

# Children's Achievement and Personal and Social Development in a First-Year Reading Recovery Program with Teachers in Training

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## Abstract

This paper presents the results of one school district's evaluation of its first year's implementation of Reading Recovery, where the teachers were being trained while they instructed the at-risk children in this early literacy intervention program. At the beginning of the school year, the group of Reading Recovery children and a control group were equivalent on gender, ethnicity, and achievement. At the end of the school year, multivariate and univariate analyses of variance indicated that the Reading Recovery children were significantly superior to the control group children on: (a) the *Iowa Test of Basic Skills Language Tests*; (b) the *Gates-MacGinitie Reading Test*; (c) the six tests of *An Observation Survey of Early Literacy Achievement*; (d) classroom teachers' assessments of achievement in mathematics, oral communication, reading comprehension, and written expression; (e) classroom teachers' ratings of personal and social growth in work habits, following directions, self-confidence, social interaction with adults, and social interaction with peers; and (f) promotion rates.

## Introduction

Reading Recovery is an intensive one-to-one intervention program for first graders who are at risk of failing to learn to read. New Zealand educator Marie Clay (1993b) designed the program in New Zealand and introduced it to the United States at The Ohio State University, which became the American leader in Reading Recovery training and research (Pinnell, DeFord, & Lyons, 1988). Ohio State established the program in six public schools in Columbus, Ohio in 1984, and since that time programs have proliferated throughout the United States. Ohio State trains university faculty members from all areas of the country to implement Reading Recovery training programs at their own universities. In turn, these faculty members train teachers who are sponsored by the school systems in which they teach.

These teachers become participants in a yearlong program that focuses on helping them develop both theoretical understandings of the reading process and practical applications for teaching at-risk children. At the end of the year, they return to their school systems as “teacher leaders” and train and supervise classroom or specialist teachers who are selected from their schools to become Reading Recovery teachers. Typically, the Reading Recovery teacher tutors in the program for one half of the day and spends the other half of the day teaching in the regular classroom or in small group instruction.

## Research on Reading Recovery

### Program Effectiveness on Children’s Achievement

Both the merits and the drawbacks of Reading Recovery programs and evaluations have been described in many published articles and unpublished technical reports. For example, Shanahan and Barr (1995) published an extensive review in which they “...tried to offer a thorough, systematic analysis of all available empirical work on Reading Recovery” (p. 961). They discovered more than 100 journal articles and professional presentations. After an in-depth analysis of five different comparisons of pre- and post-tests of Reading Recovery children, they concluded, “...it appears that the average Reading Recovery child who successfully completes the program makes dramatic progress during first grade” (p. 966). First-grade retentions also appear to decline after schools implement Reading Recovery (Dyer, 1992; Lyons & Beaver, 1995).

Shanahan and Barr (1995) “...found no studies of Reading Recovery that did not suffer from serious methodological flaws” (p.961). They noted that “...the most basic requirement of any instruc-

tional program is that it result in learning; not necessarily more learning than would be accomplished by other approaches, but more than would be expected if the intervention did not take place at all” (p. 965). After Shanahan’s and Barr’s comments, Lyons (1998) provided replication methodology to demonstrate that children who received Reading Recovery instruction from identically trained teachers using the same teaching procedures in very diverse populations achieved remarkably similar gains.

However, the gains achieved by Reading Recovery children could be a result, not of the program, but of any number of factors, including maturation, instruction in the first-grade classroom, and other school-related experiences. One of the most valid ways to determine that the program, and not some other factor or factors, is the cause of gains in reading achievement is to compare Reading Recovery children to a control group of equivalently at-risk children who do not have the Reading Recovery treatment. The majority of Reading Recovery studies are open to criticism because they do not use an experimental method involving a control group. However, the few studies that did so (e.g., Huck & Pinnell, 1986; Iversen & Tunmer, 1993; Pinnell, Huck, & DeFord, 1986; Pinnell, Lyons, DeFord, Bryk, & Seltzer; 1994) produced consistent results indicating that the Reading Recovery children were superior to the control group children on post-test measures of reading achievement.

