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ABSTRACT

This evaluation assesses the impact of New Jersey's Reading Recovery program on first-grade students in the Newark School District. The report presents results from two cohorts and is divided into two main sections. Section 1 deals with the achievement of the students from the 1991-1992 academic year. Their performance at the end of first grade in both the Reading Recovery subtests and the Stanford Achievement Test is examined. In addition, the performance of these students at the end of second grade on the Stanford Achievement Test is presented. Section 2 provides results of the second cohort's (1992-1993 academic year) performance at the end of first grade on the Reading Recovery subtests and the standardized test. Evaluation results show that there was improvement in the performance levels of students in the skill areas tested and that reading levels were on par with or better than those of other students. (GLR)

NEWARK BOARD OF EDUCATION

The Differential Impact of Reading Recovery on the Achievement of First Graders in the Newark School District 1991-1993

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INTRODUCTION

Failing at school at the age of six or seven might seem inconceivable, yet many children feel like failures due to their inability to read or write. Many times these children, when they show signs of difficulty in reading or writing, are misclassified as Special Education children. These are at-risk children who need extra help and attention, to develop skills and strategies to learn to read in a meaningful way. Without proper intervention, these children can get frustrated, confused, fall behind in school, and may eventually fall into the pattern of failure. Early intervention is crucial to correct the problem and break the cycle of failure, so that, these children can make timely accelerated progress and catch up with their peers. Reading Recovery, a short term intervention has attempted successfully to break the cycle of failure, by giving these children a second chance to acquire skills to read and write. The basic premise of this program is that, early intervention through teaching of skills and strategies to decode and read in a meaningful way, will help elevate the performance level of these children to that of their peers, and help them to stay mainstream throughout their school years.

AN OVERVIEW OF THE READING RECOVERY PROGRAM

A promising new approach to overcome early childhood difficulties with reading was introduced by child psychologist Dr. Marie Clay of New Zealand. The basic tenets of the Reading Recovery program are that reading is a strategic process that takes place in a reader's mind; reading and writing are interconnected, reciprocal processes; it is most educationally productive to intervene early; and that a child's existing competence to read

can be further strengthened and accelerated by teaching new strategies and skills. The Reading Recovery program assists each child to develop active problem solving skills necessary to read independently, by monitoring and correcting their own reading.

This early intervention program (rather than a remediation program), has many unique features. The Reading Recovery program is intensive and focused, and attempts to correct the learning process of a child before failure and confusion set in. It believes that, it is most fruitful to intervene early before the child gets entrapped in the potential cycle of failure (Clay, 1985). Although the intervention is temporary and short-termed, it enables children to build on their existing strengths rather than drilling them on certain skills. Children learn problem solving skills using strategies such as self-monitoring, cross-checking, predicting and confirming. The program focuses on learning "how to" rather than memorizing specific lists of words. It is action oriented with the child as the active participant in the learning process. The flexible structure of the program encourages such active participation, with the teacher playing the role of advisor and guide, providing choices and support. They learn to use strategies while attending to the meaning of the text. It is also posited that reading and writing are intertwined and writing is an extension of the text or the child's personal experience. Since the program is oriented towards helping the child reach the average range of his or her classroom, once the child reaches the average level, he/she can be successfully placed back into the regular classroom. This is possible through the accelerated pace of the program and the individual tailoring of instruction.

Reading Recovery is designed to assist the lowest achievers (bottom 20%) in the first grade, irrespective of their intelligence, physical handicaps or learning disabilities. Students

are selected on the basis of teacher recommendation and results obtained from the "Diagnostic Survey" which is an assessment instrument used by the Reading Recovery program. This survey measures i) Letter Identification, ii) Word Test iii) Concepts About Print, iv) Writing Vocabulary, v) Dictation Test, and vi) Text Reading Level. Additional information such as standardized test scores is also used to identify eligible students. Although the program follows a framework, it is very flexible and each lesson is uniquely designed by the teacher to accommodate the need and the skill level of the child. There is a wide range of books from which the teachers can appropriately select depending on the needs of the child.

The intense one-on-one instruction from specially trained teachers is provided for 30 minutes each day. The first ten days of the program are devoted to exploring the reading and writing ability of the child, where, in an informal situation the teacher gains knowledge of the skill level of the student. Since the child deals with known tasks and skills, this period is termed as "roaming around the known". This pull-out supplemental program lasts for an average of 12 to 16 weeks. Teachers direct children to reread familiar "little books" and carefully observe and keep a running record of their reading ability. This provides an ongoing picture of the students' progress. The "little books" provide support for the readers by using familiar language patterns within the framework of a predictable story. Teachers assist and work with a child to develop good reading strategies. They assist the students to decode and understand the meaning, apply their prior knowledge to the new discoveries, and predict possible outcomes.

This deliberate analysis and focused teaching is possible because of the individual sessions tailored to the needs of the child. By attending to such details, the process eliminates the possibility of memorizing to read fluently. Each day, after reading familiar material the children are encouraged to compose and write a story. A new reading book is also introduced towards the end of the session. As new skills are mastered, the child is challenged with more difficult reading materials. The program is continued until the child has accumulated effective skills and strategies to read satisfactorily without help. Once again, the "Diagnostic Survey" is used to determine the reading competence of the child. On successful completion of the program, the instruction is "discontinued" and another child is entered into the program.

TEACHER TRAINING

An integral part of the Reading Recovery program is the in-service training received by the Reading Recovery teachers. Unlike any other short term training program, the teacher training program involves a year-long university based training. A two-tier training system is built into the program, with Reading Recovery teachers trained to use specific skills to instruct at-risk students, and a teacher leader trained to supervise and train other teachers.

