

READING RECOVERY: A FAILED INVESTMENT

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Introduction

Reading Recovery is an early intervention program for students in Year 1 who are having difficulty learning to read. The aim of the program is to accelerate children's reading progress to the average level of their peers so they can participate in regular whole-class instruction.

Reading Recovery was developed in New Zealand in the 1970s by Marie Clay, drawing on her observationbased theories about how children learn to read.

Since then, it has expanded across the world and is widely used in Australia, the USA, Canada, England, Ireland, France and Denmark. Australian government departments do not keep central records of schools using Reading Recovery but an online scan of Victorian primary schools found that Reading Recovery was used in 42% of state schools, 94% of Catholic schools and 21% of independent schools.¹ The Australian Literacy Educators Association endorses the use of the program.²

However, recent studies in three countries have provided strong evidence that Reading Recovery does not have significant positive effects in the medium or long-term. An Australian study showed a negative effect of participation in the program two years later.

Despite the lack of evidence supporting a sustained positive impact of Reading Recovery, many schools and school systems continue to invest heavily in it. This comes at a high cost both to education budgets and to the children who do not benefit from the program, and would have achieved better outcomes with a more effective intervention.

What Reading Recovery involves

Reading Recovery is generally offered to students in the second year of school (Year 1 in Australia and England). Students are selected into the program using the Clay Observation Survey — an assessment developed by Marie Clay for use in Reading Recovery. It aims to identify the 20% of readers with the lowest reading progress.

Children who participate in Reading Recovery are withdrawn from their regular class for one-to-one lessons with an accredited Reading Recovery teacher. Lessons are for 30 minutes each day for 12-20 weeks. Children who make the expected amount of progress and complete the program are described as 'discontinued'. Children who do not make adequate progress are described as 'referred on'. In New Zealand, this is estimated to be 15-30% of children who start Reading Recovery.³ These children theoretically receive a specialist learning diagnosis and are offered alternative support.

Reading Recovery teachers are qualified teachers who receive a year of postgraduate training from a Reading Recovery 'teacher leader'. They are trained as literacy specialists and to implement the Reading Recovery program according to strict, copyright guidelines.

Major studies of Reading Recovery

Reading Recovery is one of the most studied intervention programs in the field of educational research.⁴ Much of the research is of low quality in terms of methodology. A What Works Clearinghouse (WWC) review of the most rigorous published studies in 2013 found limited and inconclusive evidence for short-term positive impacts of Reading Recovery on reading achievement. This finding supports an earlier research in New Zealand and an extensive review by researchers in Australia.⁵

Since the WWC 2013 evaluation, some larger longitudinal studies have been published in Australia, the United States, and the United Kingdom, as well as a review in New Zealand.

What Works Clearinghouse Intervention Report 20136

A WWC Intervention Report in 2013 identified 202 published studies of Reading Recovery, of which only three met the WWC evidence standards. The WWC summary of evidence concluded that the extent of the evidence of efficacy for RR on beginning reading was 'small' for four outcome domains — alphabetics, reading fluency, comprehension, and general reading achievement. The effect of RR on student outcomes in these domains was also found to be relatively weak, or 'potentially positive' in the WWC terminology. All of the studies considered by the WWC looked only at the immediate post-intervention effects.

There were no studies of the effectiveness of RR in the medium or long-term, or with English Language Learners that met the WWC evidence standards.

Outcome domain	Rating of effectiveness	Number of studies	Number of students	Extent of evidence
Alphabetics	Potentially positive	2	148	Small
Reading fluency	Potentially positive	1	74	Small
Comprehension	Potentially positive	2	145	Small
General reading achievement	Positive	3	227	Small

Review of New Zealand National Literacy Strategy 20137

A review of literacy achievement and progress in New Zealand by academics from Massey University found that there had been no improvement in the last decade despite the pervasive use of Reading Recovery.

The review argues that if Reading Recovery was "successful in achieving its goal of substantially reducing the number of children who develop ongoing reading difficulties, then the large gap in reading performance consistently observed between good and poor readers since the 1991 international study of literacy achievement by the International Association for the Evaluation of Educational Achievement should have steadily decreased after RR was introduced throughout the country in the mid-1980s. This has not been the case."

The review looks at Ministry of Education data and finds that "RR annual monitoring reports and other sources indicate that RR has had little or no impact on reducing New Zealand's relatively large literacy achievement gap."

It argues that RR is not effective for the groups most at risk of failing to learn to read — low income and Maori/Pasifika students — and it either excludes, or withdraws from the program, many students with the very lowest reading levels.