#### Teachers’ Level of Experience and Knowledge

The controlled evaluations mentioned above were conducted in mature Reading Recovery settings where the Reading Recovery program had been in operation for some time prior to the evaluation. The Reading Recovery children in these evaluations were taught by experienced, highly skilled teachers. This was one basis of Rasinski’s (1995) criticism of the Pinnell et al. (1994) study that found greater gains for Reading Recovery children on several post-test reading measures than for children in other remedial programs, including control children. Rasinski’s major criticism was that the Reading Recovery teachers had a higher level of training than the teachers of the other remedial groups and the control group.

Hiebert (1994) indirectly assessed the relationship between Reading Recovery teachers’ experience and Reading Recovery children’s gains. To do this, she summarized data sent annually to Ohio State from “...three sites where teacher leaders have been trained for the most extended period of time” (p. 18) and from the National Diffusion Network Executive Summary, which reports data for all North

American Reading Recovery sites. The three seasoned sites were The Ohio State University, the University of Illinois, and Texas Woman's University. Although Hiebert concluded that "...a high percentage of Reading Recovery tutees can orally read at least a first-grade text at the end of Grade 1" (p. 21), she found a major source of variation in students' reading levels to be the first year versus subsequent years of Reading Recovery program implementation. During the first two years of implementation at Ohio State, students completing the Reading Recovery program attained a primer level; but during subsequent years, students attained a first to second grade text reading level. Hiebert concluded that "...once a program is in place, there appears to be considerable fidelity in the results" (p. 21). This finding suggests that Reading Recovery teachers' effectiveness is related to some level of Reading Recovery experience or program maturity.

In addition, Pinnell et al. (1994) indicate that a major emphasis of Reading Recovery involves the professional development of teachers. They define Reading Recovery as "...a systemic innovation that incorporates teacher development as a key element in achieving accelerated progress with at-risk children" (p. 10). Despite the focus on professional development, only one study of the effects of Reading Recovery training on teacher change was found. DeFord (1983) explored teacher change within a year's professional development course, and the results indicated teachers made significant changes in their orientation to reading, moving from a skills orientation toward a whole-language orientation. However, neither the extent to which this change influenced teacher effectiveness nor children's learning was studied. Given all of these questions regarding the level of teacher understandings and competence, research to investigate these relationships to student outcomes is in order.

### Personal and Social Development

Although learning to read is likely to have far-reaching consequences for children, Reading Recovery research typically focuses on its effect on reading achievement and does not assess its influence on social and personal development. Only one study that compared Reading Recovery children to a control group on personal characteristics was found in the literature. Cohen, McDonell, and Osborn (1989), studying feelings of efficacy, found a trend indicating that Reading Recovery children feel more competent to do reading and writing activities than other at-risk children. In another study, where a control group was not included, students responded positively to a self-esteem questionnaire after receiving Reading Recovery instruction (Traynelis-Yurek

& Hansell, 1993). There is a need for direct observations of Reading Recovery children's personal and social behaviors.

## Purpose of the Study

The purpose of the present study was to determine whether a group of children who participated at the very beginning of a Reading Recovery program implementation differed from an equivalent control group of children on standardized measures of achievement, teacher ratings of academic progress, promotion rates, and teachers perceptions of personal and social development at the end of the first grade. This study is different from most Reading Recovery evaluations in four ways.

First, a control group was included. The Reading Recovery children were compared to an at-risk group that was equivalent to the Reading Recovery group on gender, ethnicity, and initial reading achievement.

Second, the Reading Recovery program in which this evaluation was conducted was in its first year of implementation and, therefore, would not be expected to produce a strong favorable outcome for Reading Recovery. The teachers were being trained as they performed their Reading Recovery tasks, and their training began at the same time that they began instructing children. While this study was not designed to compare results of beginning and mature programs, it did have the goal of ascertaining whether significant gains can occur in a new program with inexperienced teachers.

