format of the program is:

- text reading – reading familiar books
- text reading – taking a running record of the previous day’s new book
- working with words and letters
- text writing – writing a story
- text reading – reconstructing a cut-up story
- text reading – reading a new book.

Alignment with effective literacy instruction

The program incorporates some activities focusing on oral language, vocabulary, comprehension, phonics and phonemic awareness. However, these are addressed using the incidental teaching approach through exposure to books as well as through multi-cueing strategies. The lessons contain a sequence, however it is not systematic and there is no explicit instruction. Reading Recovery is therefore not aligned with evidence-based reading instruction.

Implementation in Australia

Reading Recovery is in use in schools in Australia.

Research evidence

Reading Recovery has been studied extensively and with some controversy. The What Works Clearinghouse (WWC) has reviewed the evidence for its use with students who speak English as an additional language (EAL), as well as beginning readers. They did not identify any studies that met their standards for research design for English language learners, meaning that they have no conclusions drawn regarding the suitability of Reading Recovery for this group of students. Their review of the evidence for using Reading Recovery with first grade students concluded that it was positive in its impact on comprehension, fluency and letter-sound knowledge (WWC 2013a).

Scholars have debated whether the impact is as great or as sustained as claimed by the WWC (Chapman et al. 2001; Reynolds & Wheldall 2007; Schwartz et al. 2009). In light of this controversy, a sector-wide evaluation of the Reading Recovery was undertaken recently in NSW (Bradford & Wan 2016). This review concluded that Reading Recovery is an effective intervention for improving short-term reading outcomes among only the poorest performing readers, but that gains were not sustained over time.



Summary

- Reading Recovery is minimally aligned with the key components of effective literacy instruction (decoding, fluency and comprehension) and does not use evidence-based instructional methods.
- A large but conflicting evidence base exists regarding the use of Reading Recovery as a Tier 2 literacy intervention, indicating that some students make gains in comprehension, fluency and alphabetic knowledge but that these are not sustained.



READING OUR WAY

Program description

Reading Our Way is a ‘whole-word’ literacy intervention program that has been developed by Down Syndrome Queensland. The target students for this program are children and adults with an intellectual disability. The program includes five different levels:

- *foundation* which familiarises students with the program and uses picture and word cards to teach six words
- *beginner* which focuses on learning 60 high-frequency words
- *intermediate* which teaches another 60 commonly used words
- *advanced* which teaches a further 60 words that are more difficult
- *extension* which includes 40 words that cover numbers and colours.

Alignment with effective literacy instruction

The program is designed to teach visual recognition of sight words and is not aligned with the five key skills needed to be a skilled reader. It does not use explicit and systematic teaching methods for developing students’ word recognition skills.

Implementation in Australia

Reading Our Way has been included in this review at the request of Catholic Education Melbourne. It is currently used in Australian schools.

Research evidence

No studies could be located that evaluated the Reading Our Way program. It is worth noting that the conceptual basis claimed for the program is not consistent with the evidence for how children learn to read. The program developers claim that the rationale for using a whole-word approach for individuals with Down syndrome is that they have comparatively strong visual memories and are ‘visual learners’, and that this makes a phonics approach inappropriate for these students (Reading Our Way n.d.). However, research has not supported this, finding that approaches using the five key components of literacy are beneficial for teaching individuals with Down syndrome (Lemons & Fuchs 2010) and intellectual disabilities (Allor et al. 2010), such as for developing phonemic awareness (Mengoni, Nash & Hulme 2014), phonics skills, sight-word recognition and supported book reading (Colozzo et al. 2016; Lim, Arciuli & Munro 2018).

When literacy instruction is provided using the five pillars approach for students with Down syndrome and with intellectual disabilities, it is clear that students can make progress in understanding concepts of print, developing phonological and phonemic awareness, letter knowledge, phonemic decoding, word identification and fluency, as well as comprehension strategies, vocabulary and oral language development (Allor et al. 2010). This study did find, however, that what may be unique to this group is the length of time and the intensity of intervention that is needed for this progress, with the data suggesting that approximately three years of intervention were needed for students to master basic literacy skills. This suggests that the types of interventions offered at Tier 2 may need to be offered in a more sustained manner to students with intellectual disabilities and Down syndrome, which is more consistent with a Tier 3 approach.

