EVIDENCE FOR LEARNING

Evidence for Learning Summary

This randomised controlled trial found that MiniLit, as experienced in this trial, did not have an additional impact on reading, as measured by the YARC – Passage Reading[1] (YARC-PR) tests on Accuracy, Rate and Comprehension but there was evidence of significant additional improvements in foundational reading skills at 6 months after randomisation[2], particularly Letter Sound Knowledge which was sustained at 12 months.

Students who achieved the minimum recommended attendance of 80 per cent, that is at least 4 days per week on average, during the 20-week intervention period[3] appear to have made strong improvements in Reading Accuracy and in foundational reading skills at both 6 and 12 months.

This trial has a low security rating given uncertainty about the YARC-PR measure and the level of change this trial was set up to detect.

Program summary

MiniLit is a small-group intervention that focuses on improving students' literacy in five areas: Phoneme Awareness, Phonics, Fluency, Vocabulary, Comprehension. It is an early literacy intervention that targets the bottom 25 per cent of students struggling to read. In this trial, the program consisted of 80 one-hour lessons delivered four to five days per week over 20 weeks.

Program Developer

MultiLit

Independent Evaluator	Type of Trial
Murdoch Children's Research Institute and Melbourne Graduate School of Education – University of Melbourne	Efficacy

Students	Schools	Program Grant	Evaluation Grant
217	9	$0	$450,000

Costs	Security	Months Impact
$$$$$	-	-

Note: The security rating and months' impact for this study are individually rated for the findings of each YARC-PR's Primary Outcome (see Research Results section below).

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[1] The York Assessment of Reading Comprehension – Passage Reading (YARC-PR) is a diagnostic test that enables educators to assess students' reading skills (Accuracy, Rate and Comprehension) in primary school children. The YARC-PR is the designated primary outcome measure for this study.

[2] Outcome assessments were conducted immediately following the completion of the MiniLit intervention (approximately six months post-randomisation) and six months after the intervention is completed (approximately 12 months post randomisation).

[3] 20-week intervention period was selected for students to complete the program of 80 unique lessons, to enable schools to run it twice per year with reduced costs. In non-trial settings, MiniLit has been run for up to 30 weeks (across three terms) to complete the full program depending on how many lessons students need to revise.

The program and schools involved

MiniLit was developed by the MultiLit team, a research initiative of Macquarie University, to support Year 1 students struggling to learn to read. The project involved nine primary schools located in the greater Sydney/Newcastle area with socio-economic status in the two most disadvantaged quartiles[4] (i.e. most disadvantaged surroundings). A total of 237 students participated of which, 119 students were allocated to the MiniLit group and 118 students to the control group receiving Usual Learning Support (which could include whole-class approaches and/or support programs for struggling readers). This evaluation was supported by the NSW Department of Education.

Mode	Delivered to students by	Cost per student	Intervention length
Small-group intervention	Teacher or Paraprofessionals	$946*	80 sessions over 20 weeks^ (4-5 times per week)

*The significant cost is incurred in the first year and once established, the recurrent cost of MiniLit in terms of consumables per student is $72 for student books and testing and record books

^Students receive 80 unique lessons as they are assessed fortnightly and repeat lessons if necessary to achieve mastery before proceeding to the next lesson block.

Research results

Outcome	Effect size [95% CI]	Estimated months progress*	E4L security rating**	Number of students (Intervention, Control)	P value+	E4L cost rating^
Accuracy	0.13 [-0.08 to 0.33]	+2	🔒🔒🔓🔓🔓	217 (108, 109)	0.23	$$$$$
Rate	0.06 [-0.19 to 0.32]	+1	🔒🔒🔓🔓🔓	217 (108, 109)	0.62	$$$$$
Comprehension	-0.04 [-0.28 to 0.21]	0	🔒🔓🔓🔓🔓	217 (108, 109)	0.76	$$$$$

*Refer to Appendix A of Report used to translate effect size into estimated months progress.
**Refer to Appendix B of Report for E4L independent assessment of the security rating.
+Evidence for Learning has developed a plain English commentary on statistical significance to support readers in interpreting statistical results in our reports.
^The E4L cost rating is an average of the cumulative cost of implementing the program over three years. The significant cost is incurred in the first year and once established, the recurrent cost of MiniLit in terms of consumables per student is $72 for student books and testing and record books.