Third, in addition to standardized achievement tests, teachers' assessments were used to measure the extent to which the Reading Recovery and control children demonstrated their academic progress in the regular classroom. Fourth, an assessment of personal and social development was included to determine whether the Reading Recovery program affected children in areas other than reading achievement.

## Method

### Program Description

A local foundation offered support to a school district for implementation of Reading Recovery at the beginning of the school year. Although the school district had not completed the planning and teacher training for Reading Recovery, it accepted the support and implemented the program while the Reading Recovery teachers were being trained. Thus, teachers began their training at the same time they began instructing children in Reading Recovery. The foundation also required that a concurrent external evaluation be conducted and this paper presents the results of that endeavor.

Because resources were not available for full implementation of the program, the district chose to employ one full-time and two part-time teacher leaders and to select one classroom teacher from each of its 34 elementary schools to become the Reading Recovery teacher for that school. The Reading Recovery teachers-in-training spent one half of the school day working individually with Reading Recovery children and the other half working with other children in small “literacy groups.”

### Selection of Subjects

Limited resources and the large size of the school system prevented access to Reading Recovery services for every child in the first-grade cohort who was in need. For this reason, one classroom in each of the 34 schools was randomly designated the classroom from which the Reading Recovery children were chosen, and a different classroom was randomly designated the classroom from which the control group was selected. Children were randomly placed into first-grade classrooms prior to designating the class for the selection of Reading Recovery or control group students.

For the selection of the particular children who would receive Reading Recovery instruction, the classroom teacher ranked all children from highest to lowest on reading ability. Using the six tests of *An Observation Survey of Early Literacy Achievement* (Clay, 1993a), the Reading Recovery teacher individually tested the children who were ranked in the lowest one third of the class and selected the four having the lowest test scores to be tutored individually in the Reading Recovery program. For the selection of the control group, the classroom teacher ranked the six lowest readers in the control class, and the Reading Recovery teacher tested the lowest four using the six tests of *An Observation Survey of Early Literacy Achievement* (Clay, 1993a). If the tests indicated that any child’s reading level was higher than acceptable for inclusion in Reading Recovery, the next child on the list was tested.

This procedure resulted in the selection of a Reading Recovery group and a control group, with 107 children in each group. The two groups were equivalent on gender, ethnicity, and scores on all six tests of *An Observation Survey of Early Literacy Achievement* (Clay, 1993a). Approximately 70% of the children in each group were minorities (African-American), and approximately 60% of the children were boys. The Reading Recovery group and the control group in each school lived in the same neighborhood, and an equal number of children in each group (the majority) were in the free or reduced lunch program. The school system administered the *Iowa Test of Basic Skills* (Hoover,

Hieronymus, Frisbie, & Dunbar, 1996) in early fall to all first graders.

A multivariate analysis of variance (MANOVA) indicated that the Reading Recovery and control groups did not differ on any of the fall *Iowa Test of Basic Skills* (ITBS) scales, confirming that the groups were equivalent on reading achievement. Some children moved out of the district during the school year, and others were absent when some of the tests were administered in the spring. All Reading Recovery and control children in the original sample who remained in the school were included in the final sample, with the exception of one Reading Recovery child and two control group children who were placed in Special Education classes early in the year. No child was eliminated from the Reading Recovery program or the evaluation for any other reason.

### Procedures

Reading Recovery teachers, using standardized materials and procedures, provided individualized lessons for 30 minutes each day to children in the Reading Recovery group. A student who reached a reading level within the average range of the class was “discontinued” from the program and replaced by another student. Only children from the first wave of students, not the replacements, were studied. The Reading Recovery children were participating in regular first-grade classroom instruction except for the 30 minutes each day during which each child had an individual session with the Reading Recovery teacher. The control group children were participating in the regular classroom program and in any special activities that were available to the other first-grade children, with 66% of them participating in the daily literacy groups conducted by the Reading Recovery teachers.