Teacher Leader:

The teacher leader is required to hold a Masters degree with a minimum of 5 years of teaching experience. During training, teacher leaders work with children in a school

setting every day to learn the basic principles and techniques of the Reading Recovery program. In addition, they also learn to train reading recovery teachers, provide technical support to the teachers, and supervise them. These leaders also serve a general in-service role for the school districts. They conduct awareness sessions for parents, school administrators and other classroom teachers about the Reading Recovery program. One of the key tasks of teacher leaders is to help evaluate the effectiveness of the program by aiding in the collection of data. This in-service training allows the teacher leaders to earn 9 quarter hours of university credit.

Teachers:

Reading teachers from schools are selected for training on the basis of their ability and commitment. These teachers are required to have had at least three years of teaching experience with young children. In addition to working individually with at least 4 children per day, they are also expected to assume other responsibilities such as teaching 1st graders or Chapter 1 students. These teachers are responsible for communicating with parents about the program and the progress of the child. For the Reading Recovery program to work well, the Reading Recovery teacher and the regular classroom teacher should work together as partners, in helping the child to develop independent reading ability.

The full year training program is designed to focus and help teachers learn skills necessary to teach at-risk students in individualized sessions. The teachers learn to understand the dynamics of the reading and writing processes and critically evaluate the effectiveness of the teaching methods.

Before enrollment into the training program, teachers attend a 30 hour summer workshop, to learn to administer and analyze the six part Diagnostic Survey Test. This survey is used both to screen and select students in the beginning of the program and test the same students at the end of the program. These teachers, throughout the school year, attend 2 1/2 to 3 hour weekly classes held after school at the Regional Reading Recovery site. Concurrently, the teachers use the methods and skills learnt at the weekly classes in their classrooms. This on going process helps teachers to evaluate their skills critically and improve and refine them as needed.

A unique feature of this program is "teaching behind the glass". At least three times during the training year, a teacher teaches a child behind a one-way glass in a sound equipped room. Other teachers and the teacher leader observe and discuss the interaction between the student and the teacher, and the instructional skills and methods being used. After one or two sessions, the demonstrating teacher also participates in the discussion to get feedback on the instruction. This unique feature has many advantages. It provides a forum for the demonstrating and observing teachers to get constructive suggestions from a supportive cohort and an evaluative feedback from the teacher leader. It also provides an opportunity for the observing teachers to reflect on their own teaching skills and methods and develop insight into their instructional abilities and decisions.

READING RECOVERY PROGRAM IN THE UNITED STATES

The Reading Recovery Program has been implemented for the past 20 years in New Zealand and close to 19% of that country's first graders are being assisted by this program

every year. As a result, only 1% of the first graders are retained or referred to Special Education programs (Clay, 1990). This program was introduced in the United States in 1984 at the Ohio State University, in collaboration with the Columbus City Schools and the Ohio Department of Education.

The pilot study in 1984-1985 involved six public schools. The positive results of this study encouraged the implementation of this program in a larger scale in 1985-1989. The State wide projects indicated positive outcomes and further, demonstrated that, students who were successfully "discontinued" retained their gains and continued to make progress at least three years after the intervention. The Ohio team also collected information on teachers' and parents' views about the program. Positive responses received from these two parties also attested to the success of the program.

Following the successful implementation of the program in Ohio State, New York University (NYU) became the Northeast Regional Reading Recovery Training Site in 1989-1990. The Reading Recovery Project is once again a collaborative effort between New York University and the school districts that wish to become training centers for the Reading Recovery teachers. While NYU prepares the Teacher Leaders, they in turn implement the program in their respective school districts by training and supervising the teachers.

Newark School District:

When New York University became the Northeast Regional Reading Recovery Training Site in 1989, the Newark School District opted to participate in this unique program to benefit its first graders. Four teachers were trained in the first year (1991-1992)

of the program. The next academic year (1992-1993), a teacher leader was trained at the New York University. In the first year, Reading Recovery was implemented in 4 school sites - Clinton Avenue, Elliott Street, E. Alma Flagg, and Warren Street. The program was continued in the same four schools with the four teachers and the Teacher Leader, in the second year.

Similar to other Reading Recovery Programs, in the district of Newark, first grade students' eligibility into the program is determined with the help of input from teachers and a survey instrument. Teachers identify the bottom 20% of students in their classrooms. The Observation Survey Task is then administered to these students. On the basis of the Observation Survey Task and teacher recommendations, students are identified as eligible to participate in the Reading Recovery Program. The teacher leader then, assists in selecting the first set of students to begin the program. As each child with a particular teacher is successfully discontinued or discontinued due to other reasons, a new student is brought in to the program. The rest of the students comprise the Wait Listed group or the comparison group. These children, if identified as eligible for Basic Skills remediation on the basis of their Stanford test scores, are then placed in the appropriate compensatory program, while being waited to enter the program.

Apart from these two groups of students, the Reading Recovery students and the Wait Listed students, a third group of students are also randomly selected from the rest of the first grade students. This group is labeled as the Random Sample group which will provide the basis for comparison. Although the Reading Recovery students are expected to have at least 60 lessons to successfully complete the program, the time frame runs

anywhere between 12 and 16 weeks, depending on the learning ability of the student. The successful completion of the program is based on the independent reading ability of the child.

This report will address the results from the two sets of cohorts that have participated in the Reading Recovery Program in the District. Section I will deal with the achievement of the students from the 1991-1992 academic year. Their performance at the end of the first grade, in both the Reading Recovery subtests and the Stanford Achievement test will be examined. In addition, the performance of these students at the end of their second grade, on the Stanford Achievement Test will also be presented. In Section II, results pertaining to the performance of the second set of cohort (1992-1993 academic year), at the end of their first grade, on the Reading Recovery subtests and the standardized test will be presented.