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[4] Based on NSW Family Occupation and Education Index (FOEI) scores, schools with high FOEI scores in Quarters 1 and 2 are identified relatively disadvantaged.

Evaluation conclusions

1. For the intention to treat analysis (which includes all students enrolled in the study irrespective by their assigned groups), there was no strong statistical evidence that MiniLit led to better student reading at 12 months compared to students receiving Usual Learning Support, as measured by YARC – PR Reading Accuracy (effect size = 0.13, [-0.08 to 0.33, p=0.23]), Reading Rate (effect size = 0.06, [-0.19 to 0.32, p=0.62]) and YARC – PR Reading Comprehension (effect size -0.04, 0.28 to 0.21, p=0.76]). These were measured using the York Assessment of Reading Comprehension – Passage Reading. However, a large number of intervention and control students performed at the floor for the measure at the outcome time point, with nearly all not being able to complete the measure at baseline. Therefore, the findings should be considered with caution.

2. On the secondary outcomes which measured early reading skills, there was statistical evidence that, compared to the Usual Learning Support group, students in the MiniLit group made positive gains in Letter Sound Knowledge, which is a foundational reading skill for reading. At six months, there was strong statistical evidence that the MiniLit group scored higher on tests of Letter Sound Knowledge, Phoneme Awareness, Regular Word Reading, Nonword Reading and Accuracy as measured by the YARC – Early Reading and the Castles & Coltheart-2 assessments. At 12 months, the differences between groups were smaller, with only Letter Sound Knowledge having strong statistical evidence of being higher in the MiniLit group.

3. Compliance was defined as students receiving the intervention for at least four days per week over the 20-week intervention period, as defined by the program developers. When considering the students who did meet the recommended number of lessons (i.e. 80 lesson out of a possible 100 school days, 4 days per week) there was strong statistical evidence that MiniLit students scored higher on tests of Letter Sound Knowledge, Phoneme Awareness, Regular Word Reading and Nonword Reading at both six and 12 months, as well as Accuracy at six months.

   However, it is important to note that nearly half of the students did not receive the intervention for at least 4 days per week. Of the 119 students involved, 65 (54.6%) had minimum 80 per cent or more (4 or more days per week), 38 (31.9%) between 60 – 80 per cent (e.g. 3 days per week), and 16 (12.6%) had 40 per cent or less (e.g less than 2 days) during the 20-week period. It is unknown whether this was due to available resources (i.e. staff not working full-time) or if schools perceived the intervention cannot be delivered for at least 4 days per week.

4. Implementation fidelity is critical to the effectiveness of a program. Strong statistical evidence showed that when there was high implementation fidelity, student outcomes were better in Letter Sound Knowledge, Phoneme Awareness and Nonword Reading. In particular, there was strong statistical evidence that higher fidelity was associated with higher secondary outcomes at six months and with higher Reading Accuracy at 12 months.

5. MiniLit teachers valued the initial coaching provided by MultiLit in providing feedback to improve specific activity. However, they reported difficulties completing the three MiniLit activities (Sounds and Words, Text Reading, Storybook Reading), within the recommended one-hour MiniLit lesson. More access to the Text Reading and Storybook Reading activities may contribute to better student results on the primary outcomes.

6. The process evaluation highlighted some key considerations. Schools should allow enough time for students (i.e. three school terms) to complete all MiniLit lessons, especially given that some schools may find it difficult to implement MiniLit for four or five days a week due to school resource constraints and student absences. Schools should also allow for adequate time each day for students to complete all three of MiniLit activities, which may require more than the recommended hour.