NSW Centre for Education Statistics and Evaluation (CESE) Reading Recovery Evaluation Report 2015 (Australia)⁸

The NSW Centre for Education Statistics and Evaluation (CESE) study compared the end of Year 1 Literacy Continuum outcomes and Year 3 NAPLAN reading scores of students who completed Reading Recovery (RR) in Year 1 with a matched sample of students with low literacy ability who did not do RR.

The evaluation included a large number of students in public schools across NSW. The CESE study used a propensity score matching (PSM) procedure to simulate a randomised control trial (RCT) by creating matched pairs for both evaluation phases.

Sample size	20,529
What the report says	"The results from this retrospective analysis provide some evidence that RR is effective at improving short term reading outcomes at the end of Year 1."
What the results show	Participation in RR in Year 1 was associated with significantly and substantially <i>lower</i> literacy achievement in both the short term (end of Year 1) and medium term (Year 3) for almost all students on almost all measures. Students with relatively higher baseline scores were the most disadvantaged by participation in RR.
Post-intervention results (end of Year 1)	A significantly lower percentage of RR students achieved expected standards on all aspects of literacy at the end of Year 1, as measured by the literacy continuum. RR students were between two and three times <i>less likely</i> to achieve expected literacy standards than non-RR students. After controlling for demographic variables, at the end of Year 1 only one sub-group of RR students had significantly higher achievement than non-RR students, on only one literacy aspect — students who began at the lowest level of the 'Reading Texts' aspect. RR students who began at the lowest level in other literacy aspects were not significantly different to non-RR students at the end of Year 1. Among students who began at Level 2 or higher, <i>RR</i> <i>students had significantly lower outcomes</i> than non-RR students at the end of Year 1 on all aspects (Table 3). NB. The differences were not just statistically significant but educationally important.
Year 3 national assessment (NAPLAN) results	RR students achieved significantly <i>lower</i> scores in the Year 3 NAPLAN reading assessment than non- RR students, irrespective of their baseline score (achievement level at the end of Kindergarten). The disadvantage for RR students was greater among students with higher baseline scores.

i3 Reading Recovery Scale Up Study Evaluation 2016 (USA)⁹

The initial i3 Scale Up study compared Clay Observation Survey (OS) outcomes and reading scores on the Iowa Test of Basic Skills (ITBS) of students immediately after completing RR, with those of students who did not do RR. The initial study involved a large sample of public school students in 331 schools across the US. The study used a randomised control trial (RCT) design for the immediate effects (end of Year 1) evaluation.

A follow up evaluation compared reading scores on state achievement tests of RR students and non-RR students at the end of Grade 3. The follow-up study (Grade 3) involved 85 schools in seven states, and employed a regression discontinuity (RD) design using cut-off based assignment of students.

Sample sizes	Year 1 RCT 6,888 Year 3 RD 630
What the report says	Year 1: "The RCT [randomised control trial] revealed medium to large impacts across all outcome measures". (p.3) Year 3: "The RD [regression discontinuity] analysis of impacts on 3rd-grade reading achievement used state test scores in reading as the outcome measure. While the impact estimate produced by this analysis was not significant, the available data were far too sparse to produce a conclusive finding." (p.3)
What the reported results show	The short-term post-intervention effects (at the end of Year 1) were moderate for the Iowa Test of Basic Skills and high for the Observation Survey. The medium-term effect for the Iowa Basic Skills Test in reading (Year 3) was non-significant.
Post-intervention results (end of Year 1)	Iowa Test of Basic Skills: RR students were 18 percentage points higher than non-RR students on average. Effect size was significant and moderate (Cohen's $d = 0.37$). Clay Observation Survey: RR students were 24 percentage points higher on average than non-RR students. Effect size (Cohen's $d = 0.99$) was significant and high.
Year 3 state assessment results	No significant differences between RR students and non- RR students on average. This held true for all students who participated in RR and an adjusted analysis for the sub-sample of RR students who completed RR. NB: The sample size for the follow up RD study is smaller than the RCT but it is still relatively large by educational research standards (and larger than the UK ECAR studies), so lack of statistical power is unlikely to entirely explain the lack of effect.
Methodological concerns	Numerous methodological concerns have been detailed, including a high attrition rate in both the Year 1 and in Year 3 samples, which raises the question of whether the students who left the study differed qualitatively from those who remained. ¹⁰

Every Child a Reader Five and Ten Year Follow-Up Studies (UK)

Five Year Follow Up Study (2012) ¹¹

Students in the Every Child A Reader (ECAR) studies were from 42 state schools (21 RR and 21 non-RR) in 10 London boroughs. The study compared the Year 6 Key Stage Test results in reading, writing and maths of three groups of children:

