
**SUSTAINED EFFECTS OF
READING RECOVERY INTERVENTION
ON THE COGNITIVE BEHAVIORS
OF SECOND GRADE CHILDREN
AND THE PERCEPTIONS
OF THEIR TEACHERS**

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LITERACY,
TEACHING AND
LEARNING

An International Journal of Early Literacy

Volume 1 Number 1 Fall 1994

READING RECOVERY (Clay, 1982, 1991, 1993b) IS AN EARLY INTERVENTION PROGRAM beginning with first grade children. The children identified as the lowest in the first grade cohort work one-on-one with a specially trained teacher for an intensive 30 minutes daily for approximately 12 to 20 weeks. As the child reads and writes whole text, the teacher responds in ways that support the development of a self-extending system. The ultimate goal is to enable these children to use reading and writing strategies effectively and independently so that they can function successfully in an average reading setting within the regular classroom. Sustained effects of the program should provide some evidence that the child has gained inner control of the strategic processes needed for an independent system that extends itself every time the child reads (Clay, 1991).

Evidence indicates that Reading Recovery has positive outcomes for first grade children already failing to progress at the same rate as their average classmates (Clay, 1982, 1990, 1993b; DeFord, Lyons, & Pinnell, 1991; Lyons, Pinnell, & DeFord, 1993; Pinnell, Lyons, DeFord, Bryk, & Seltzer, 1994). Each Reading Recovery site in the United States maintains local data collection procedures and prepares an annual report of program results. These data also feed into a national data bank at The Ohio State University to be aggregated across a growing, diverse population. There is also evidence of sustained gains in the extensive follow-up studies in New Zealand (Clay, 1993b) as well as the Columbus Project in Ohio (DeFord, Pinnell, Lyons, & Place, 1990; Lyons, Pinnell, & DeFord, 1993). Many individual sites have designed their own follow-up studies to explore the longitudinal benefits of this early intervention.

The general purpose of this study was to examine the sustained effects of the Reading Recovery intervention on second grade children who successfully completed the program by meeting established criteria (called discontinuing). First, they were observed while performing on literacy tasks a year or more following the intervention. Beyond the scores on these literacy tasks, evidence of the comprehending behaviors of the children as they read contributed to an understanding of their cognitive processes. Finally, the perceptions of classroom teachers about the literacy behaviors and school performance offered insights about program effects across time.

The following questions guided the study:

1. How do scores on three literacy tasks (text reading, dictation, and spelling) of second grade children who were successfully discontinued from Reading Recovery compare with scores of their second grade peers one year or more after the termination of the intervention?
2. In what ways are oral reading behaviors on text similar and different for the two groups?
3. Are there differences between the two groups (former Reading Recovery children and second grade peers) on measures of story retellings?
4. Are there differences between the two groups on measures of fluent reading during oral reading of text?
5. Are there differences in the ways these groups are perceived by second grade classroom teachers?

A consistently high percentage of the children who have an opportunity for a full program are successfully discontinued from the program into an average classroom setting annually, with the average percent discontinued ranging from 83 percent to 87 percent nationally (Lyons, Pinnell, & DeFord, 1993). Only discontinued children who met Reading Recovery criteria for successfully returning to an average classroom setting during the first grade year were included in this sample.

If a goal of Reading Recovery is to bring children up to average classroom achievement, an important question must be considered. What does it mean to bring them up to average and how does this affect the classroom teacher's perception of the range of reading behaviors among her students? Are the literacy behaviors of former Reading Recovery children expected to match those of children who required no intervention? These children began their first grade year with the lowest literacy profiles in their classrooms. Therefore, the notion of accelerated progress resulting in successful performance within an average classroom setting calls for an exploration of this phenomenon relative to children's performance and teachers' perceptions.

Exploring Comprehending Behaviors

Reading Recovery teachers are frequently questioned about the role of comprehension in the program. Rather than addressing comprehension as a separate process, Reading Recovery developer Marie Clay (1991) assumed that comprehension is an inherent focus in a meaning-based program. A person taking running records of text reading is observing for behavioral evidence of the reader's understanding. Evidence of the comprehending process in Reading Recovery has been examined in both theoretical and research settings (Askew, 1991, 1993).