7. Future research could examine whether a longer intervention time that enables students to complete the whole MiniLit intervention will lead to more positive student outcomes. In addition, it should aim to follow children for a longer period of time, enabling an understanding as to whether benefits in the early reading skills can be consolidated as students become more skilled readers.
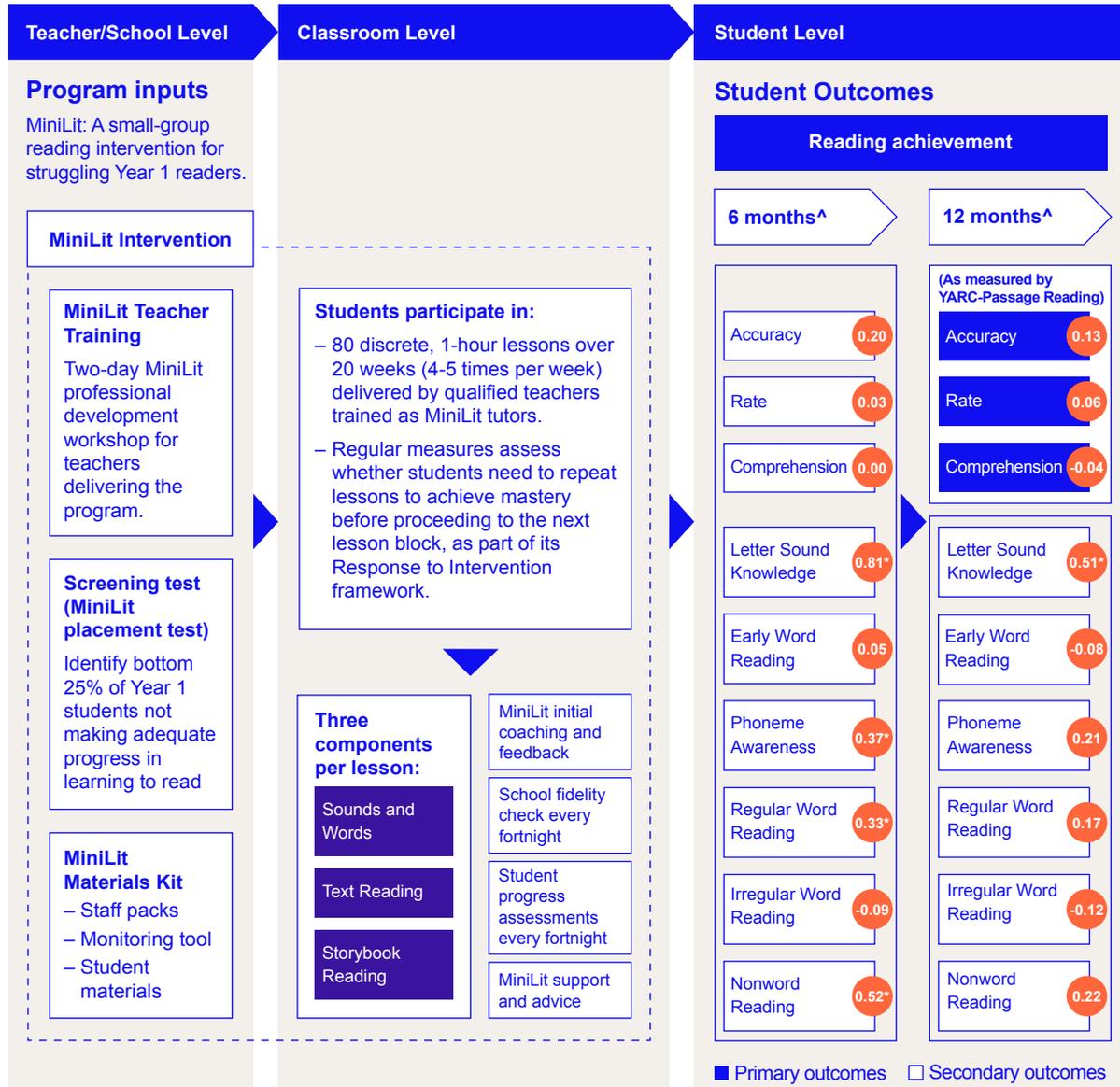
Main findings and impact

Overall, there was no evidence of a difference between the MiniLit and Using Learning Support group at 12 months post-randomisation, as measured by YARC – PR Reading Accuracy, Reading Rate and Reading Comprehension. However, it is important to note that the majority of children were not able to complete the Primary outcome measure at baseline and at the follow-up time points, despite the measure being validated for this age group. Therefore, it may not be sensitive enough to detect differences among children with very low reading skills, which is the target population for the intervention.

MiniLit intervention had strong positive effects on the Primary outcome of Reading Accuracy at six months, and on Secondary outcomes of Letter Sound Knowledge, Phoneme Awareness, Regular Word Reading and Nonword Reading. The early gains observed are promising of students' improvements in some skills that are typically seen as foundational to improved reading. These differences however were not sustained 12 months post-randomisation, with the exception of a strong statistical difference in the Letter Sound Knowledge of students who received MiniLit.

