InitiaLit–2
Research summary

During 2018 and 2019, the MultiLit Research Unit sought to investigate the efficacy of InitiaLit–2. Although the program was still under development, the instructional content delivered in the research trial was very similar to that which is in the now-published version of InitiaLit–2. Results from the preliminary trial conducted in 2018 are detailed in the InitiaLit–2 teaching manual, and were also presented in a conference paper (Madelaine et al., 2019). Briefly, the findings showed that students progressed significantly during the school year on measures of reading accuracy, spelling accuracy and reading comprehension. Performance gains on raw score measures were statistically significant (p < .001) and were associated with large effect sizes (Cohen's d > 1.0).

Table 1. Brief description of schools involved in 2019 trial.

School	Socio-educational advantage	% LBOTE students	Location
#1	High average (ICSEA = 1100-1200)	49%	Sydney, NSW
#2	Average (ICSEA = 1000-1100)	71%	Sydney, NSW
#3	High average (ICSEA = 1100-1200)	32%	Perth, WA

Note: ICSEA = Index of Community Socio-Educational Advantage; LBOTE = Language background other than English.

Findings from the trial conducted in 2019 were not included in the manual, since publication of the InitiaLit–2 program preceded the collection of post-test results. Accordingly, this research summary contains the first published reference to results from the 2019 InitiaLit–2 trial, and may be considered a supplement to the research already described in the teaching manual.

Three schools (153 students; 49% female) participated in the 2019 trial. The average age of the cohort was 7 years, 3 months (SD = 4 months). A brief description of each school is given in Table 1. It may be noted that the majority of students from these schools would have received instruction in InitiaLit–F and InitiaLit–1 in 2017 and 2018, respectively.

Literacy development was assessed using measures of:

- Word reading accuracy (Burt Word Reading Test; Gilmore et al., 1981);
- Word spelling accuracy (South Australian Spelling Test; Westwood, 2005);
- Nonword reading accuracy (Martin and Pratt Nonword Reading Test; Martin & Pratt, 2001);
- Passage reading accuracy (Neale Analysis of Reading Ability – 3rd ed.; Neale, 1999);
- Passage reading comprehension (Neale Analysis of Reading Ability – 3rd ed.), and;
- Passage reading fluency (Wheldall Assessment of Reading Passages; Wheldall & Madelaine, 2013).

Students were assessed at the beginning of the school year (i.e., pre-test), and then again at the end (post-test). There were approximately 9 months between pre- and post-test time points, equivalent to approximately 33 weeks of actual instruction.

Did reading skills improve over the year?

In the school year during which students received InitiaLit–2, substantial and statistically significant gains were observed on all measures from pre-test to post-test time points (see Table 2). Effect sizes were large for all pre-post comparisons. The observed improvements in reading and spelling correspond nicely with the instructional content of InitiaLit–2. As detailed in the teaching manual, InitiaLit–2 lessons comprise tasks that explicitly target reading comprehension, reading fluency and spelling.

Interestingly, although skills in phonological decoding (i.e., using knowledge of letter-sound correspondences to 'sound out' unfamiliar words) are not strongly emphasised in InitiaLit–2, a large gain in nonword reading was still observed. These skills therefore did, on average, improve over the course of the year. Importantly, the cohort in this research trial attended schools which implemented InitiaLit–F and InitiaLit–1 in 2017 and 2018, respectively. Given the emphasis on systematic synthetic phonics instruction in these programs, the observed gain in nonword reading ability may be due to the continued application of already-strong decoding skills to reading comprehension and fluency tasks. There is also a small amount of phonics instruction embedded in spelling lessons, which may have contributed to the improvement.

Table 2. Raw score means (and standard deviations) for pre- and post-test time points on all literacy skills measured.

Measure	N	Pre-test mean raw score (SD)	Post-test mean raw score (SD)	Gain mean raw score (SD)	t	Sig.	Cohen's d
Word reading	153	44.69 (15.42)	60.82 (17.68)	16.14 (7.64)	26.121	<.001	2.108 (L)
Word spelling	153	27.98 (7.80)	34.10 (6.83)	6.12 (3.78)	20.018	<.001	1.615 (L)
Nonword reading	153	27.40 (12.01)	34.08 (12.04)	6.63 (6.00)	13.744	<.001	1.111 (L)
Passage reading accuracy	153	33.63 (16.45)	52.24 (20.15)	18.58 (8.15)	28.198	<.001	2.278 (L)
Passage reading comprehension	153	8.36 (4.31)	15.03 (6.83)	6.67 (4.35)	18.984	<.001	1.532 (L)
Passage reading fluency	152	68.37 (37.38)	105.63 (39.45)	37.26 (17.62)	26.069	<.001	2.113 (L)

Note: Raw scores listed unless otherwise sudicated. When interpreting Cohen's d effect sizes, a small (S) effect is 0.2; a medium (M) effect is 0.5; and a large (L) effect is 0.8. Where data were non-normally distributed, a Wilcoxon Signed-Rank Test was performed to confirm the statistical significance of parametric t-test results.

