The Literacy Performance of ex-Reading Recovery Students Between Two and Four Years Following Participation on the Program: Is this Intervention Effective for Students with Early Reading Difficulties?

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Introduction

Reading Recovery (RR) was developed by Marie Clay during the 1970s (Clay, 1979) while she was an academic staff member of the University of Auckland (one of New Zealand's 8 public universities). The program was funded by the New Zealand Department of Education (later Ministry of Education) for adoption by schools throughout the country during the 1980s. As a preventive early intervention program designed for young children who have not benefitted from formal reading instruction after 12 months in school (Clay, 1985, 1993), the general aim of RR is to substantially reduce the incidence of reading failure by accelerating to average levels of performance the progress of 6-year-old children who show early signs of reading difficulty (normally children whose reading progress falls in the lowest 15% to 20% of the enrolment cohort in any given school).

Clay (1987) was very confident about the effectiveness of RR and the sustainability of gains made by students in the program. She claimed that RR "should clear out of the remedial education system all the children who do not learn to read for many event-produced reasons [i.e., environmental, cultural, or economic causes] and all the children who have organically based problems but who can be taught to achieve independent status in reading and writing despite this" (p. 169).

Similarly, the New Zealand Reading Recovery website claims that the program "is an effective early literacy intervention designed to significantly reduce the number of children with literacy difficulties in schools," that forms part of the New Zealand literacy strategy (http://www.readingrecovery.ac.nz). The following section from the RR website (www.readingrecovery.ac.nz/reading_recovery) is particularly confident in its claim:

> The aim of Reading Recovery is to *prevent* literacy difficulties at an early stage before they begin to affect a child's educational progress. Providing extra assistance to the *lowest achievers* after one year in school, it operates as an *effective prevention strategy against later literacy difficulties*. Nationally, it may be characterised as an *insurance against low literacy levels*" (emphases added).

Others have also claimed that RR leads to sustainable, long-term gains. Without offering any evidence, May et al. (2015), for example, stated that RR can disrupt the "trajectory of low literacy achievement, produce accelerated gains, and enable students to catch up to their peers and *sustain achievement at grade level into the future"* [emphasis added] (p. 549).

Surprisingly, there is no robust, well-designed research to support Clay's claims about the promise of the RR program or to support the widely held view that RR is effective in New Zealand (e.g., McDowall, 2006, 2007, 2009; McDowall, Boyd &

Hogden, 2005; Robinson, 1989; Smith & Elley, 1994). Despite the program being adopted for use in other countries (e.g., Australia, Canada, United Kingdom, United States), relatively few well-controlled studies of the effectiveness of RR in *any* country have been published in peer-reviewed journals. A recent What Works Clearinghouse (WWC) report on the RR program identified 202 studies that investigated RR in relation to the reading skills of at risk beginning readers (U.S. Department of Education, 2013). Of those studies, only three met the WWC evidence standards involving randomized controlled trials. Although the WWC report concluded that there were some significant effects, the extent of evidence for these effects was described as "small" (U.S. Department of Education, 2013, p. 1). The number of studies considered to be well-controlled is surprisingly low. However, WWC has been criticized for adopting a flawed approach in evaluating literacy interventions, resulting in a very restrictive set of conclusions about the efficacy of RR (e.g., Reynolds, Wheldall, & Madelaine, 2009; Stockard, 2010; Wood, 2014). Even if more studies were included in the WWC conclusions regarding the efficacy of the RR program, as suggested by Reynolds et al. (2009), the number would still be relatively few considering the 30-year history of the program and its widespread use.

To examine the sustainability of the RR in New Zealand, we present data from the 2011 Progress in International Reading Literacy Study (PIRLS; Mullis, Martin, Foy, & Drucker, 2012) for children who had received RR 3 years prior to the PIRLS assessments. In addition, we discuss findings on the long-term effectiveness of RR for children who received assistance from the program, based on two recent New Zealand studies (Jesson & Limbrick, 2014; Nicholas & Parkhill, 2013). Before presenting these findings, we briefly discuss the nature of the RR program.