In this trial, schools had a possible 100 days (i.e. 20 weeks) to deliver the MiniLit program between the intervention period of May to November 2018. The program developers recommend students receive the program at least four days per week, otherwise defined as 80 lessons during the 20-week intervention period. Of the 119 students involved, 65 (54.6%) had the minimum of 80 per cent or more (i.e. at least four days per week), 38 (31.9%) at least 60 per cent (i.e three days per week), and 16 (12.6%) had 40 per cent or less (less than two days per week) of MiniLit lessons. The number of expected days excluded student free days, holidays and scheduled student events (i.e. school sports days, class excursions) which prevented the intervention from being delivered. Hence, all the outcomes above need to take in to account that 55 per cent of students received the intervention at least four days per week over the 20-week intervention period.

Process evaluation provides some possible explanations for why early gains did not lead to improvements in reading at 12 months post-randomisation. MiniLit tutors generally valued the program and its three activities in supporting students struggling with reading in this study. Schools however reported difficulties delivering a small-group reading intervention for at least four days a week over 20 weeks, reporting that a longer duration of time may be required to enable all students to reach the end of the intervention (i.e. the 80 unique lessons). MiniLit tutors valued the Sounds and Words activity and acknowledged that it is as an important component in supporting students in this study with reading difficulties. This activity is likely to have contributed to the positive outcomes as measured by the YARC – ER Letter Sound Knowledge. Tutors however reported timing issues in delivering the other two components of Text reading and Storybook reading within the one-hour lesson. However, MiniLit tutors were all observed to be able to deliver all three components during each lesson. Tutors were positive about MiniLit's coaching support and specific feedback to each of the three MiniLit activities. More time to complete each lesson, particularly Text reading and Storybook reading (following MiniLit's scripts in reading and eliciting comprehension questions) may help achieve better and/or sustain student outcomes. Importantly, a longer intervention period than two school terms (i.e. 20 weeks) is required for schools to be able to complete the MiniLit program with students. However, this will require further evaluation to determine whether this will lead to more positive student outcomes.

The MiniLit evaluation logic model with the effect size results is below:

Teacher/School Level	Classroom Level	Student Level

Program inputs

MiniLit: A small-group reading intervention for struggling Year 1 readers.

MiniLit Intervention

MiniLit Teacher Training

Two-day MiniLit professional development workshop for teachers delivering the program.

Screening test (MiniLit placement test)

Identify bottom 25% of Year 1 students not making adequate progress in learning to read

MiniLit Materials Kit
– Staff packs
– Monitoring tool
– Student materials

Students participate in:

– 80 discrete, 1-hour lessons over 20 weeks (4-5 times per week) delivered by qualified teachers trained as MiniLit tutors.

– Regular measures assess whether students need to repeat lessons to achieve mastery before proceeding to the next lesson block, as part of its Response to Intervention framework.

Three components per lesson:

Sounds and Words

Text Reading

Storybook Reading

MiniLit initial coaching and feedback

School fidelity check every fortnight

Student progress assessments every fortnight

MiniLit support and advice

Student Outcomes

Reading achievement

6 months^

Accuracy	0.20
Rate	0.03
Comprehension	0.00
Letter Sound Knowledge	0.81*
Early Word Reading	0.05
Phoneme Awareness	0.37*
Regular Word Reading	0.33*
Irregular Word Reading	-0.09
Nonword Reading	0.52*

12 months^

(As measured by YARC-Passage Reading)

Accuracy	0.13
Rate	0.06
Comprehension	-0.04
Letter Sound Knowledge	0.51*
Early Word Reading	-0.08
Phoneme Awareness	0.21
Regular Word Reading	0.17
Irregular Word Reading	-0.12
Nonword Reading	0.22

■ Primary outcomes ☐ Secondary outcomes

*Indicates statistically significant effect (p<0.05)
^In this study, Outcome Assessments were completed immediately post-intervention (approximately six months post-randomisation) and six months post-intervention (approximately 12 months post-randomisation).

How much does it cost?

The cost of the MiniLit program delivered by MiniLit tutors (teachers and paraprofessionals) is moderate at $946 per student (approximate cost per student averaged over three years). The bulk of the costs is incurred in the first year ($11,210) which includes training, materials and staff time to deliver the intervention to four students for two terms over three years. The recurring cost of MiniLit per student is $72.