METHODOLOGY:

The primary purpose of this evaluation is to assess the impact of the Reading Recovery program on first grade students in the District. Initially, a general description on the demographic data of the students will be presented. Students will be grouped and identified on the basis of the type of Reading Recovery service or other services received. Following the evaluation model suggested by Reading Recovery, performance of the successfully discontinued Reading Recovery students will be compared to the performance of the Wait Listed students, on the Reading Recovery subtests. The comparison is based on the average band of performance calculated for the Random Sample group. The average

band analysis will be presented for both sets of cohorts at the end of their first grade.

Additionally, to investigate the effectiveness of the program in the context of achievement, mean performance scores of the Reading Recovery Students and other groups of students will be compared, on each of the Reading Recovery subtests and the standardized test, at the end of the first grade. For the 1st set of cohort, due to the smallness of the sample size, **Kruskal-Wallis Oneway Analysis of Variance Test**, a non-parametric procedure, will be used in place of Oneway Analysis of Variance. This essentially tests for any significant differences that may exist among the groups. The scores of students in the four groups are ranked, and it is determined if there are any differences among the groups with respect to the ranks between these groups. The only disadvantage of this procedure as opposed to a parametric procedure is that, it uses ranks rather than the differences between the scores. However, for the purpose at hand with a small and unequal sample size, this would be a more appropriate procedure to use.

Since the second data set has more than 10 students in each of the four groups, a more powerful parametric measure, **Oneway Analysis of Variance**, will be used to discern the differences among the groups. Once this procedure indicates that there are differences among groups, the next step of analysis will focus on finding which groups are different from one another. In order to detect these differences, **Least Significant Difference (LSD) post hoc** measure will be utilized. This post hoc test will address every possible pair-wise comparison and note their statistical significance. This will clearly demonstrate significant differences among groups.

Finally a look at the proficiency rates of these groups of students on the standardized test will provide supplementary information on the effectiveness of the program. The proficiency rates will indicate the percentage of students requiring remediation in Reading for the following academic year. These statistical procedures will be repeated for both sets of cohorts. For the 1991-1992 cohort, a follow up on their performance on the standardized test and the proficiency rates will also be ascertained, at the end of the second grade.

SECTION I

This Section will deal with the performance of first grade Reading Recovery students and their counterparts from the 1991-1992 academic year. Their performance at the end of the first grade, as well as at the end of the second grade will be presented.

Sample:

Data was obtained for 72 first grade children from the four participating schools. This pool contained all the Reading Recovery students, the Random Sample students and the Wait Listed students. There were 12 Reading Recovery students who had successfully discontinued the program, 2 who had more than 60 lessons but did not discontinue the program and 10 students who had less than 60 lessons and did not discontinue the program.

There were 30 students who were randomly selected from the regular first grade pool of students and 18 Wait Listed students who were selected, but did not get a chance to participate in the program. Out of the 12 successfully discontinued students, 7 of them had between 40 and 59 lessons before they exited the program. Two of them had 60 to 79

TABLE 1.1

SALIENT FEATURES OF THE 1991-1992 COHORT

GROUPS	*NUMBER OF STUDENTS*
*GENDER**	
MALE	*42*
FEMALE	*24*
ETHNICITY	
BLACK	*27*
WHITE	*11*
HISPANIC	*32*
NATIVE AMERICAN	*2*
STATUS	
READING RECOVERY	
SUCCESSFULLY DISCONTINUED	*12*
>60 LESSONS NOT DISCONTINUED	*2*
<60 LESSONS NOT DISCONTINUED	*10*
RANDOM SAMPLE	*30*
WAIT LISTED	*18*

* Data was missing for 6 students on this variable.

lessons and 3 of them had 80 or more lessons before successful completion. The sample also contained 42 males and 24 females. When categorized by ethnicity, there was a slightly higher representation of Hispanic students (32) followed by 27 Blacks and 11 White students. Two Native Americans were also among these students.

RESULTS:

Average Band Achievement at the End of First Grade:

One of the major research questions of this evaluation is, "What proportion of Reading Recovery children who successfully discontinued the program, achieved end of the year scores equivalent to the average band of achievement of a Random Sample of first graders?" In order to elicit this information, the average band of scores was calculated by computing both the mean and standard deviation of the Random Sample. Then, by adding and subtracting .5 standard deviation from the mean, the boundaries of the average band were created. This procedure was repeated for each of the Reading Recovery subtests and the standardized test for the Random Sample group. In all, 7 average bands were created.

Table 1.2 and Table 1.3 present the results from the average band analyses. These Tables not only show the performance patterns of the Random Sample group and the successfully discontinued Reading Recovery group, but also the performance of the Wait Listed group and the Reading Recovery group that had less than 60 lessons. An overall pattern evidenced is that, a consistently higher percentage (80 % to 90%) of the successfully discontinued Reading Recovery students scored within or above the average band, than the Random Sample group (60% to 70%), or the Wait Listed group (about 6%), on all the four subtests of Reading Recovery.

However, this trend changed with regard to the performance on the Stanford Achievement Test. A consistently lower percentage (11.1%) of the successfully discontinued students scored above the average band than the Random Sample group (29% - 38%). The percentage of students scoring within the average band performance was higher (55.6%) for

TABLE 1.2

PERCENTAGE OF STUDENTS SCORING WITHIN THE AVERAGE BAND ON THE READING RECOVERY SUBTESTS IN 1991-1992

AVERAGE BANDS	GROUPS			
	SUCCESSFULLY DISCONTINUED	< 60 LESSONS READ REC.	RANDOM SAMPLE	WAIT LISTED
WORD TEST				
BELOW AVE.	—	20.0	26.7	94.1
WITHIN AVE.	16.7	80.0	30.0	5.9
ABOVE AVE.	83.3	—	43.3	—
WRITING VOCABULARY				
BELOW AVE.	8.3	80.0	36.7	100.0
WTHIN AVE.	33.3	20.0	30.0	—
ABOVE AVE.	58.4	—	33.3	—
SPRING DICTATION				
BELOW AVE.	—	20.0	26.7	100.0
WITHIN AVE.	16.7	60.0	33.3	—
ABOVE AVE.	83.3	20.0	40.0	—
TEXT READING LEVEL				
BELOW AVE.	—	80.0	40.0	100.0
WITHIN AVE.	33.3	20.0	23.3	—
ABOVE AVE.	66.7	—	36.7	—

the Reading Recovery group on the Reading Comprehension subtest than the Random Sample group (33.3%). However, on the Vocabulary subtest, there were no differences between the groups. A relatively higher percentage of Reading Recovery students also fell on the lower side of the average band on both Reading Vocabulary (55.6% vs 28.6%) and Total Reading Scores (44.4% vs 28.6%).