The Reading Recovery Program

Children selected for RR receive 30 minutes of daily individual instruction over 12 to 20 weeks by specially trained RR teachers. A Vygotskyan (Vygotsky, 1978) view of instruction is adopted in which the RR teacher works with what the child knows and provides a scaffold for learning in a manner that attempts to continually change the zone of the child's independent performance (Clay & Cazden, 1990). Instruction is intended to be tailored to the individual needs of each child, with close attention being given to shifts in the child's responding and progress (Clay, 1998). Particular emphasis is placed on developing within the child a self-extending system of reading strategies that involves the flexible use of multiple cues (syntactic, semantic, visual, graphophonic) to detect and correct errors while constructing meaning from text (Clay, 1991). Typical RR lessons include seven activities, usually in the following order: (a) rereading of two or three familiar books; (b) independent reading of the previous day's new book during which the teacher takes a running record of children's responses to text, including an analysis of miscues; (c) letter and

word identification using plastic letters on a magnetic board; (d) writing a story the child has composed (including hearing sounds in words); (e) reassembling a cut-up story; (f) introducing a new book; and, (g) reading the new book.

Decisions regarding the exit, or *discontinuation* of children from RR, are based on one or more of the following: (a) reading at a level near the class average; (b) attaining a reasonable degree of independence in reading; and, (c) spending a certain amount of time in the program (usually between 12 and 20 weeks). Some children may not be discontinued but are *referred on* for additional specialist assistance because of their lack of adequate progress. Not all *referred on* children actually receive further assistance.

The RR program is in addition to the regular classroom reading program, and in New Zealand RR complements the whole language approach to beginning literacy instruction (Smith & Elley, 1994). However, Clay (1993) maintained that RR is compatible with all types of classroom programs:

> It should be stressed that a Reading Recovery programme can be used with children from any kind of classroom programme, and in a brief period of help, supplementary to the ongoing activities of the classroom, it brings the hardest-to-teach children to a level where they can be full participants in that classroom program. (p. i)

Research on Reading Recovery

Several investigations and extensive reviews of the RR program have been reported (e.g., Center et al., 1995; Center, Freeman, & Robertson, 2001; D'Agostino & Murphy, 2004; Elbaum, Vaughn, Hughes, & Moody, 2000; Hiebert, 1994; Morris, Tyner, & Perney, 2000; Pinnell, Lyons, DeFord, Bryk, & Seltzer, 1994; Schwartz, 2005; Shanahan & Barr, 1995; Slavin et al., 2011; Wasik & Slavin, 1993). There is some convergent evidence that RR can be effective for some children, but RR has not been shown to be more effective than other, often less expensive, programs. Slavin et al. (2011), for example, in their thorough meta-analysis of intervention studies, found that RR was no better than programs tutored by paraprofessionals or volunteers. Similarly, on the basis of their comprehensive and stringent meta-analysis of one-to-one tutoring programs in reading, Elbaum et al. (2000) concluded as follows:

> Overall, the findings of this meta-analysis do not provide support for the superiority of Reading Recovery over other one-to-one interventions. Typically, about 30 per cent of children who begin Reading Recovery do not complete the program and do not perform significantly better than control children. As indicated in this meta-analysis, results reported for children who do complete the program may be inflated due to the selective attrition of students from some treatment groups and the use of measures that may bias the results in favour of Reading Recovery students. Thus it is particularly

> disturbing that sweeping endorsements of Reading Recovery still appear in the literature. (p. 617)

Effectiveness of Reading Recovery in New Zealand

Two sources of information provided by schools contribute to the RR annual monitoring reports collated and published by the New Zealand Ministry of Education: an end-of-year school report and individual student reports (New Zealand Ministry of Education, 2014). Information on the number of children involved in RR and the number of hours and teachers allocated to RR for the year are included in the school reports. The student reports provide information on the demographic/background characteristics of the students, the amount of time spent in RR, the outcome from RR, and entry and exit scores on three assessment tools: instructional text level, the Burt Word Reading Test—New Zealand Revision (Gilmore, Croft, & Reid, 1981), and the Writing Vocabulary Task (Clay, 2002). A running record of the child's oral reading behaviour as he or she reads a selected text provides the basis for assigning text level, which is the level of books that the child is able to read with 90% to 94% word recognition accuracy.