- RR: Students in RR schools who did RR in Year 1
- RRC: Students in RR schools who did not do RR
- CC: Students in non-RR schools (comparison schools)

Sample size	293
What the report says	"The children who had received Reading Recovery had made significantly greater progress in English than the comparison children by the end of Year 6."
What the reported results show	There were no differences between the Year 6 results for Reading Recovery and non- Reading Recovery students in RR schools (RR and RRC). Both Reading Recovery (RR) and non- RR students in Reading Recovery schools (RRC) had higher achievement in Year 6 than students in non-RR schools (CC). This suggests that there was something about the Reading Recovery schools, or the students in them, that was associated with higher achievement in Year 6, since they had higher scores than the students in comparison schools irrespective of whether they did Reading Recovery or not.
Year 6 reading and writing national assessment (Key Stage 2) results	Reading Recovery students (RR) and non-Reading Recovery students in Reading Recovery schools (RRC) were <i>not</i> <i>significantly different</i> . Reading Recovery students (RR) and non-Reading Recovery students in Reading Recovery schools (RRC) had significantly higher mean reading and writing scores than students in non-RR schools (CC).
Methodological concerns	Of the 145 students in 21 Reading Recovery schools, only 91 students were actually selected for Reading Recovery. According to the report, "The selection of children to receive Reading Recovery is made by the class and Reading Recovery teachers, informed by children's performance on the assessments and on age (older of lowest achieving children are often taken first)." This description does not explain on what basis the children were chosen, eg. lowest, middle or highest performance on the assessments. Of these 91 children, not all were 'successfully discontinued' (Reading Recovery terminology for completing the program).
	The report does not say how many left the program early or why. There was a significant demographic difference between the Reading Recovery school students (RR and RRC) and the comparison students (CC): 39% of Reading Recovery school students qualified for Free School Meals compared with 59% in the comparison group (that is, on average the Reading Recovery school students were from higher income families).

10 Year Follow Up Study (2018) - published version¹²

This study compares the GCSE results of students who did and did not do Reading Recovery in Year 1. It compares only two of the three groups of students that were included in the five year follow up:

RR: Students in Reading Recovery schools who did RR in Year 1

CC: Students in non- Reading Recovery schools (comparison schools)

There is no explanation for the omission of the RRC group of students (students in Reading Recovery schools who did not do Reading Recovery), the implications of which are outlined below.

Sample ciza	222
Sample size	
What the report says	"The positive effect of Reading Recovery on qualifications at age 16 is marked in this study and suggests a sustained intervention effect."
What the reported results show	The group of students who participated in Reading Recovery in Year 1 (RR) had significantly and substantially better GCSE results than a comparison group who did not do Reading Recovery (CC)
What the reported results don't show	This report does not include the results of the RRC group from the five-year follow-up study. This group of approximately 50 students did not do Reading Recovery but had equivalent results to the Reading Recovery students after five years.
	The report does not say why the RRC group has been excluded from the study and does not refer to them at all, stating that the original sample size was 239, when it was in fact 293.
Year 10 GCSE results	The Reading Recovery group (RR) had significantly higher overall GCSE point scores than the comparison group (CC). Effect size of 0.49 overall, 0.56 for children not eligible for Free School Meals and 0.37 for those children eligible for Free School Meals).
	49% of the RR group achieved the nationally expected level of qualification for educational progression (five or more GCSEs at the former A* to C grades, including English and Maths, equivalent to Grades 8 to 4 in the current system), compared to a national average of 54% for all pupils in the same year. Only 23% of the CC reached this level.
Methodological concerns	The missing data from the omitted cohort of students have important implications for the security of the conclusions drawn about the impact of Reading Recovery on GCSE results. There is no explanation of their exclusion from this study.
	Given that these non-Reading Recovery students were equivalent to the Reading Recovery students at the five- year follow-up, it is critical to the efficacy claims to know if they were similarly high performing after 10 years.

10 Year Follow Up Study (2018) - unpublished version¹³

An unpublished version of the 10 year follow up study included all three groups from the original study and the five year follow up study.