Did reading skills improve beyond those of same-aged peers?

Progress made by students between pre- and post-test (~9 months) may be approximated with reference to reading age equivalent values. These values, shown in Table 3, were available for measures of word reading, nonword reading, passage reading accuracy and passage reading comprehension. Based on the results, students receiving 9 months of InitiaLit–2 instruction in 2019 made an equivalent of between 15 and 21 months progress.
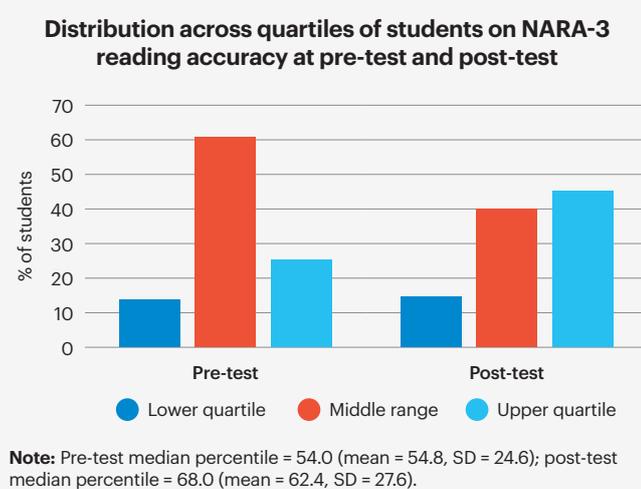
Table 3. Average gains in reading (/spelling) age equivalent scores at pre- and post-test.

Measure	Pre-test age equivalent (years:months)	Post-test equivalent (years:months)	Gain (months)
Word reading	8:2	9:11	21
Word spelling	7:8	9:1	17
Nonword reading	8:11	10:7	20
Passage reading accuracy	7:6	8:11	17
Passage reading comprehension	6:9	8:0	15

The Neale Analysis of Reading Ability – 3rd ed. (NARA-3) and Martin and Pratt Nonword Reading Test (hereafter 'Martin & Pratt') both also have Australian normative data available, thereby allowing us to further compare our results with those of same-aged children.
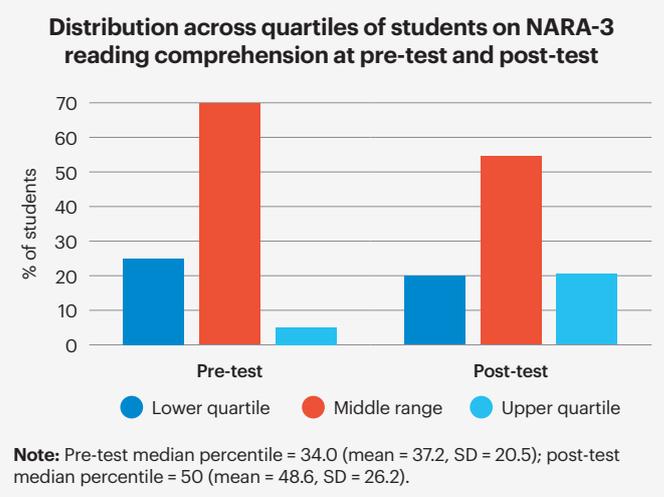
With respect to percentile distributions for passage reading accuracy (pictured in Figure 1), there was an obvious shift of students from the middle range to the highest quartile from pre-test (25.8%) to post-test (45.6%). Meanwhile, the proportion of students in the lowest quartile was similar from pre- to post-test (13.2% to 14.6%).

Figure 1. Quartile distributions on NARA-3 reading accuracy measure.

Distribution across quartiles of students on NARA-3 reading accuracy at pre-test and post-test

Note: Pre-test median percentile = 54.0 (mean = 54.8, SD = 24.6); post-test median percentile = 68.0 (mean = 62.4, SD = 27.6).
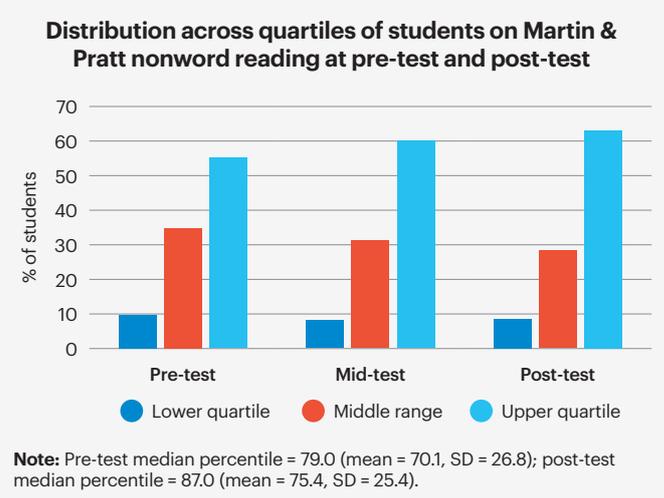
A similar pattern of results was observed for passage reading comprehension (Figure 2). The proportion of students performing in the highest quartile at post-test (20.9%) was considerably higher than the proportion at pre-test (5.6%).