TABLE 1.3

PERCENTAGE OF STUDENTS SCORING WITHIN THE AVERAGE BAND ON THE STANFORD ACHIEVEMENT TEST IN 1991-1992

AVERAGE BANDS	*GROUPS*			
	SUCCESSFULLY DISCONTINUED	*<60 LESSONS READ.REC*	*RANDOM SAMPLE*	*WAIT LISTED*
READING COMPREHENSION				
BELOW AVE.	*33.3*	*50.0*	*33.3*	*100.0*
WITHIN AVE.	*55.6*	*50.0*	*33.3*	—
ABOVE AVE.	*11.1*	—	*33.3*	—
WORD READING				
BELOW AVE.	*55.6*	*100.0*	*28.6*	*80.0*
WITHIN AVE.	*33.3*	—	*33.3*	*20.0*
ABOVE AVE.	*11.1*	—	*38.1*	—
TOTAL READING				
BELOW AVE.	*44.4*	*75.0*	*28.6*	*80.0*
WITHIN AVE.	*44.5*	*25.0*	*42.8*	*20.0*
ABOVE AVE.	*11.1*	—	*28.6*	—

In summary one may say that, although the Reading Recovery students and the Random Sample students exhibit similar patterns within the average band performance level, there is quite a disparity in the performance level at the two ends of the average band, with the Random Sample students performing better than the successfully discontinued Reading Recovery students.

A comparison of the (Mean) Performance of Students on the Reading Recovery Subtests at the End of First Grade:

Table 1.4 presents the mean scores of the Reading Recovery students, the Wait Listed students, and the Random Sample students on the Reading Recovery subtests. The Reading Recovery students have been divided into two groups. Column 1 represents students who had successfully discontinued the program and column 2 represents students who had less than 60 lessons and did not discontinue the program. A cursory glance shows that the Reading Recovery students who had successfully exited the program outperformed all other students. The Wait Listed students' performance appear to be the weakest.

In order to find out if the differences seen are significant, a Kruskal-Wallis Oneway Analysis of Variance was carried out. The results showed that there were systematic differences among groups in each of the four subtests. The mean rank scores presented in Table 1.5 shows the order of performance among these groups. The results reflect the true mean scores in that, consistently, successfully discontinued Reading Recovery students held the foremost rank. Similarly the Random Sample group consistently held the second position. The differences in the mean scores as well as the mean rank scores suggest that

these two groups of students performed significantly better than the Wait Listed group on all the four subtests.

TABLE 1.4

DISTRIBUTION OF THE MEANS OF STUDENTS ON THE READING RECOVERY TESTS AND STANFORD ACHIEVEMENT TEST

MEASURE	READING RECOVERY						WAIT LISTED			RANDOM SAMPLE		
	DISCONTIN.			NOT DISCONT.								
	N	MEAN	SD	N	MEAN	SD	N	MEAN	SD	N	MEAN	SD
WORD TEST	12	19.8*	3.7	5	12.4	5.3	17	5.1	5.0	30	16.1*	4.4
WRIT VOCAB.	12	46.8*	7.6	5	23.8	9.3	17	10.6	8.3	30	38.6*	14.6
DICTATION	12	35.9*	1.3	5	30.2	4.5	17	10.8	10.3	30	31.8*	4.9
TEXT READ.	12	20.7*	6.3	5	6.6	3.7	17	1.6	2.1	30	13.3*	8.9
STANFORD SUBTESTS - AT THE END OF GRADE 1 (1991-1992)												
READ. COMP.	12	38.0	12.6	4	40.0	13.5	14	28.8	14.4	29	43.1	21.7
WORD READ.	12	44.1*	9.1	4	24.6	6.6	14	20.0	17.3	29	41.7*	19.7
TOTL. READ.	12	42.6*	10.1	3	30.0	6.9	14	20.6	16.5	29	45.0*	20.0
STANFORD SUBTESTS - AT THE END OF GRADE 2 (1992-1993)												
READ. COMP.	9	42.4	16.8	4	36.2	10.6	6	24.8	12.7	21	47.2	19.8
WORD READ.	9	44.1	28.5	4	30.4	11.8	5	22.6	22.6	21	57.2*	24.9
TOTL. READ.	9	43.4	14.2	4	34.0	5.9	5	28.4	9.7	21	51.5	20.5

However, a similar conclusion cannot be made with respect to the performance of not-discontinued students, as their means as well as their mean ranks were not very different from that of the Wait Listed group. It was also interesting to note from the standard deviations presented in Table 1.4, that, the successfully discontinued Reading Recovery students appear to be a more homogeneous group than the other groups of students. This may be attributed to the effects of the Reading Recovery program.

A comparison of the (Mean) Performance of Students on the Stanford Achievement Test at the End of First Grade:

A second set of Kruskal-Wallis Oneway Analysis of Variance was also carried out to draw additional conclusions about the performance levels of students based on the Stanford Achievement test. The results of the analyses are presented in Tables 1.4 and 1.5. In the area of Reading Comprehension, there were no significant differences in the performance of students. In other words, all the four groups exhibited similar skill level in this area, implying that, the same level of comprehension skills were achieved, irrespective of being in a remediation program like Basic skills, or in the Reading Recovery program, or in a regular classroom setting. However, a look at the means (Table 1.4) or the mean rank scores (Table 1.5) show that in the area of Reading Comprehension, the Random Sample students' performance was slightly higher than both groups of the Reading Recovery students.