Summary

- Reading Our Way is not aligned with the core components of literacy and does not use evidence-based instructional methods.
- Currently there is no evidence base reporting outcomes for the use of Reading Our Way as a Tier 2 literacy intervention.



TOE BY TOE

Program description

Toe by Toe is a one-on-one reading intervention program that may also be used with small groups of up to five students. It uses a synthetic phonics approach to develop decoding fluency as well as word recognition accuracy. The target students for this program are those with low phonological skills. It is a structured program that can be run by a teacher, parent or learning support officer with little or no training. It is recommended that students participate for 20 minutes a day for three to six months.

Alignment with effective literacy instruction

Toe by Toe teaches phonics and alphabetic knowledge to improve word reading accuracy and decoding skills. It includes a multisensory component in conjunction with systematic phonics instruction.

Implementation in Australia

Toe by Toe is in use in Australian schools.

Research evidence

Two very small-scale, peer-reviewed studies have examined Toe by Toe's effectiveness. Both evaluations contained methodological weaknesses. One demonstrated that 24 primary school students who participated in Toe by Toe, run in conjunction with guided oral reading, made substantial gains in word recognition, word attack and fluency, as well as comprehension – although it is unclear which of these can be attributed to the Toe by Toe program because of the poor design of the study (O'Rourke, Olshtroon & O'Halloran 2016). The other demonstrated that when used in isolation for 15 secondary school students, the program yielded significant improvements in word recognition and phonic knowledge but had no impact on comprehension (Jeffes 2016). The low participant numbers and weaknesses in research design limit the degree to which the findings can be considered robust. Several unpublished trials of the program have also been conducted by schools in the UK which show promising results for comprehension (MacKay, 2006) but which must be treated with some caution due to weak evaluation designs and small samples.

Summary

- Toe By Toe is aligned with a core component of literacy instruction (phonics) and uses evidence-based instructional methods.
- There is a small, conflicting and poor-quality evidence base regarding the use of Toe by Toe as a Tier 2 literacy intervention for developing phonic decoding and word recognition, as well as fluency and comprehension.



WORDS THEIR WAY

Program description

Words Their Way is a program that the publishers describe as targeting spelling and vocabulary skills for students in kindergarten, primary or secondary school. The program developers indicate that it may be implemented as a Tier 1 classroom practice or a Tier 2 intervention. The lessons focus on word study, involving concept categorisation, word sorting and game-based activities. The program resources include lesson activities and teacher instructions.

Alignment with effective literacy instruction

Words Their Way includes attention to alphabets and vocabulary, however the developmental spelling stages within the program are not consistent with the science behind effective literacy instruction (Gentry & Ouellette 2019).

Implementation in Australia

Words Their Way is used in Australian schools.

Research evidence

The evidence base for Words Their Way is minimal and is characterised by research that does not use rigorous methods for determining the impact on students' literacy. The What Works Clearinghouse (WWC) evaluated the research base for beginning readers but did not identify any studies that met their minimum standards, with 29 published studies excluded from their evaluation (WWC 2013b).

An evaluation of the program as a Tier 2 intervention for Year 2 and Year 4 students was commissioned by the publishers (Pearson) in 2011 and conducted by Cobblestone Inc. (Eddy et al. 2011). This study found that while Year 4 students appeared to develop improved phonemic awareness, this was not an important or significant improvement.

Summary

- Words Their Way incorporates two components of core literacy (alphabets and vocabulary) however it does not use evidence-based instructional methods.
- The evidence base for Words Their Way is small and weak regarding the use of this program as a Tier 2 intervention for spelling and vocabulary.



Summary of findings

The following table summarises the findings for each of the programs reviewed in this report, identifying the target students for the interventions and ranking the interventions by the breadth and quality of the evidence base.