In April, the school system administered the spring *Iowa Test of Basic Skills* to all first-graders. In May, the *Gates-MacGinitie Reading Test* (MacGinitie & MacGinitie, 1989), a widely used battery that yields four test scores, was administered to the Reading Recovery and the control groups. The six tests of *An Observation Survey of Early Literacy Achievement* (Clay, 1993a) were also administered to both groups.

In May, the classroom teachers of both groups rated the children’s growth over the school year in four academic areas and on five personal/social attributes using the *Classroom Teacher Assessment of Student Progress*. This instrument, which is included in the Appendix, consists of two parts. The first requires the teacher to use a 5-point Likert Scale for rating academic progress in each of the following areas: mathematics, reading comprehension, oral communication, and written expression. The second part requires the use of a 5-point Likert Scale for rating

growth in the following personal and social attributes: following directions, work habits, self-confidence, social interaction with adults, and social interaction with peers. This instrument, which was developed for and used extensively in large-scale evaluations (Quay & Kaufman-McMurrain, 1995; Quay, Kaufman-McMurrain, Minore, Cook, & Steele, 1996; Quay, Kaufman-McMurrain, Steele, & Minore, 1997), was shown to have high test-retest reliability, yielding correlations ranging from .86 to .92 for the nine scales representing the various characteristics.

The classroom teachers of the Reading Recovery children and the control group children were also queried on retention and promotion status. They indicated on the bottom of the *Classroom Teacher Assessment of Student Progress* form whether each child would be promoted or retained.

## Results

The number of children remaining in the sample for the final testing in May decreased for several reasons. Two children in the control group and one child in the Reading Recovery group were placed in Special Education and did not continue in the regular classroom or the Reading Recovery program. If such a small number had remained in the final sample, the results would either remain the same or show an even larger difference in favor of the Reading Recovery group. Some children moved out of the district during the school year, and others were absent when some of the tests were administered in the spring. For example, the *Gates-MacGinitie Reading Test* was administered to 88 Reading Recovery and 93 control children, but the *Iowa Test of Basic Skills* (ITBS), administered by the district over a period of a week, yielded complete data on 82 Reading Recovery children and 86 control children because some children were absent for one or more days of testing.

Prior to the analysis of each spring measure, the fall data for that measure were re-analyzed comparing only the children included in the spring analysis. The two groups remaining in the sample in the spring had been equivalent on all variables in the fall. That is, even with the attrition, the remaining groups did not differ on any of the variables measured in the fall. The analyses and results of each measurement are described separately below.

### Iowa Test of Basic Skills

Table 1 presents the means and standard deviations for the spring scores of the ITBS. Inspection of the means revealed that the Reading Recovery group had higher scores than the control group on all tests. A



MANOVA indicated that the two groups differed significantly on the spring ITBS Language Tests,  $F(6, 161) = 4.58, p < .001$ . ANOVA's indicated that differences occurred on Language Total,  $F(1, 166) = 4.98, p < .05$ ; Reading Comprehension,  $F(1, 166) = 18.72, p < .001$ ; Reading Total,  $F(1, 166) = 3.92, p < .05$ ; and Word Analysis,  $F(1, 166) = 6.11, p < .05$ . The groups did not differ significantly on Vocabulary and Listening subtests.