Goodman (1985) argued that a distinction exists between comprehension as a product and comprehending as a process. He suggested that comprehending is a constructive process in which readers make sense of the text. It goes on during reading and long afterward as readers reconsider and reconstruct what was comprehended:

The relationships between comprehending and comprehension are not simple and isomorphic. What one knows after reading is the product of what one knew beforehand plus how well one read the text. So, effective comprehending is essential to effective comprehension, but not sufficient. Correlations between measures of the two . . . are moderate and significant, but not high. (p. 831-832)

Tierney (1990) suggested that four major developments since the 1970s have contributed to an expanded conception of comprehension. First is that reading involves constructive processes, with a view of meaning-making tied to key postulates: (a) the desire of readers to make sense drives comprehension processes, (b) understandings are essentially inferential, (c) background knowledge connects with expectations to develop meanings, and (d) interpretation and comprehension are both idiosyncratic and stylized. Tierney cited other developments contributing to a new view of comprehending: reading as writing, reading as engagement, and reading as situation-based. Clay (1991) also suggested that reading and writing acquisition involves the active construction of a network of strategies, with comprehending having a central role.

In the study reported here, comprehending was examined as evidence of a process of constructing meaning from text. Views of assessing meaning-making with young subjects vary in the literature. Three indicators assumed to show evidence of the comprehending process are explored here: processing behaviors during the reading of continuous text, retelling behaviors, and fluency behaviors.

Analysis of Oral Reading

Analysis of oral reading errors has been explored relative to the notion of reading comprehension. Although Leu (1985) cautioned against using oral reading to estimate the kind of linguistic processing going on inside the head of a reader, there is evidence that with young children the analysis of oral reading can be quite informative (Johnston, 1992).

Goodman (1985) contended that evaluation of reading has generally focused on comprehension as a product measured by a post reading test of knowledge. Typical formats include explicit text-based questions, general questions, open-ended retellings following reading, and a combination of these. Since these follow the reading, they are limited by what the reader is willing and able to report as well as what has been comprehended. Comprehension may be changed in the course of testing on the basis of questions which invite particular responses and views.

Miscue analysis is a means of examining comprehending as it takes place during reading (Goodman, 1985). Goodman contended that readers utilize three information systems in comprehending: the graphophonic system, the syntactic system, and the semantic system. Oral reading miscues are examined. "The extent to which miscues result in meaningful text or are self-corrected if they disrupt meaning gives strong indications of the reader's concern for and ability to make sense of the text" (p. 831).

As a tool for observing young readers' oral reading behaviors, Clay (1993a) developed the running record of text reading described in her book, *An Observation Survey of Early Literacy Achievement*. When a child is reading out loud, the recorder simply takes a blank sheet of paper and records the child's reading behaviors in a controlled and systematic way. Advantages of the running record include its flexibility for use at any time and on any book as well as its lack of relationship to a testing setting (Johnston, 1992). Analysis of oral reading errors provides insight into whether children are predicting using sources of information flexibly and strategically.

When examining oral reading errors, the recorder can find consistencies in information about how the child gathers up the cues—from the structure of the sentence, the meaning of the message, the visual cues of the letters, or letter order. The recorder can infer from the kinds of errors and self-corrections that children make, along with their comments during the reading, much of what they are attending to and understanding (Clay, 1993a).

Retellings

Behaviors called upon in retelling events offer evidence about the child as a meaning-maker. Irwin and Mitchell (1983) argued that retellings indicate not only what readers recall from the text, but what they view as important as well as how they organize what they recall. Retellings may provide insights into the product and the process, yielding information about what is comprehended as well as the processes used in comprehending. Mitchell (1988a) suggested that retellings reveal other things about a child's comprehension: sensitivity to text genre, awareness of author's organizing strategies, language fluency, ability to organize retellings in a coherent fashion, ability to identify the important aspects of the material read, and evidence of miscomprehension.

Johnston (1992) outlined limitations frequently cited for using retellings as an assessment of comprehending behaviors. First, he challenged the typical audience for the retelling. It is an unusual social situation in which a child has to retell a shared story to the person who just heard or read it. He suggested that there are ways to make retellings more socially appropriate: retelling to a teacher who has not read the story and who may question the reader, storytelling, dramatization using props or representations, and a variety of additional options and combinations of options. Johnson further argued that some children may be shy in a performance situation. Although he reported studies that indicated that more able readers tend to give more retelling responses than less able readers, Johnson suggested that the able readers are more likely to recognize and fit into a testing situation while the less able readers tend to give a shorter but more socially appropriate response.

Garcia and Pearson (1991) called for contextualized retellings that include all children, inviting them to respond in comfortable and familiar ways. They also suggested that bilingual children may need to present their retellings in their first language.

Fluency

Although the term fluency is widely used in the literature, it is difficult to find precise definitions of it. Common usage ranges from an emphasis on the mechanical aspects of rapid reading to an emphasis on the connections between fluency and the expressions of thought (Hoffman & Isaacs, 1991).