Nevertheless, in the area of Word Reading, significant results were obtained. The performance of the Reading Recovery students who had successfully exited the program

appear to be the foremost, followed by the performance of the Random Sample group. The large difference in the means between the Reading Recovery Group (44.1 NCE) and the Wait Listed group (20.0 NCE) indicates the performance level of the Reading Recovery students to be significantly better than that of the Wait Listed group.

TABLE 1.5

MEAN RANKS OF STUDENTS ON THE READING RECOVERY SUBTESTS AND THE STANFORD ACHIEVEMENT TEST KRUSKAL-WALLIS ONEWAY ANALYSIS OF VARIANCE

MEASURES	READING RECOVERY		RANDOM SAMPLE	WAIT LISTED	SIGNF.
	DISCONTINUED	NOT DISCONT.			
WORD TEST	49.9*	24.6	38.6*	11.9	.000*
WRIT VOCAB.	49.0*	23.8	39.5*	11.0	.000*
DICTATION	51.9*	30.6	37.7*	10.2	.000*
TEXT READ.	50.8*	26.9	38.4*	10.8	.000*
STANFORD TESTS - AT THE END OF GRADE 1 (1991-1992)					
READ COMP.	30.8	33.1	33.9	20.6	.120
WORD READ.	37.7*	18.8	34.9*	16.4	.002*
TOT. READ	34.2*	19.7	35.4*	15.4	.002*
STANFORD TESTS - AT THE END OF GRADE 2 (1992-1993)					
READ COMP	21.1	16.8	23.7	10.6	.100
WORD READ	18.8	12.5	24.4*	9.8	.030*
TOT. READ	20.3	13.9	23.7	9.0	.060

A similar conclusion can be drawn with regard to the Random Sample students who ranked second, close to the Reading Recovery students. Due to the nature of the Kruskal-Wallis Test, no other definitive inferences can be drawn.

Similarly, significant results were obtained in the area of Total Reading Scores, with the Random Sample students taking the lead, followed by the successfully discontinued Reading Recovery group. Once again the significant results obtained could be attributed to the difference in scores between the Random Sample group and the Wait Listed group, and the successfully discontinued Reading Recovery group and the Wait Listed group.

A comparison of the (Mean) Performance of Students on the Stanford Achievement Test at the End of Second Grade:

It is not clear if inferences pertaining to the performance of Reading Recovery students on the standardized tests can be drawn effectively, from the mixed results presented earlier. A better way of assessing effectiveness of any program is to consider its sustained effects. Hence, as a follow up on the performance of the 1991-1992 cohort, a comparison of the mean scores was carried out with the Kruskal-Wallis Oneway Analysis of Variance procedure, on their second grade Stanford Achievement test scores. Table 1.4 and Table 1.5 presents the mean scores and mean ranks of students on Total Reading, Reading Comprehension, and Word Reading.

The Kruskal-Wallis procedure yielded significant differences only in the area of Word Reading. Once again, no systematic differences among the four groups were noted in the area of Reading Comprehension. This result is consistent with the one obtained at the end

of the first grade. Additionally, at the end of the second grade, no systematic differences were seen in the area of Total Reading scores. The significant pairwise comparison for Word Reading appear to stem from the differences in the mean scores of the Random Sample group and the Wait Listed group. Other differences do not exhibit the same magnitude to be considered significant.

These results differ from the ones obtained for the first graders in that, the performance of the Reading Recovery students, at the end of their second grade, are not very different from that of the Wait Listed students. Also, note that the means of the Random sample group and the Reading Recovery group, at the end of the first grade were very similar on Total Reading and Word Reading. On the contrary, for the same two areas at the end of the second grade, the gap between the difference in the means appear to have widened. This may imply that the Reading Recovery students are not able to maintain the same level of performance as their Random Sample counterparts. Could this mean that the program has not been able to sustain its effects? Maybe, it also means that the students may need some form of support to help maintain their skill level. However, due to the small sample size, it may be premature to draw conclusive inferences. A longitudinal study can certainly clarify some of the issues raised here.

Proficiency Rates on the Stanford Reading Test:

Another measure of student achievement would be the proficiency rates of the Reading Recovery students. Proficiency rates determine the percentage of students who score above the cutoff on the Stanford Achievement test. The results presented in Table

1.6 reflect end of the year performance for both the first and second grade students. At the end of the first grade, half (50%) of the successfully discontinued Reading Recovery students still required remediation in Reading, compared to 38% of the Random Sample students. Although a relatively higher percentage (71%) of the Wait Listed students, appear to require remedial services, the fact that 50% of successfully discontinued students still require supplemental services poses questions about the effectiveness of the program. A similar pattern is also witnessed with respect to the performance of students at the end of the second grade, where, a nigher percentage (44%) of Reading Recovery students continued to require remediation as opposed to the Random Sample group (24%).

TABLE 1.6

PROFICIENCY RATES OF STUDENTS AT THE END OF THE FIRST AND THE SECOND GRADES

GROUPS	*AT THE END OF GRADE 1 (1991-1992)*	*AT THE END OF GRADE 2 (1992-1993)*
DISCONTINUED READ.REC	*50.0*	*56.0*
NOT DISCONTIN. READ.REC	—	*25.0*
WAIT LISTED	*29.0*	*20.0*
RANDOM SAMPLE	*62.0*	*76.0*

In summary one may conclude that, successfully discontinued Reading Recovery students perform well on the Reading Recovery subtests. However, their performance on the standardized test poses questions about the transformation and utilization of the reading

skills and strategies learnt in the Reading Recovery program. This pattern of skill deficiency on the Stanford Achievement test scores appear to hold through the second grade. Also, the high percentage of the successfully discontinued Reading Recovery students requiring remediation at the end of the first and second grades, parallel foregoing concerns.