Intervention	Target students	Reliability of evidence	Alignment with evidence-based instruction
MultiLit: MiniLit	Students in the first year of schooling, who are in the bottom quartile of reading skills assessments	A large and high-quality evidence base exists providing positive support for the use of MiniLit as a Tier 2 intervention in schools for: <ul style="list-style-type: none"> - phonemic awareness - word recognition - spelling 	Uses evidence-based instructional methods
MultiLit: MacqLit	Older, low-progress readers who require additional intervention from Year 3 and above, all the way to high school	A small but high-quality evidence base exists providing positive support for the use of MacqLit as a Tier 2 intervention in schools for: <ul style="list-style-type: none"> - phonic decoding - fluency 	Uses evidence-based instructional methods
Corrective Reading – Decoding	Students in Year 3 or higher who are reading below their year level	A moderately large but mixed-quality evidence base exists providing positive support for the use of Corrective Reading - Decoding as a Tier 2 literacy intervention in schools for: <ul style="list-style-type: none"> - decoding - fluency 	Uses evidence-based instructional methods
Levelled Literacy Intervention	F–2 students who are reading below expected benchmarks	A large but low-quality evidence base exists regarding the use of Levelled Literacy as a Tier 2 intervention in schools for: <ul style="list-style-type: none"> - comprehension 	Not aligned with evidence-based instructional methods
QuickSmart	Students in upper primary and lower secondary school who have reading difficulties	A moderate but low-quality evidence base exists regarding the use of QuickSmart as a Tier 2 intervention in schools for: <ul style="list-style-type: none"> - reading accuracy - fluency 	Uses evidence-based instructional methods
MultiLit: Reading Tutor	Students in Years 2–6 (or older students) who are making low progress in reading	A small and low-quality evidence base exists regarding Reading Tutor as a Tier 2 intervention outside school settings for:	Uses evidence-based instructional methods



	(two or more years below their reading age) and are assessed in the bottom quartile	<ul style="list-style-type: none"> - word reading - fluency - comprehension 	
ERIK	Primary school students in Years 1–5	<p>A small and low-quality evidence base exists regarding the use of ERIK as a Tier 2 literacy intervention in schools for:</p> <ul style="list-style-type: none"> - reading accuracy - comprehension 	Uses evidence-based instructional methods
Guided Reading	Students in Years F–6	<p>A small and low-quality evidence base exists regarding the use of Guided Reading as a Tier 2 intervention for:</p> <ul style="list-style-type: none"> - vocabulary - comprehension 	Not aligned with evidence-based instructional methods
Quick60	Students in their first year of school with low literacy skills and vocabulary	<p>A small and low-quality evidence base exists regarding the use of Quick60 as a Tier 2 intervention for:</p> <ul style="list-style-type: none"> - reading accuracy - word recognition - phonemic awareness 	Uses some evidence-based instructional methods in conjunction with others that are less efficient
Phonological Awareness for Literacy (PAL)	Students aged 7.5–13 years who are not meeting reading benchmarks	<p>A minimal and low-quality evidence base exists regarding the use of PAL as a Tier 2 intervention by speech pathologists for:</p> <ul style="list-style-type: none"> - spelling 	Uses evidence-based instructional methods
Toe by Toe	Students with low phonological skills	<p>There is a small and conflicting evidence base regarding the use of Toe by Toe as a Tier 2 literacy intervention for:</p> <ul style="list-style-type: none"> - decoding - fluency - comprehension 	Uses evidence-based instructional methods
Reading Recovery	Students who are in the bottom quartile of literacy assessments	<p>A large and conflicting evidence base exists regarding the use of Reading Recovery as a Tier 2 literacy intervention for:</p> <ul style="list-style-type: none"> - comprehension - fluency - alphabetic knowledge 	Not aligned with evidence-based instructional methods
Catch Up Literacy	Students aged 6–14 who are reading significantly below their expected year level	<p>A small and conflicting evidence base exists regarding the use of Catch Up Literacy as a Tier 2 literacy intervention for:</p> <ul style="list-style-type: none"> - word recognition 	Not aligned with evidence-based instructional methods