In 2013, around 65% of state schools with 6-year-old populations offered RR, which served 76% of the total 6-year-old school population. Of the total 6-year-old population in state schools, just over 14% of the children entered RR in 2013 (approximately one in seven children). This percentage has remained fairly stable since 2002, ranging between 14% and 15% (see Figure B of New Zealand Ministry of Education, 2014). Of the 6-year-old population in schools offering RR, nearly 19% of the children entered RR in 2013 (just under one in five children), and 24% of the children (nearly one in four) were involved in RR at some point during the year (which included RR children carried over from 2013).

Regarding RR outcomes in 2013, 79.0% of RR children were successfully discontinued, 13% were referred on for specialist help or long-term support, 5% left the school before completing the program, and 3% were unable to be continued in the program (New Zealand Ministry of Education, 2014, p.1). Over the past decade, 11% to 13% of RR children did not successfully complete the program but, instead, were referred on for specialist help (see Figure D of New Zealand Ministry of Education, 2014).

We have reported elsewhere (Chapman, Greaney & Tunmer, 2015) that Māori and Pasifika children (those of Pacific Island Polynesian heritage) and children from schools in low socio-economic neighbourhoods (largely the same groups) are less likely to have been successfully discontinued from RR and more likely to have been referred on for specialist help. In addition, the referred on children had failed to respond adequately to RR despite having received an average of 22% additional

lessons, and an average of 27% additional time in the program compared to those children who were successfully discontinued.

These findings provide strong evidence in support of Reynolds and Wheldall's (2007) claim that RR generally does not work well for children who are most at risk of failing to learn to read. Given that the referred on children were more likely to be Māori or Pasifika, and/or from low-income backgrounds, the results also provide an explanation for the failure of RR to have had a significant impact on reducing the relatively large literacy achievement gap between good and poor readers in New Zealand. This gap, which includes a long tail of poor readers, has been a consistent feature of New Zealand literacy learning outcomes since the 1991 international study of literacy achievement carried out by the International Association for the Evaluation of Educational Achievement (IEA), which showed that New Zealand had the largest spread of scores among participating countries (Elley, 1992). The relatively large spread of scores is an ongoing feature of New Zealand literacy learning outcomes, as shown in three Progress in International Reading Literacy Study reports (PIRLS) since 2001 (Prochnow, Tunmer & Greaney, 2015).

One reason for the failure of RR to significantly reduce the large spread of scores is the fact that many students who struggle the most with learning to read are excluded from the program (e.g., Belgrave, 2009; Chapman, Greaney & Tunmer, 2007, Church, 2005, Clay, 2005, May et al., 2015; McDowall et al., 2005; Serry, Rose & Liamputtong, 2014). Clay (2005) was aware of and opposed to such practices. Nonetheless, the practice appears to be widespread not only in New Zealand, but also in Australia (Serry et al., 2014) and the United States (May et al., 2015). Many students with the most challenging literacy supports are either not placed in RR (in schools that offer the program), or are withdrawn if progress is too slow.

Sustainability of Gains Made in Reading Recovery

After three decades of RR in New Zealand there is little empirical evidence to indicate that successful completions in RR result in sustained literacy achievement gains. On the contrary, there is strong evidence to indicate that students who have received RR benefit little from the program.