On the other hand, since this group of Reading Recovery students consistently performed better than their Wait Listed counterparts, on the Reading Recovery subtests as well as on the standardized test, one cannot totally reject the effectiveness of the program in helping students with reading difficulties. The following Section might further help to clarify patterns, if any, with respect to the effectiveness of the program.

SECTION II

This section will highlight the performance of first grade Reading Recovery students and their counterparts from 1992-1993 school year. The performance of students on the Reading Recovery subtests, as well as, the standardized test will be discussed in this section.

Sample:

Data for the 1992-1993 cohort was also provided by New York University. The data set comprised of 87 first grade students from the same four participating schools as in section I. There was an almost equal distribution of males (42) and females (45) in this data set (see Table 2.1). A similar pattern was seen with regard to ethnicity, with an almost equal assembling of students in to three major categories. There were 25 White students, 33 Black students and 28 Hispanic students. One Asian student was found in this sample.

Out of these 87 students, 20 had successfully discontinued the Reading Recovery program at the end of the first grade. While 9 of these students required between 11 and 39 lessons to complete the program successfully, 11 of them exited the program with 40 to 79 lessons. A further breakdown of the second category shows that 5 of them required between 40 and 60 lessons to exit the program. An almost equal number of students (18) were identified as the Reading Recovery students who had less than 60 lessons and did not discontinue the program. This sample also contained 31 randomly selected first grade

TABLE 2.1

SALIENT FEATURES OF THE 1992-1993 COHORT

GROUPS	*NUMBER OF STUDENTS*
GENDER	
MALE	*42*
FEMALE	*45*
ETHNICITY	
BLACK	*25*
WHITE	*33*
HISPANIC	*28*
ASIAN	*1*
STATUS	
READING RECOVERY	
SUCCESSFULLY DISCONTINUED	*20*
<60 LESSONS NOT DISCONTINUED	*18*
RANDOM SAMPLE	*31*
WAIT LISTED	*18*

students who were not participating in the Reading Recovery Program, but will serve as the comparable Random Sample students. The other comparison group (Wait Listed students) consisted of 18 students who were selected for the Reading Recovery program but did not get a chance to participate.

RESULTS:

Average Band Achievement at the End of First Grade:

One of the techniques used to determine the effectiveness of the Reading Recovery program is the average band analysis. As explained in the previous section, average bands were created for the four subtests of the Reading Recovery and the three tests of the Stanford Achievement test, based on the performance of the Random Sample group.

Tables 2.2 and 2.3 present the percentage of students categorized as performing below, within, or above the average band in each of the subtests. Eighty to ninety percent of the successfully discontinued Reading Recovery students appear to have scored within or above the average band in all the four subtests of Reading Recovery. This certainly shows the program to be effective in increasing the skill level of these students in these areas. A similar but slightly lesser percentage (60% to 80%) of Random Sample students also scored well on these subtests. Since the goal of the program is to improve the Reading skills of the program students to the average level of the first grade students, one may argue that the program has been effective in achieving this goal.

However, unlike in the case of 1991-1992 cohort, where there was a marked difference between the performance of the successfully discontinued Reading Recovery

TABLE 2.2

PERCENTAGE OF STUDENTS SCORING WITHIN THE AVERAGE BAND ON THE READING RECOVERY SUBTESTS IN 1992-1993

AVERAGE BANDS	GROUPS			
	SUCCESSFULLY DISCONTINUED	< 60 LESSONS READ REC.	RANDOM SAMPLE	WAIT LISTED
WORD TEST				
BELOW AVE.	20.0	61.5	16.7	35.3
WITHIN AVE.	35.0	30.8	45.8	41.2
ABOVE AVE.	45.0	7.7	37.5	23.5
WRITING VOCABULARY				
BELOW AVE.	10.0	46.2	24.0	33.3
WITHIN AVE.	25.0	23.1	48.0	33.3
ABOVE AVE.	65.0	30.8	28.0	33.4
SPRING DICTATION				
BELOW AVE.	5.0	38.5	20.0	33.3
WITHIN AVE.	30.0	46.1	36.0	33.3
ABOVE AVE.	65.0	15.4	44.0	33.4
TEXT READING LEVEL				
BELOW AVE.	10.0	76.9	41.7	55.5
WITHIN AVE.	60.0	23.1	33.3	16.7
ABOVE AVE.	30.0	—	25.0	27.8

students (80% to 90%) and the Wait Listed students (about 6%), the difference between the two groups for this cohort is much smaller. With the exception of the Text Reading level, close to 65% of the Wait Listed students performed within or above the average band. A slightly smaller percentage (54%) of these students performed within or above the average band on the Text Reading Level.

Note that these students did not receive any lessons in the Reading Recovery program and still managed to perform moderately well on these tests. Since some of these students might have had other supplementary remediation, one can argue that receiving Reading Recovery or any other type of remediation can improve the reading skills of these students.

The pattern seen above did not hold good for the standardized test. From Table 2.3, it is evident that, a higher percentage of the Random Sample students scored above the average band in all the three areas of the test. Also, a consistently lower percentage of the successfully discontinued Reading Recovery students scored above the average band than the Wait Listed students. The overall within or above the average band performance of the Wait Listed students appear to be very similar to that of the Reading Recovery students. The only area where the Reading Recovery students show a stronger skill level appears to be the Word Reading area. This once again resembles the results obtained for the first set of cohort, where, disparity in the performance level of the Random sample group and the Reading Recovery group was found at the two ends of the average band.