Table 1. Means and Standard Deviations for the *Iowa Test of Basic Skills* Language Tests

Test	Reading Recovery Group Mean (SD)	Control Group Mean (SD)
Listening	39.57 (18.04)	38.67 (17.11)
Reading Comprehension*	48.60 (13.41)	39.08 (14.40)
Vocabulary	39.64 (16.57)	38.67 (17.11)
Word Analysis*	36.55 (16.85)	29.52 (18.66)
Reading Total*	43.88 (14.60)	39.13 (15.96)
Language Total*	39.34 (14.33)	33.85 (16.50)

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

#### Gates-MacGinitie Reading Test

Inspection of the means, listed in Table 2, revealed that the Reading Recovery group had higher scores than the control group on all subtests of the *Gates MacGinitie Reading Test*. A MANOVA indicated that the two groups differed significantly on this standardized test,  $F(4, 176) = 18.48, p < .001$ . ANOVA's indicated they differed on all four subtests: Final Consonants,  $F(1, 179) = 43.55, p < .001$ ; Initial Consonants,  $F(1, 179) = 22.28, p < .001$ ; Sentence Context,  $F(1, 179) = 65.96, p < .001$ ; and Vowels,  $F(1, 179) = 43.13, p < .001$ .

Table 2. Means and Standard Deviations for the *Gates-MacGinitie Reading Tests*

Test	Reading Recovery Group Mean (SD)	Control Group Mean (SD)
Initial Consonant***	13.30 (1.80)	11.59 (2.90)
Final Consonant***	12.36 (2.34)	9.80 (2.85)
Vowels***	12.23 (2.55)	9.16 (3.61)
Context in Sentence***	13.07 (2.54)	9.44 (3.38)

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

### Classroom Teacher Assessment of Student Progress

The classroom teachers rated the Reading Recovery children significantly higher than the control group children in all areas. Means and standard deviations for the *Classroom Teacher Assessment of Student Progress* are listed in Table 3. A MANOVA computed to compare the groups on teacher ratings of progress on all achievement and personal/social variables was significant for the Reading Recovery group,  $F(9, 167) = 10.52, p < .001$ . ANOVA's indicated the Reading Recovery group and the control group differed on the ratings in all areas: mathematics,  $F(1, 175) = 8.79, p < .01$ ; oral communication,  $F(1, 175) = 30.50, p < .001$ ; reading comprehension,  $F(1, 175) = 67.93, p < .001$ ; written expression,  $F(1, 175) = 46.13, p < .001$ ; following directions,  $F(1, 175) = 24.83, p < .001$ ; self-confidence,  $F(1, 175) = 11.82, p < .001$ ; social interaction with adults,  $F(1, 175) = 19.28, p < .001$ ; social interaction with peers,  $F(1, 175) = 18.61, p < .001$ ; and work habits,  $F(1, 175) = 16.03, p < .001$ .

Table 3. Means and Standard Deviations for the *Classroom Teacher Assessment of Student Progress*

Area	Reading Recovery Group Mean (SD)	Control Group Mean (SD)
Mathematics**	2.91 (0.84)	2.56 (0.70)
Reading Comp***	3.55 (0.95)	2.31 (0.91)
Oral Communication***	3.17 (0.83)	2.52 (0.70)
Written Expression***	3.16 (0.96)	2.25 (0.96)
Following Directions**	3.14 (0.98)	2.46 (0.81)
Work Habits***	3.02 (1.02)	2.42 (0.91)
Self-Confidence**	3.39 (1.12)	2.85 (0.94)
Social Interaction with Adults***	3.28 (1.01)	2.67 (0.78)
Social Interaction with Peers***	3.25 (0.95)	2.67 (0.77)

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

### Promotion Rates

A chi square indicated that a significantly higher percentage of Reading Recovery than control group children were promoted at the end of the year, with 92% of Reading Recovery children and 74% of control children achieving promotion status,  $X^2(1) = 9.50, p < .01$ .