We examined PIRLS 2011 data for New Zealand children who had been in the RR program three years earlier when they were 6 years old. The PIRLS is a 5-year cycle of reading assessments that focuses on the reading achievement and literacy experiences of 9-year-old children from countries throughout the world. A New Zealand nation-specific question on children's participation in a remedial program (Question 8B) was included in the home-based *Learning to Read Survey*. Just over 60% of parents or caregivers (n=3,400) completed this survey (Chamberlain, 2014,

personal communication[1]). Parents or caregivers were asked whether their child had participated in a remedial reading program since starting school. Parents/ caregivers who answered *Yes* to the remedial reading assistance question were asked to indicate the type of remedial program their child had received. Included in the list of options were Reading Recovery, another (unspecified) school-based program, or an out-of-school program (Chamberlain, 2014, personal communication).

Approximately 15% of parents/caregivers reported that their child had received remedial reading assistance. Reading Recovery was the program most parents/caregivers reported their child having received (n=600; 69% of respondents to this question).

The overall mean reading score for New Zealand children (*N* = 5,600) who participated in the 2011 PIRLS was 531.02 (*SD* = 88.27). We compared the overall mean reading score on the PIRLS for children who had received RR with those who did not participate in any remedial reading program This comparison revealed a very large difference. Students who had been in RR had a mean reading score of 493.10 (*SD* = 79.58). Students who did not receive any remedial support for reading had a mean score of 568.05 (*SD* = 79.96). The 75-point difference between the two groups is equal to a negative effect size of -0.94.

The results were especially poor for students who were Māori or Pasifika, or who were in schools in low-socio-economic neighbourhoods (often the same children). These ex-RR students had mean PIRLS reading scores approximately 100 points below that of children who did not receive any remedial reading assistance. The overall reading levels for Māori and Pasifika RR children (452 – 469) are similar to the national averages of countries such as Azerbaijan, Iran, and Trinidad and Tobago (Mullis et al., 2013), which experience considerably poorer social and economic conditions than New Zealand.

The PIRLS *Home Literacy Survey* did not indicate which children were successfully discontinued from RR and who were referred on for further assistance. However, based on National Monitoring data reported earlier showing that around 80% of children are eventually successfully discontinued from RR, a large majority of the students would have successfully completed the program. It is very clear from the PIRLS data that on average, students who received RR three years prior to the PIRLS 2011 survey were performing markedly lower than their same-age peers who did not receive remedial reading assistance.

Consistent with these findings are data from the 2011 annual report for Resource Teachers: Literacy (RT:Lit), who are specialist teachers who assist older students with persistent literacy learning difficulties (Lee, 2012). Data on prior

[1] We are grateful to Megan Chamberlain, Research Division, New Zealand Ministry of Education, for assisting us with analysing the PIRLS data in relation to children who had received Reading Recovery. We present data based on those analyses, and in so doing, take full responsibility for the interpretation of these analyses.

involvement in RR indicated that nearly one third (31.6%) of RT:Lit students in 2011 had previously received RR and that, of these students, just over a third (34.9%) had been *successfully discontinued* from RR, which is consistent with ongoing rends (see Tables 4 and 5 of Cowles, 2013, p. 6). The 2012 RT:Lit annual report omitted information on the number of students who had previously received RR. Data supplied on request by the Ministry of Education revealed that of the 4,349 children who received assistance from RT:Lits, 1,810 (41.6%) had been in the RR program (Pope, 2014, personal communication).

Two New Zealand studies specifically examined the performance of RR students who had been successfully discontinued between two and four years earlier. Nicholas and Parkhill (2013) examined data for 95 ex-RR students in Years 4 to 6 (ages 8-10). These authors reported scores on a New Zealand standardized test of Reading Comprehension (Progressive Achievement Tests [PAT]; Darr, McDowall, Ferral, Twist, & Watson, 2008); 49% of the children were in the stanine range of 4 to 6, 6% were in the range of 7 to 10, and almost 45% were in the stanine range of 1 to 3. Nicholas and Parkhill commented that initial gains made by many students as a result of RR "are not sustained for almost half of the students" (p.9).