TABLE 2.3

PERCENTAGE OF STUDENTS SCORING WITHIN THE AVERAGE BAND ON THE STANFORD ACHIEVEMENT TEST IN 1992-1993

AVERAGE BANDS	GROUPS			
	SUCCESSFULLY DISCONTINUED	<60 LESSONS READ.REC	RANDOM SAMPLE	WAIT LISTED
READING COMPREHENSION				
BELOW AVE.	55.5	58.3	30.4	50.0
WITHIN AVE.	27.8	33.4	34.8	21.4
ABOVE AVE.	16.7	8.3	34.8	28.6
WORD READING				
BELOW AVE.	35.3	66.7	26.1	53.8
WITHIN AVE.	52.9	25.0	56.5	7.7
ABOVE AVE.	11.8	8.3	17.4	38.5
TOTAL READING				
BELOW AVE.	58.8	66.7	30.4	46.2
WITHIN AVE.	29.4	25.0	39.2	30.8
ABOVE AVE.	11.8	8.3	30.4	23.0

A Comparison of the (Mean) Performance of Students on the Reading Recovery Subtests:

Table 2.4 displays the mean scores of students on all the subtests of Reading Recovery and the Stanford Achievement test. Parallel to the grouping of the first set of

cohort, for comparison of means, the Reading Recovery students were categorized into two groups; those who successfully discontinued the program, and those who did not discontinue and had less than 60 lessons. In addition, the Random Sample group and the Wait Listed groups were also included in the analyses.

TABLE 2.4

DISTRIBUTION OF THE MEANS OF STUDENTS ON THE READING RECOVERY TESTS AND THE STANFORD ACHIEVEMENT TEST IN 1992-1993

MEASURE	READING RECOVERY						RANDOM SAMPLE			WAIT LISTED		
	DISCONTIN.			NOT DISCONT.								
	N	MEAN	SD	N	MEAN	SD	N	MEAN	SD	N	MEAN	SD
WORD TEST	20	18.4*	2.0	13	13.2	6.1	24	17.8*	3.4	17	15.6	5.7
WRIT VOCAB.	20	52.6*	14.9	13	35.5	14.5	25	39.8	12.1	18	40.1	16.8
DICTATION	20	35.7*	1.7	13	27.5	10.7	25	33.2*	4.5	18	31.3	7.7
TEXT READ.	20	16.8*	4.4	13	7.7	4.8	24	14.8*	7.3	18	12.3	8.8
STANFORD SUBTESTS												
READ. COMP.	18	44.6	16.0	12	45.3	12.6	23	52.9	11.2	14	47.6	18.9
WORD READ.	17	42.5	17.2	12	35.7	10.8	23	46.8	16.4	13	43.5	19.2
TOTL. READ.	17	44.1	15.4	12	40.9	10.5	23	51.9	13.3	13	47.0	18.4

A cursory glance revealed that, the successfully discontinued Reading Recovery students outperformed all other groups of students. Although the performance of the Reading Recovery students appear to be the best, true differences in the level of

performance cannot be inferred with the information presented. A further statistical analysis of the comparison of the means will delineate the differences. Oneway Analysis of Variance was used to find, if there were any significant differences among the groups of students. (Since we had more than 10 students in each of these groups, Oneway Analysis of Variance was used in place of the non-parametric procedure Kruskal-Wallis Oneway Analysis of Variance.)

The results confirmed that there were significant differences among the groups for each of the subtest. In order to discern these systemic differences, post hoc analyses were carried out with Least Significant Difference (LSD) procedure. The pair-wise comparisons can clearly state which groups were different from one another. On all the four Reading Recovery subtests, the successfully discontinued Reading Recovery students performed better than the Wait Listed students, as well as, the not discontinued Reading Recovery students. However, their performance was significantly better than the Random Sample group only with regard to Writing Vocabulary subtest. On the remaining three subtests, the Reading Recovery students and the Random Sample group performed at the same level. Also, the Random Sample students significantly outperformed the Reading Recovery students who had less than 60 lessons in all the subtests, with the exception of Writing Vocabulary.

The conclusion that can be drawn is that, the Reading Recovery students who successfully completed the program performed better or as well as the Random Sample group, and in doing so, reached the goal of the program to become average students in the area of Reading.

A Comparison of the (Mean) Performance of Students on the Stanford Achievement Test:

Once again, Oneway Analysis of Variance was carried out with the Stanford Achievement scores, to gather information on the impact of the Reading Recovery program on the performance of students on the standardized test. From Table 2.4 which presents the results of the analysis, it is evident that no systematic differences were found in any of the Stanford Achievement Test or subtests. In other words, the performance of students on the Stanford was not impacted in anyway by the type of remediation or non remediation they received.

However, the means presented in the Table show that, consistently, Random Sample students' scores were higher than all other groups of students. When we compare the scores of the successfully discontinued Reading Recovery students and the Wait Listed students, we see a pattern, where, the Wait Listed students' scores were higher than that of the Reading Recovery students. Although these differences were not statistically significant, it certainly raises questions about the performance of the Reading Recovery students. Intuitively, one may expect a reverse condition, with the Reading Recovery students scoring higher than the Wait Listed students.

This result combined with the ones obtained for the first set of cohort, clearly show that, the performance of the successfully discontinued Reading Recovery students on the Stanford Achievement test is not very different from that of the Wait Listed students. Although the Reading Recovery students' performance level is high on the Reading Recovery subtests, their achievement level on the Stanford appears to be low. For whatever

the reason may be, they are not able to transfer the skills learnt in the program to the standardized Test. Such results from two consecutive years suggest the need to modify and strengthen this part of the program.