Slayter and Allington (1991) argued that discussions of dysfluency too often focus on slow or deficient decoding or word recognition abilities. They contended that even in initial stages of acquisition, oral reading fluency is more directly linked to text comprehension processes than to word recognition.

"Nothing destroys the meaning more rapidly than droning through the phrases and punctuation marks, pausing at points which break up the syntactic groups and the sense" (Clay, 1991). Clay and Imlach (1971) studied pause and stress behaviors of children at a grade

placement comparable to second grade in the United States. They found that good readers were operating at the sentence and phrase level, moving to the word level when necessary. They appeared to gain speed and understanding from anticipating whole stretches of text and checking their predictions visually. Low progress readers, however, seemed unable to use cues beyond the syllable and word level and were overcommitted to the notion that reading was recognizing or sounding out words.

Based on Clay's work, DeFord (1991) suggested that flexibility in using all information sources when reading is the goal of fluency instruction, not just increased pacing of text reading. If fluent reading is influenced by a reader's facility and flexibility in monitoring and searching actively for sources of information, in checking one source of information against another, and in solving problems, then it seems that the study of fluent reading behaviors should provide some evidence of comprehending behaviors while reading text (Clay, 1993b):

Fluent reading in young, beginning readers has been associated with the process of comprehending or meaning-making. When the reading is phrased like spoken language and the responding is fluent (and some people say fast), then there is a fair chance that the reader can read for meaning, check what he reads against his language knowledge, and his attention can go mainly to the messages. (p. 51)

Clay (1993b), however, cautioned that two essential kinds of learning must be balanced: successful reading of familiar material which strengthens the decision-making processes, and independent problem-solving on new and interesting text with supportive teaching.

The relationship between fluent oral reading and comprehending is a tenuous one. Dowhower (1991) compared the relationship to the chicken-and-the-egg dilemma. She argued that it is not possible to know which comes first or if one is necessarily an indicator of the other. It does, however, appear that comprehension and fluent reading are linked, but it is unclear how they are related.

Pilot Study

A comprehensive pilot study was conducted to explore ways of comparing former Reading Recovery children who had successfully discontinued from the program in grade one with their second grade peers on a variety of measures: literacy tasks, retelling tasks, fluent reading measures, and perceptions of second grade teachers. At the end of their second grade year, 50 discontinued Reading Recovery children were randomly selected from the total list of discontinued children in three sites. A random group of 50 children was also selected from all regular first grade classrooms in Reading Recovery schools in the same three sites. Children in both groups were selected from the total eligible population using a table of random numbers. Any children formerly served in Reading Recovery were ineligible for membership in the random group, making comparisons more rigorous for the Reading Recovery group. In both groups the numbers of males and females were similar and ethnic representation included Anglo, African American, Hispanic, and Asian.

Tasks and Procedures

Literacy performance was assessed using measures of oral reading of text, dictation, and spelling. The Reading Recovery test packet, used nationally for program data collection, was used as the test of text reading. The packet comprises a series of selections that have been leveled according to gradients of difficulty. Books and selections have been tested for levels of difficulty across large numbers of children through the Reading Recovery project at The Ohio State University. (See Table 1 for an explanation of text reading levels.) Running records (Clay, 1993a) were used to determine book level scores and to document oral reading behaviors.

The dictation task, developed by DeFord (DeFord, Pinnell, Lyons, & Place, 1990), consisted of a two sentence passage that was read to the child first as whole text and then reread as needed for the child to write each word. The child was reminded to say each word slowly and

Table 1***Correspondence Between Text Reading Levels and Traditional Grade-Level Designations***

Text Reading Level	Grade Level Designation ^a
1-4	R
5-8	Preprimer
9-12	Primer
14-16	First Reader
18-20	Second Reader
22-24	Third Reader
26	Fourth Reader
28	Fifth Reader
30	Sixth Reader
32	Seventh Reader
34	Eighth Reader

^aMaterials representative of commercially graded reading series.

to write anything he or she heard. Dictation scores represented the number of sounds heard and recorded from a possible 64 sounds. The same task was used to obtain a spelling score. A point was assigned for each word written correctly, with a possible score of 18.