Figure 2. Quartile distributions on NARA-3 reading comprehension measure.

Distribution across quartiles of students on NARA-3 reading comprehension at pre-test and post-test

Note: Pre-test median percentile = 34.0 (mean = 37.2, SD = 20.5); post-test median percentile = 50 (mean = 48.6, SD = 26.2).

Phonological decoding, represented by Martin & Pratt nonword reading performance, started at a relatively high level, compared with same-aged peers. As seen in Figure 3, 55.4% of students performed in the highest quartile at pre-test. At post-test, this proportion increased further to 63.3%. A slight reduction in the proportion of students in the lowest quartile was also observed (9.6% to 8.2%). Based on these results, as well as those obtained from the NARA-3, there appears to have been a shift towards better scores from pre- to post-test, relative to same-aged peers.

Figure 3. Quartile distributions on Martin & Pratt nonword reading measure.

Distribution across quartiles of students on Martin & Pratt nonword reading at pre-test and post-test

Note: Pre-test median percentile = 79.0 (mean = 70.1, SD = 26.8); post-test median percentile = 87.0 (mean = 75.4, SD = 25.4).

Conclusion

Students who received InitiaLit–2 made excellent progress between the start and end of the school year on measures of reading and spelling. Based on percentile distribution shifts and reading age equivalent gains, the observed growth exceeded what might be expected based on increasing chronological age and duration of schooling.

Appendix A. Description of assessment measures

Burt Word Reading Test

The Burt Word Reading Test has a long history and is a measure of single word recognition. The version we employ is based on a standardisation carried out in the early 1980s in New Zealand by the New Zealand Council for Educational Research. While doubts may be expressed over the utility of reading single words in isolation, it remains a robust test especially when used as part of a battery of reading tests. Our experience with this test suggests that it now frequently overestimates reading age. This needs to be remembered when interpreting the results obtained with this test but it still provides a good reliable measure of relative reading gain over time.

South Australian Spelling Test

Spelling performance is assessed using the South Australian Spelling Test. The revised norms for this simple spelling test provide estimates of spelling age based on a sample of South Australian students. This test assesses spelling performance from age 6 to over 15 years.

Martin and Pratt Nonword Reading Test

The Martin and Pratt Nonword Reading Test is a measure of phonological decoding skills. Phonological decoding is the ability to match a sequence of letters to its corresponding sounds and is indicative of a student's ability to read novel or unfamiliar words in text. Students who are poor decoders are more likely to rely on contextual information when they read. The use of nonwords in a test such as this allows for the detection of those students who are largely relying on compensatory strategies rather than generative decoding strategies when attempting to read. The Martin and Pratt Nonword Reading Test consists of pseudowords, which range from simple three letter nonwords to more difficult multisyllabic nonwords. This test assesses performance between the ages of 6 to 16 years.

Neale Analysis of Reading Ability – 3rd ed.

The widely used Neale Analysis of Reading Ability (3rd Edition) provides global indicators of performance in two of the main skills involved in reading: reading accuracy and reading comprehension. Reading accuracy refers to how well a child can identify and accurately pronounce words when presented in written form, either as isolated words or in the context of text, in this case a short story. Reading comprehension refers to how well a child has understood what he or she has read, and this is assessed by presenting the child with questions about what has happened in the story. The Neale Analysis measures, and provides reading-age estimates and age-group comparisons for, both reading accuracy and reading comprehension.

Wheldall Assessment of Reading Passages

The WARP is a curriculum-based measure of reading and is used to measure oral reading fluency. Reading fluency refers to how rapidly a child can read words correctly – to be a competent reader, one needs to be able to read at a reasonable speed. The student is asked to read three 200-word stories, each with a one-minute time limit. Errors are subtracted from the total number of words read to give the total number of words read correctly per minute for each story, and the average is then calculated. The WARP has repeatedly been shown to be both highly reliable and valid.

References

Gilmore, A., Reid, N.A., & Croft, C. (1981). *Burt word reading test*. New Zealand Council for Educational Research.

Madelaine, A., McMurtrie, A., Reynolds, M., Arakelian, S., Wheldall, R., Wheldall, K., & Bell, N. (2019, April 6). Exemplary initial instruction in reading shortens the tail of at-risk readers [Conference session]. Dyslexia-SPELD Foundation Language, Literacy and Learning Conference, Perth, WA, Australia.

Martin, F., & Pratt, C. (2001). *Martin and Pratt nonword reading test*. Australian Council for Educational Research.

Neale, M.D. (1999). *Neale analysis of reading ability – 3rd edition*. Australian Council for Educational Research.

Westwood, P. (2005). *Spelling: Approaches to teaching and assessment – 2nd edition*. Australian Council for Educational Research.

Wheldall, K., & Madelaine, A. (2013). A curriculum-based passage reading test for monitoring the performance of low-progress readers: The development of the WARP. *International Journal of Disability, Development and Education, 47*(4), 371-382.