Proficiency Rates on the Stanford Reading Test:

The previous section showed weaker performance of the Reading Recovery students on the Stanford Achievement test. An additional measure that can throw further light upon the performance of these groups of students on the Stanford test would be the proficiency rates. Proficiency rates determine the percentage of students who score above the cutoff on the Stanford achievement test, and these are the students who will not require any additional remediation the following year. If a reading intervention is successful, it should be able to return a large percentage of students to the regular classroom.

TABLE 2.5

PROFICIENCY RATES OF STUDENTS IN 1992-1993

GROUPS	*AT THE END OF GRADE 1*
DISCON. SUCCESS	*58.8*
NOT DISCONT.	*50.0*
WAIT LISTED	*69.2*
RANDOM SAMPLE	*91.3*

Table 2.5 highlights the proficiency levels of the two groups of Reading Recovery

students, the Random Sample students, and the Wait Listed students. From this Table it is apparent that, close to 40% of the Reading Recovery students who had graduated out of the program still required supplementary remediation in Reading at the next grade level. Compared to the Random Sample group, where only 9% of the students required remediation, 40% of the successfully discontinued Reading Recovery students requiring remediation does not speak in favor of the Reading Recovery program. Also, note that, a relatively lower percentage (30%) of the Wait Listed group required supplementary program to improve reading skills.

These results underscore the problems faced by the Reading Recovery students to effectively transfer the skills acquired with the help of the Reading Recovery intervention, to achieve better scores on the standardized test.

CONCLUSIONS AND RECOMMENDATIONS:

The goal of the Reading Recovery Program was to provide the bottom 20% of the first grade students with an opportunity to improve their reading skills, to the level of the average achieving students, in an intense one on one individualized learning environment. This promising intervention teaches students to develop skills and strategies to decode, learn, and read in a meaningful way, so that, the likelihood of failure can be prevented and timely accelerated progress can be achieved. Such a measure would not only provide a head start for the at-risk students, who otherwise could fall through the cracks of the system, but also elevate their performance level and help them stay mainstream throughout their school years.

Although studies from New Zealand and Ohio State corroborate the sustained effect of this program, the mixed results obtained for the Newark School District raises questions about the absolute success of the program. The academic outcome of these students on the Reading Recovery subtests, unequivocally attests to the improvement in the performance levels of students in the skill areas tested. Both 1991-1992 and 1992-1993 achievement outcomes indicated that the successfully discontinued Reading Recovery students, outperformed the Wait Listed students on all the Reading Recovery measures. Also, their performance on the subtests were either on par with that of the Random Sample students or better than the Random Sample students.

These results were further corroborated, when average band performance of students were considered. A consistently higher percentage (80% to 90%) of the successfully discontinued students scored within or above the average band, as opposed to the Wait Listed group of students. Once again, the average band performance of these students were slightly better than that of the Random Sample group. In these respects, one can argue that the Reading Recovery program has been successful in achieving its goals, by raising the achievement levels of students to that of the average students in the first grade.

However, since the standardized test constitutes the basis for measuring the achievement of students in the Newark School District, it was important to assess the success of the Reading Recovery program in the context of the standardized test. Although the first set of cohort at the end of their first grade, performed better than the Wait Listed students on Word Reading and Total Reading scores, the results were not replicated at the end of their second grade. However, the Random Sample group consistently performed better than

the Wait listed Group, both at the end of the first and the second grades. A similar set of result was obtained with the second set of cohort, where, there were no significant differences in the levels of performance of the Wait Listed group and the successfully discontinued Reading Recovery group.

A consistent pattern seen with regard to Reading Comprehension needs to be addressed here. Since Reading Recovery program teaches students to learn to read in a meaningful way, we would expect them to score better than the Wait Listed students on the Reading Comprehension subtest of the Stanford Achievement test. However, the results obtained indicated otherwise, that, there were no significant differences between the comprehension skills of the Reading Recovery group and the Wait Listed group that could be attributed to the intervention.

Another critical measure that can attest to the effectiveness of the intervention is the proficiency rate. Results from two consecutive years showed that, close to 50% of the successfully discontinued Reading Recovery students still lacked competency to be mainstreamed and required additional remediation in the area of Reading. This high percentage of students requiring supplementary instruction clearly shows the lack of ability on the part of the students to transfer the reading skills acquired in the program to other types of testing situations.

Although one may dismiss the poor performance of the Reading Recovery students on the standardized test, by arguing that such tests do not accurately evaluate the true reading skills of the students, it is important to reflect that many school districts still use standardized tests as the main measure of achievement. Since the Newark School District

utilizes standardized test scores as a primary evaluation tool, it may be imperative to modify and revise the existing Reading Recovery Program to accommodate this requirement. This is not an unrealistic goal or suggestion, since, research has shown that other reading intervention programs such as "Success For All" have accomplished this task. In Baltimore, students enrolled in the Success For All program, scored a full grade ahead of the control group on the individually administered test, as well as on the standardized CTBS test. Therefore, the Reading Recovery Program at the Newark School District should seriously consider making program changes, to help students transfer the skills learnt from the Reading Recovery program to other areas.

Also, since the program is relatively new, one must factor the implementation problems that arise with initiating a new program. With accumulated knowledge on the problems as well as the strengths of the program, the effectiveness of the program can be improved. Related research indicates that, students who receive continued support after leaving the Reading Recovery program, show better skill development and retention than those who are returned to a regular classroom without a support network. Perhaps, in-service for all the first grade teachers on Reading Recovery can alleviate some of these problems and help teachers to continue giving support to these students when they are exited from the Reading Recovery program. Administrators in the schools should also be educated on the importance of the continuity of the program. Sudden and numerous breaks during the Reading Recovery Program can lead to unsatisfactory results.

It may also be useful to get feedbacks from the trained teachers, teacher leaders, and teacher trainees about the problems faced by them in implementing the program. This

would further the knowledge on the implementation process and help in redesigning the program. In summary, although the program holds potential, it certainly needs revamping to successfully improve the reading skills of students.

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