RR: Students in RR schools who did RR in Year 1

RRC: Students in RR schools who did not do RR

CC: Students in non-RR schools (comparison schools)

Sample size	271
What the report says	"The positive effect of Reading Recovery on GCSE and equivalent qualifications at the end of KS4 is marked and suggests a sustained intervention effect." "The primary interest here is in differences between CC and RR pupils since RRC pupils were better at baseline, in line with the selection criteria for Reading Recovery, and it is not possible to control for baseline in this type of analysis."
What the results actually show	There were no significant differences between the RR group and the RRC group in GSCE and equivalent point scores. Both the RR and RRC groups had significantly higher GCSE results and equivalent point scores than the CC group. There were no significant differences between the groups in baseline literacy, so there is no justification for focusing only on the RR v CC comparison.
Year 10 GCSE results	The RR group and the RRC group both had significantly higher overall GCSE point scores than the comparison group (CC). Effect size of d = 0.49 for the RR group and d = 0.55 for the RRC group. 49% of the RR group and 47% of the RRC group achieved the nationally expected level of qualification for educational progression (five or more GCSEs at the former A* to C grades, including English and Maths, equivalent to Grades 8 to 4 in the current system). 23% of the CC group achieved at this level.

A complete analysis of the results of the 10 year follow up study supports and extends the finding of the five year follow up study – no significant differences between the groups of children who had attended the Reading Recovery set of schools, irrespective of whether they had participated in Reading Recovery. Both of these groups outperformed the students in a comparison set of schools to a similar extent. There seems to be no good methodological justification for excluding the group of students from Reading Recovery schools who had not participated in Reading Recovery from the published version of the study, or to have minimised the importance of their results in the unpublished study.

The complete analysis does not support the conclusions drawn in the published study, that participation in Reading Recovery had led to a marked and sustained educational advantage.

Summary of major research evidence

The NSW CESE report found that Reading Recovery participation in Year 1 was associated with lower achievement in Year 3 reading for almost all students. The i3 Scale Up report found no significant impact of RR through to 3rd grade.

The UK Every Child a Reader studies found that there was no difference in Year 6 results between students in the same schools who did Reading Recovery and did not do Reading Recovery, and that both groups of students in the Reading Recovery schools outperformed the students in non-Reading Recovery schools. This suggests the superior results of the students in the Reading Recovery schools were associated with something other than having participated in Reading Recovery.¹⁴

In the ten year follow up study, the Reading Recovery students again had higher outcomes than the students in non-Reading Recovery comparison schools, but the other comparison group — students in Reading Recovery schools who did not do Reading Recovery but nevertheless did equally as well as the Reading Recovery students in Year 6 — were not included in the study.

An unpublished version of the ten year follow up study includes the missing comparison group. As in the five year follow up study, there was no significant difference between the students from Reading Recovery schools who did and did not participate in Reading Recovery. Both groups of students from Reading Recovery schools outperformed students in the comparison non-Reading Recovery schools. Again, this suggests that the later educational advantage to students in the Reading Recovery schools could not be attributed to participation in the Reading Recovery intervention program.

The evidence for a sustained impact for Reading Recovery therefore ranges from negative to null. Where positive impacts have been found in the immediate post-intervention studies they are arguably not as large as might be expected given the extensive training given to Reading Recovery teachers and the intensity and duration of the program for students. A highly trained teacher, whose only role is to improve early reading and who works with a student on a oneto-one basis for 30 minutes every day for two terms, should be able to accelerate that student's reading progress at a much higher rate than has been found in studies of Reading Recovery.

Why doesn't Reading Recovery have a sustained impact?

Reading researchers have explained that Reading Recovery is less effective than would be expected given the time and cost involved because it does not sufficiently address the key skill deficits of young struggling readers — phonemic awareness and phonics.¹⁵

Phonemic awareness is a strong predictor of early reading success and systematic phonics instruction is essential for many children to learn to read.

While the Reading Recovery program descriptions claim to teach these aspects of reading, they are addressed `within context' — an approach consistent with the `whole language' reading philosophy on

which RR is based — rather than systematically and explicitly. There is overwhelming research evidence that explicit, systematic phonics instruction is a necessary component of early reading instruction — especially for struggling readers — and this method is not used in the Reading Recovery program.

There are also concerns that the lowest-performing students are often 'screened out' of Reading Recovery during the selection process.¹⁶ If the only formal reading intervention used in a school is Reading Recovery, and it is only for students in Year 1, there is a high likelihood that those students who miss out on RR and those students who do not respond to RR, will always struggle to read.

Conclusion

Numerous studies of Reading Recovery have provided no sound evidence that it has sustained positive effects on children's reading achievement in the medium or long-term, despite its widespread use and high cost. There is some evidence that it has a negative impact in the medium term.

A recent study which claimed to find a large longterm advantage of participation in Reading Recovery has since been revealed to have been a selective and incomplete analysis of the data. The publication of misleading data is not an esoteric academic issue. Governments and schools have spent, and continue to spend, many millions on Reading Recovery, bolstered by research findings that purport to show a high level of effectiveness.

More importantly, there are large opportunity costs for the children with reading difficulties who do not receive the most effective instruction, with profound impacts on their educational achievement and wellbeing.

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