### An Observation Survey of Early Literacy Achievement

The Reading Recovery children had higher scores than the control children on all of the survey's tests as indicated in Table 4. A MANOVA

comparing the scores of the Reading Recovery and the control group children on the spring administration of *An Observation Survey of Early Literacy Achievement* (Clay, 1993a) was significant in favor of the Reading Recovery group,  $F(6, 171) = 24.28, p < .001$ . ANOVA's indicated the two groups differed significantly on all six tests: Concepts about Print,  $F(1, 176) = 85.32, p < .001$ ; Dictation,  $F(1, 176) = 44.15, p < .001$ ; Text Reading Level,  $F(1, 176) = 125.36, p < .001$ ; Word Test,  $F(1, 176) = 21.41, p < .001$ ; Writing Vocabulary,  $F(1, 176) = 72.95, p < .001$ ; and Letter Identification,  $F(1, 176) = 3.92, p < .05$ .

Table 4. Means and Standard Deviations for *An Observation Survey of Early Literacy Achievement*

Test	Reading Recovery Group Mean (SD)	Control Group Mean (SD)
Concepts About Print***	20.65 (3.04)	16.03 (3.64)
Dictation***	33.92 (4.30)	26.96 (8.84)
Letter Identification*	52.89 (4.85)	51.10 (6.57)
Text Reading Level***	16.38 (6.15)	6.72 (5.55)
Word Test***	18.20 (3.03)	13.41 (5.71)
Written Vocabulary***	46.37 (12.20)	29.98 (13.40)

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

## Summary and Discussion

Reading Recovery has been the subject of innumerable published and unpublished reports regarding the program's effectiveness in raising children's literacy achievement to the average level of their peers. The procedure used in most Reading Recovery research and evaluation is to administer reading achievement pre-tests, to provide the Reading Recovery treatment, and then to administer reading achievement post-tests. In addition, Lyons (1998) reported replication studies of North American children across a decade of instruction. Using these methodologies, researchers have shown that Reading Recovery students make significant gains in reading achievement during this interval of instruction. However, in addition to the Reading Recovery treatment, forces such as maturation, reading instruction in the first-grade classroom, and a variety of other school-related experiences occur during the interval between the pre- and post-tests. Thus, whether Reading Recovery is responsible for the achievement gains cannot be determined conclusively with these methodologies. To assure the gains result from Reading Recovery, and not from other factors, Reading Recovery children must

be compared to a control group of equivalent children who do not receive the Reading Recovery treatment and typically these pre-and post-test comparisons do not do so.

It was the purpose of the present study to evaluate the effects of Reading Recovery with an experimental method that included a control group of children who were initially equivalent to the Reading Recovery group on gender, ethnicity, and pre-test reading achievement as measured by both *An Observation Survey of Early Literacy Achievement* (Clay, 1993a) and the *Iowa Test of Basic Skills*. After attrition, the two groups of children who remained in the study at the end of the first grade continued to be equivalent in all aspects.

The results of the few studies that included comparable control groups are consistent in showing that Reading Recovery children are superior to control children on post-test measures of reading achievement. However, these studies have been conducted in elementary schools that have highly trained teachers in Reading Recovery programs that have been in place for several years. Most local Reading Recovery programs do not have equivalent experience levels to those used in the evaluations. Hiebert (1994), on the basis of data obtained from secondary sources, concluded that Reading Recovery children in more established programs reached higher reading levels than Reading Recovery children in less mature settings. However, controlled studies directly comparing gains in Reading Recovery programs of different maturity levels have not been found. One purpose of the present study was to ascertain whether gains can be achieved at a very early point in Reading Recovery program implementation. The results indicated that, even in this very new program where the teachers were learning Reading Recovery teaching procedures as they were tutoring the first group of children, Reading Recovery had significant effects on all *Gates-MacGinitie Reading Test* subtests and on most of the ITBS language tests at the end of the school year. Thus, it can be concluded that even a very immature Reading Recovery program can produce achievement gains.