In a similar study, Jesson and Limbrick (2014) reported data for children who had been successfully discontinued from RR during their second year in school, and who were in Years 4 to 6 at the time of the follow-up study. Data were available for 342 children who completed the Supplementary Tests of Achievement in Reading (STAR: Elley, 2001), and for 137 children who competed the PAT Reading Comprehension Test (Darr et al., 2008). They found that around 65% of children were performing below the average level of stanine 5; nearly 40% were performing in the range of stanines 1 to 3. Jesson and Limbrick (2014) concluded that although many children benefit from RR, at least in the short term, there are "large numbers of students who are achieving neither at national expectations on standardised reading and writing assessment tools nor at the average levels achieved in reading by age cohorts in their schools" (p. 112). They attributed the lack of sustainability of RR gains to implementation: "we argue that lack of sustainability…has less to do with any programme inadequacies and is due more to issues of implementation within school systems" (p. 115). However, Nicholas and Parkhill (2013) reached a different conclusion. They suggested that there is a need for "new interventions based on more contemporary research" (p.9).

These studies by Jesson and Limbrick (2014) and Nicholas and Parkhill (2013) indicate that gains made in RR by children who are successfully discontinued from the program do not last for 50% or more of them in terms of maintaining at least average literacy learning performance outcomes. In addition, significant numbers of children, including many who were successfully discontinued from RR, require further one-on-one assistance from specialized Resource Teachers of Literacy. Such a large percentages of children who have been discontinued from RR but who

continue to struggle with reading should provide a clear signal to the New Zealand Ministry of Education that the program is simply ineffective for large numbers of children.

Considered together, the PIRLS results for 9-year-old children who had received RR in Year 2, the enrolment data for students receiving support from RT:Lits, and the two New Zealand studies on the sustainability of RR outcomes for discontinued children, show that RR simply has not achieved its primary goals in New Zealand. Clay's avowal that RR would "clear out of the remedial education system all children who do not learn to read" (Clay, 1987, p. 169), and the RR New Zealand's website claim that RR operates as an "effective prevention strategy against later literacy difficulties" and, therefore, "may be characterised as an insurance against low literacy levels" (www.readingrecovery.ac.nz/reading_recovery), are without foundation.

If the RR program had been successful in attaining its goal of substantially reducing the number of children who develop ongoing reading difficulties (i.e., providing the "insurance" against low literacy levels), then the relatively large gap in reading performance consistently observed between good and poor readers since the 1991 IEA study should have steadily decreased after RR was introduced throughout the country in the late 1980s. As Tunmer et al. (2015) discuss, this has not been the case.

Why Does Reading Recovery Fail to Result in Sustainable Gains?

We have argued elsewhere (Chapman et al., 2015) that the effectiveness of RR interacts with where children are located on the developmental progression from pre-reader to skilled reader. Because of limited knowledge of print at the outset of learning to read, and/or developmental delay in acquiring the phonological awareness skills that are essential for learning to read successfully (e.g., Pressley, 2006; Snow & Juel, 2005; Tunmer, Greaney & Prochnow, 2015), a large proportion of young struggling readers operate at low developmental phases of word learning, which Ehri (2005) described as pre-alphabetic and partial-alphabetic phases. Delayed readers who are still in these phases, typically those students who struggle the most with learning to read, will not be able to grasp the alphabetic principle and discover spelling-to-sound relationships on their own or in a program that emphasizes text rather than word level instructional approaches. These students will require more intensive and systematic instruction in phonemic awareness and phonemically based decoding skills than what is provided in typical RR lessons.

Two studies support this claim. Iversen and Tunmer (1993) found that the effectiveness of RR could be improved considerably by incorporating into the program more intensive and explicit instruction in phonological awareness and the use of letter-sound relationships, in combination with strategy training on how and

when to use this knowledge to identify unknown words in text. Chapman, Tunmer and Prochnow (2001) reported in a longitudinal study of RR in New Zealand that students who were successfully discontinued from the program but who failed to achieve significant progress or maintain gains made in the program (most of the RR children in the study), had limited or severely limited phonemic awareness and phonemically based decoding skills at the beginning of RR, as well as during the year preceding entry into the program (Year 1), and during the year following participation in the program (Year 3). The relatively small number of children who received some modest benefit from RR were more advanced in phonological skills at the beginning of the program than children who derived little or no benefit from RR. Progress in learning to read following successful completion of RR was strongly related to phonological skills at discontinuation from the program.