Little Learners Love Literacy	Beginning readers from Foundation year and up	Insufficient evidence exists to support the use of this program as a Tier 2 intervention	Uses evidence-based instructional methods
MultiLit: PreLit	Preschool children who lack emergent literacy skills	Insufficient evidence exists to support the use of PreLit as a Tier 2 intervention for emergent literacy skills	Uses evidence-based instructional methods
PERI	Beginning readers, as well as older readers within the first three years of school, who are experiencing difficulties	Insufficient evidence exists supporting the use of PERI as a Tier 2 literacy intervention	Uses evidence-based instructional methods
Reading Our Way	Children and adults with an intellectual disability	Insufficient evidence exists to support the use of Reading Our Way as a Tier 2 intervention	Not aligned with evidence-based instructional methods
Words Their Way	Students in kindergarten, primary or secondary school	Insufficient evidence exists to support the use of Words Their Way as a Tier 2 intervention for spelling and vocabulary	Not aligned with evidence-based instructional methods
Arrowsmith Program	Students with an average IQ and who have specific learning disabilities (such as dyslexia and dyscalculia), as well as other difficulties such as those associated with attention, organisation, and reasoning	Insufficient evidence exists to support the use of the Arrowsmith program as a Tier 2 literacy intervention	Not aligned with evidence-based instructional methods
Fast ForWord	Students with an auditory processing disorder, ADHD or dyslexia	A large evidence base exists to demonstrate that Fast ForWord is ineffective as a Tier 2 literacy intervention	Not aligned with evidence-based instructional methods



Conclusion

This review has indicated that of the 20 programs in use within Australian schools summarised here, there is only one program with a large and robust evidence base supporting its use, and two programs that have been evaluated through high-quality evaluations. This highlights the importance of selecting programs that have been evaluated as consistently effective and representing a valuable use of teaching time and resources in favour of those which lack robust support.

The review has also highlighted that seven programs are currently being used in Australian schools that are either ineffective (one intervention) or unsupported by sufficient evidence (six interventions) to produce the desired outcomes. Given the (often enormous) expense of purchasing the commercial materials, as well as staffing the intervention programs, these interventions do not represent an effective use of teaching time, student support or school resources. Those programs with stronger and clearer evidence represent alternatives that can enable schools to use their resources more efficiently and provide more effective support to students.

Eight interventions reviewed here incorporate inefficient instructional practices (either completely or partially) that are not aligned with the consistent research findings about the best ways to teach literacy. These interventions also represent an inefficient use of teaching time and resources. Students receiving Tier 2 intervention require instruction that is sufficiently intensive and effective to prevent any further expansion of existing learning gaps, and indeed to target support in the specific area of underachievement that is sufficient to enable them to return to Tier 1 support.

Interventions that do not implement the most effective instructional processes therefore represent an inefficient use of instructional time and do not provide the best approach to addressing underachievement in literacy. Those programs using evidence-based instructional practices offer a clearly superior alternative.

It is hoped that this summary assists schools in engaging in thoughtful reflection on their current intervention programs and, where relevant, selecting appropriate programs that are supported by evidence as being effective for meeting the needs of students who are underachieving in literacy.



Glossary

Alphabetic knowledge	the understanding that words are composed of letters that make sounds
Alphabetic decoding	translating letters and letter patterns into phonemes
Blending	putting phonemes together to form words
Decoding	using letter-sound knowledge to accurately read a word
Grapheme	the individual letter or sequence of written symbols (e.g., a, b, c) and the multi-letter units (e.g. ch, sh, th) that are used to represent a single phoneme
Onset	the initial consonant or consonant-cluster in a syllable forms the first phoneme
Orthography	knowledge of system of symbols for spelling. Used to turn spoken words into written form
Phoneme	the smallest units of spoken language, comprising the individual sounds in spoken words. There are 44 phonemes in the English language
Phonemic awareness	ability to focus on and manipulate the sequence of individual sounds (phonemes) in spoken words
Phonics	knowledge of the relationship between letters or letter groups and sounds
Phonological awareness	a skill set that includes the ability to identify and manipulate units of oral language – parts such as words, syllables, and onsets and rimes
Phonological recoding	using systematic relationships between letters and phonemes (letter-sound correspondence) to retrieve the pronunciation of an unknown printed string or to spell words. Phonological recoding includes the ability to read words that are both regular (decodable) and irregular (cannot be decoded)
Rime	the vowel and consonants that follow the onset in a syllable
Segmenting	isolating individual phonemes within a word



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