Two tasks were used to document evidence of comprehending behaviors. The first was an oral retelling following each text reading for which the oral reading accuracy was 90 percent or higher. Working on the assumption that retellings can yield information about the comprehending process, investigators explored a variety of retelling scoring options. An important criterion was the use of a system that viewed comprehending as both text-based and reader-based. Therefore, the holistic system proposed by Mitchell (1988b) was used with some modification. The following categories provided the basis for scoring retellings in this study: (a) text-based comprehension (including attention to explicit information, inferred information, important information, and relevance of content and concepts); (b) reader's response and reactions to text (including use of prior knowledge, application of generalizations, use of creative reactions to text, and affective involvement with text); and (c) reader's language use (including language fluency and organization abilities). Two of Mitchell's indicators from the third category: evidence of the reader's sense of audience or purpose and evidence of the reader's control of the mechanics of speaking or writing, were excluded because of the nature of this study.

The second measure of comprehending behaviors was fluent oral reading. The system chosen for the scoring of fluency measures on text reading was a multidimensional fluency scale (Zutell & Rasinski, 1991) rather than some of the more traditional, single dimension scales often used. Zutell and Rasinski's multidimensional scale consists of three dimensions: pace, smoothness, and phrasing. Within each dimension, four levels are described serving as a scoring rubric. Although the three aspects of pace, smoothness, and phrasing influence each other, they are somewhat distinct. This multidimensional scale was selected to add descriptive data about the strengths and weaknesses of the readers.

In order to tap the perceptions of classroom teachers, a questionnaire was developed. In addition to information about grades, reading group placement, placement in any other programs, and basal/text placement, the instrument included questions about teacher perceptions of each child's performance on a number of factors and predictions for each child's future reading and writing performance.

All testing was completed in May by Reading Recovery teacher leaders approaching the end of their training year. All text readings, along with retellings, were audiotaped. Retellings were transcribed verbatim. Questionnaires were collected from the classroom teachers of the Reading Recovery children. Although general questions were asked of teachers of the random sample group, these teachers did not complete questionnaires on random group children, a clear limitation of the pilot study.

Pilot Results

Literacy scores were examined to determine if mean scores of Reading Recovery children fell within an average band, measured as a standard deviation above and below the mean, of the mean scores of the random group. Mean scores on the three literacy tasks (text reading, dictation, and spelling) are shown in Table 2. Reading Recovery children scored within average range for their peer group in second grade. The mean text reading level for the Reading Recovery group indicated that, on an average, children successfully (at 90 percent accuracy or above) read a passage taken from a fourth grade reader. Mean scores for the random sample group reflected successful oral reading performance on a passage from a fifth grade reader.

No significant differences ($p < .05$) were found between the Reading Recovery and the random group on any of the three retelling indices or when all three indices were considered together (See Table 2 for means and standard deviations on retelling measures.). Although responses were generally short and not elaborated, children in both groups revealed the main idea or general theme of the selection. Their facts and inferences were generally relevant. Most retellings, again across both groups, were organized sequentially or in a way to be easily understood. Very few children volunteered more information as the result of a teacher prompt to continue. It is possible that the decision to score the retellings on the highest level passage read at 90 percent or better influenced the scores. Children were frequently retelling passages taken from materials considerably above their grade level assignment. Conceptual load may have been a factor in retelling measures. For example, one of the higher passages was about a maestro/virtuoso.

There were no significant differences ($p < .05$) between the two groups on any of the three measures of reading fluency or when the three measures of fluency were considered together. Fluency scores were not generally very high for either group (see Table 2). Very few children were fluent on all three dimensions perhaps because these were first readings of novel texts. It should also be noted that fluency measures were based on the highest text level read at 90 percent accuracy or higher. Frequently these text levels were considerably higher than a typical second grade passage. Therefore, conceptual load and/or text characteristics may have affected the children's attempts at fluency and may have influenced findings in this pilot study.

Because complete questionnaire data were collected only on Reading Recovery children, results reflecting teacher perceptions were of limited value. It seems important, however, to report status of discontinued children relative to referrals for additional support services. Of the 50 children in this study, 42 received no additional remedial support. Chapter 1 continued to serve four children, while four were served for learning disabilities.

Teacher-reported data also indicated that a dramatic number of high text readers may be under-placed in basal/text materials in both the random and the Reading Recovery groups. Most children were placed in texts identified as on-level, regardless of group assignment. Therefore, membership in a high group did not correlate strongly with basal/text level placement.

On a five-point scale of reading behaviors and attitudes, teachers perceived that most of the discontinued Reading Recovery children were average in reading ability. Teachers also perceived that the children generally had positive attitudes about reading, chose books when time allowed, worked diligently on school tasks, and responded well to discussion. When predicting reading progress for these children in third grade, teachers indicated that 24 of the children should continue to make good to excellent progress. They predicted that 16 would make steady progress while five would make cautious progress.