Not only did standardized achievement tests indicate Reading Recovery children were superior to the control children at the end of the first grade, but also the classroom teachers perceived them to have made significantly greater academic progress. Using the *Classroom Teacher Assessment of Student Progress*, the Reading Recovery children's classroom teachers indicated a higher level of progress for the Reading Recovery children in reading, mathematics, oral communication, and written expression than the control group children's classroom teachers

indicated for them. The validity of these ratings is substantiated by the teachers' higher promotion rates for the Reading Recovery children. Further, these classroom teacher ratings add validity to the standardized test results by showing that, in addition to making gains on standardized tests, the Reading Recovery children could demonstrate their progress in the classroom.

It is reasonable to assume enhanced reading ability and increased academic achievement would positively affect children's personal and social development, particularly their self-confidence. To add to the work of Cohen et al. (1989), which found that children had increased self-efficacy regarding reading and writing, it was the purpose of the present study to determine children's personal and social growth during Reading Recovery instruction. The classroom teachers involved in this investigation rated the Reading Recovery children higher than the control children on their positive development in following directions, self-confidence, social interaction with adults, social interaction with peers, and work habits. This finding strongly supports the notion that Reading Recovery is not simply a program that facilitates learning to read, but also that it has wide-ranging indirect effects on children's development.

### Limitations of the Study and Suggestions for Future Research

One limitation of this study involves the mobility of the population. As with most research involving children from lower socioeconomic strata, attrition was a problematic factor. However, an analysis of the pre-test data on only the children who remained in the study until the end revealed that there were no initial differences between the groups of children in the final analyses.

Another limitation of the current study is that the research design did not permit the control of bias in the teacher ratings. On the *Classroom Teacher Assessment of Student Progress*, the classroom teachers of the Reading Recovery children knew the children they were rating were receiving Reading Recovery instruction. Their ratings may have been positively influenced by this knowledge; that is, they may have expected the children to make progress for that reason. Classroom teachers' ratings are important because they illustrate a different dimension of progress than standardized tests. For future research, it may be possible to eliminate this bias by having external observers, who are unaware of which children are participating in Reading Recovery, sample the children's classroom behavior and record their observations.

The greatest limitation of this study, as well as other Reading Recovery studies and much research conducted in school settings, is that Reading Recovery students and control group students had different classroom teachers. In the real world, this study had to be conducted in this way, but a better design is possible if school personnel could be convinced to accept it. We strongly recommend a future research design that would control for the influence of the classroom teacher. The investigation would be designed so that the children with the lowest reading levels are identified prior to assignment to their first-grade classrooms. All children who are so identified would then be randomly assigned to either a Reading Recovery group or a control group. Finally, an equal number from each group would be randomly assigned to each first-grade classroom.

Finally, additional longitudinal research is needed to ascertain the permanence of the observed early gains attained by Reading Recovery children. Questions of interest include: How long do the gains persist? Do the control group children eventually catch up with the former Reading Recovery children and if so, when? Such information has implications for the cost of early intervention programs. It is a limitation of this study that it spanned only the year of the intervention, precluding an evaluation of the sustainability of the gains achieved by the Reading Recovery children. Although there are studies that support the stability of the gains, others suggest otherwise and unfortunately the present study does not contribute to a clarification of this issue.

For example, Pinnell et al. (1994) found that the gains of Reading Recovery children were sustained at the beginning of the second grade. Statewide follow-up studies in Texas (Askew, Frasier, & Compton, 1995) and Indiana (Schmitt, 1999) have indicated that former Reading Recovery children are performing as well as their classmates on the *Gates MacGinitie Reading Test* in third and fourth grades. On the other hand, DeFord and her colleagues (DeFord, Pinnell, Lyons, & Young, 1988) assessed text reading level and writing vocabulary at the end of second and third grades and found that the gains of the Reading Recovery group exceeded those of the control during the year of the intervention, but the two groups did not differ in the gains they made during the second and third years. And, Center, Wheldall, Freeman, Outhred, & McNaught (1995) found that significant gains occurred mainly during intervention and less so thereafter.