What Should be Done to Improve the Effectiveness of Reading Recovery?

There are serious shortcomings and much-needed improvements in several aspects of RR, including the theoretical underpinnings of the program, the assessment battery which fails to include measures of phonological processing skills, the specific instructional strategies emphasized in the program (e.g., the multiple cues approach to word identification), the manner of program delivery (one-to-one versus instruction in pairs), and the congruence between classroom literacy instruction and the RR program. Fundamental changes in all of these areas would very likely improve the effectiveness of the program, both in terms of outcomes and cost (Church, 2005; Reynolds & Wheldall, 2007; Tunmer & Chapman, 2003, 2004).

Regarding the issue of congruence between classroom literacy instruction and RR, the program was originally developed to complement regular whole language classroom literacy instruction in New Zealand. Clay (1993), nevertheless, claimed that RR was compatible with all types of classroom literacy programs, but she offered no evidence in support of this claim. To test this belief, Center et al. (2001) investigated whether the efficacy of RR varied as a function of the regular classroom literacy program. They compared the effects of RR in “meaning oriented” (i.e., whole language) classrooms and “code-oriented” classrooms (i.e., those that included explicit and systematic instruction in phonological awareness and alphabetic coding skills). Their results indicated that at the end of the second year of schooling, children in the code-oriented classrooms (regular and RR students combined) significantly outperformed children in the meaning-oriented classrooms on measures of phonological recoding, reading connected text, and invented spelling, as well as on a standardized measure of reading comprehension. Overall, however, Center et al. (2001) reported that the RR students in both types of classrooms failed to reach the average level of their peers on any of the literacy measures. These findings clearly contradict Clay’s (1993) claim that the regular

classroom context does not differentially affect the literacy performance of RR children.

Although regular classroom literacy instruction influences the effectiveness of RR, the most serious shortcoming of the program is the differential benefit at the individual level. The program may be useful in the short term for some struggling readers but not others, especially those struggling readers who need help the most. More intensive and systematic instruction in phonemic awareness and phonemically-based decoding skills is likely to be required than what is normally provided in RR lessons for those who struggle most with learning to read, and for any gains made in RR to have a lasting effect (Iversen, Tunmer & Chapman, 2005; Tunmer & Greaney, 2010).

In support of these findings are the results of a major meta-analysis of one-on-one tutoring programs for struggling readers. Slavin et al. (2011) found reading programs for younger children that had less emphasis on phonics, including RR, showed smaller effect sizes than those programs that included phonics. They noted that RR is the most extensively researched and used reading intervention program in the world, but that the outcomes were less than might be expected. Further, Slavin et al. observed that the overall effect size for 18 studies involving paraprofessional or volunteer tutors using structured and intensive programs was about the same as the effect size for RR studies (+0.24 vs. +0.23), despite the very intensive training that RR teachers receive. Given the much larger mean effect size of +0.62 for one-to-one teacher tutoring programs which had a strong "phonetic" emphasis, Slavin et al. concluded by noting that "an emphasis on phonics greatly improves tutoring outcomes" (p. 22). These results provide further support for the argument that explicit training in phonological decoding skills should be incorporated into the RR program to increase its effectiveness.

Conclusion

The RR program remains largely un-revised in its instructional approach despite clear evidence showing that claims about RR being an *insurance* against ongoing literacy difficulties are without foundation. The New Zealand Reading Recovery website continues to assert the effectiveness of RR; assertions that are not supported by the New Zealand Ministry of Education's own data (national monitoring reports and PIRLS), or by the two independent studies undertaken in New Zealand on students two to four years following successful completion of the program. If the RR program is not changed to reflect contemporary scientific research on reading interventions, it should be dropped and replaced by a more contemporary, research-based, reading intervention approach, together with more effective literacy instruction in children's first year of schooling.

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