## Implications of the Study

In answer to the question “Does Reading Recovery work?” Shanahan and Barr (1995) respond, with some reservations, in the affirmative. They argue that “...clearer specifications of its success are likely only through additional, more rigorous research than has been conducted up to now” (p. 989). The present study provides a rigorous examination of some very important questions about the immediate effects of Reading Recovery. It permits the conclusion that the early intervention program does indeed “work” as demonstrated by the finding that Reading Recovery children are significantly superior in many characteristics to equally at-risk children who have not participated in Reading Recovery. The results provide further confirmation of previous findings that Reading Recovery children are superior to control group children on standardized reading and language tests and on rates of promotion.

In addition, this study demonstrates that Reading Recovery children’s teachers perceive them to be making significant progress, not only academically, but also in personal and social development. Since this enhanced development and performance occurred in a setting where the Reading Recovery teachers were being trained as they were tutoring the very first group of children in a brand new Reading Recovery program, other beginning Reading Recovery programs can be optimistic regarding their potential for benefiting children even at an early stage of program implementation.

The major implication of this study is that schools considering implementing Reading Recovery can feel comfortable that teachers who are concurrently being trained and providing Reading Recovery services to children can be very effective in producing results. Also, since the results of this study with in-training teachers are so robust, it seems likely that as experience increases, Reading Recovery teachers will be even more effective.

This study served to substantiate the results of several other investigations (e.g., Huck & Pinnell, 1986; Iversen & Tunmer, 1993; Pinnell, Huck, & DeFord, 1986; Pinnell, Lyons, DeFord, Bryk, & Seltzer, 1994) in demonstrating that Reading Recovery children are superior to control group children on post-test measures of reading achievement. Since this study used a different methodology than other studies and still produced the same result, the interpretation that Reading Recovery is an effective program for children at risk of failure can be made with a great deal of confidence.

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## Appendix

### Classroom Teacher Assessment of Student Progress

Child's Name: \_\_\_\_\_

School: \_\_\_\_\_ Teacher: \_\_\_\_\_

Place a check in the box that best describes this child's growth in each academic area during this school year.

Academic Area	No Growth	Marginal Growth	Average Growth	Above Average Growth	Exceptional Growth
Reading comprehension					
Written expression					
Oral communication					
Mathematics/Number Concepts					

Place a check in the box that best describes this child's growth in each personal characteristic during the school year.

Personal Characteristics	No Growth	Marginal Growth	Average Growth	Above Average Growth	Exceptional Growth
Ability to follow directions					
Work habits					
Social interaction with adults					
Social interaction with peers					
Self-confidence					

Please check below to indicate whether this child will be promoted or retained.

This child will be promoted to second grade. \_\_\_\_\_

This child will be retained in first grade. \_\_\_\_\_

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## Biographical Information

**Lorene C. Quay**, recently retired, continues to work and do research as professor emerita in the Department of Early Childhood Education at Georgia State University. Prior to her retirement she was a university research professor. She has published extensively in the areas of child development and early education.

**Donald C. Steele** is a statistician in the Department of Early Childhood Education at Georgia State University. He has extensive experience in mathematics, statistics, and research design. He has co-authored numerous articles with various members of the department.

**Clifford I. Johnson** is an associate professor of early childhood education and executive director of the Georgia State University Reading Recovery and Literacy Collaborative programs. He teaches graduate courses in developmental reading, teaching and learning, and the Reading Recovery theoretical courses for teacher leaders in training. Dr. Johnson has served on the Board of Directors since the beginning of the Reading Recovery Council of North America (RRCNA). He is currently the President of RRCNA, and he is the editor of the RRCNA Site Coordinators Handbook.

**J. William Hortman** is the associate superintendent for administration, technology, and information for the Muscogee County School District in Columbus, Georgia. He has a strong background of training and experience in measurement, statistics, educational research, and program evaluation. He assisted in the implementation and evaluation of a three-year Reading Recovery project in thirty-four elementary schools in the MCSD.