Table 2*Pilot Study Means, Standard Deviations, and Average Band for Scores on Literacy Tasks, Retellings, and Fluency Measures*

Task Score	Maximum	Reading Recovery (<i>n</i> = 50)	Random Sample (<i>n</i> = 50)	Average Band (1 SD)
Dictation Task	64	60.32 (3.50)	61.20 (4.19)	57.01-64.39
Spelling Task	18	12.26 (2.86)	13.90 (3.17)	10.73-17.07
Text Reading Task	34	25.78 (5.75)	28.42 (6.85)	21.57-35.27
Fluency: Pacing	4	2.09 (.97)	2.43 (.93)	1.50-3.36
Fluency: Smoothness	4	1.93 (.89)	2.30 (.79)	1.51-3.09
Fluency: Phrasing	4	2.07 (.89)	2.30 (1.03)	1.27-3.33
Retelling: Text-Based	16	8.84 (2.25)	9.12 (2.94)	6.18-12.06
Retelling: Prior Knowledge	16	4.07 (.34)	4.15 (.42)	3.73-4.57
Retelling: Language	8	4.23 (1.07)	4.39 (1.32)	3.07-5.71

Limitations of Pilot Study

Findings in the pilot study were influenced by the following limitations: (a) the population lacked diversity, including suburban districts with records of achievement levels well above the national average; (b) text levels used for fluency and retelling data may have included conceptual and vocabulary loads that were inappropriate for the children, affecting comprehending behaviors; (c) questionnaires were completed only for Reading Recovery children, with limited data about random children coming from informal dialogue with teachers; and (d) running records were not analyzed for evidence of reading behaviors during the processing of continuous text.

A replication of the study considering the limitations as well as refinement of procedures was considered important. Establishment of scoring criteria for retellings and fluency was an important result of the pilot study. The main study was intended to include a more diverse population and to include additional analyses.

The Main Study

Method

Subjects

At the end of their second grade year, 54 children who had been successfully discontinued from the Reading Recovery program during their first grade year were randomly selected in nine school districts. Another group of 53 children (random group) was randomly selected from all second graders (excluding all former Reading Recovery students) in the same schools. The nine school districts were characterized by a wide range of socioeconomic levels and ethnic groups. Six districts were large suburban districts, while three were classified as urban.

In the Reading Recovery group, 30 children were male and 24 were female. Ethnic representation included 26 Anglos, nine African Americans, 15 Hispanics, three Asians, and one other. In the random group, 27 males and 26 females were involved in the study. Thirty-two were Anglo, nine African American, seven Hispanic, four Asian, and one other.

Tasks and Instrumentation

The three literacy tasks (text reading, dictation, and spelling) were identical to the pilot study. Mitchell's (1988b) holistic rubric was used to analyze retellings and Zutell and Razinski's (1991) multidimensional fluency scale was used to analyze fluency behaviors. Running record data were added to describe oral reading behaviors for both groups.

The classroom teacher questionnaire was modified slightly following the pilot study (see Figure 1). An effort was made to obtain the following data for all children in May of their second grade year: ethnicity, gender, types of services that children may be receiving, reading group membership, reading grade on most recent report card, and level of placement in basal or other text. Teachers were also asked to make predictions for the child's progress in reading and in writing in third grade. In addition, teachers completed a five-point Likert scale to describe behaviors (both literacy and school behaviors) of each child. Additional teacher comments were invited. The teacher questionnaire was completed in May, the last month of the school year.

Procedures

Near the end of the school year, both groups of second graders were given a text reading task (oral reading) using a series of leveled selections, while the tester completed a running record (Clay, 1993a) of text reading. All children were also given a two sentence dictation task that was scored for sounds recorded and for accurate spelling. Although these were not a major focus of the present study, results will also be reported.

If level 20 (on-level text) on the text reading task was read with an accuracy rate of 90 percent or higher, the reading was followed by a request for the child to retell the story in his or her own words. The decision to ask for the retelling on grade-level material based on pilot study results attempted to control for concept load within higher level texts. The children had been told prior to the reading of each story that they may be asked to tell about the story after reading it. The tester prompted twice after the child stopped the retelling: "Can you think of anything else?"

All testing was completed by Reading Recovery teacher leaders approaching the end of their training year or by experienced teacher leaders and teachers in the field. All text readings, along with retellings, were audiotaped. Retellings were transcribed verbatim.

Teacher questionnaires were collected for all children in both groups. Although classroom teachers were not informed about group membership of the children, it is possible that they were already aware due to prior communication about particular children with Reading Recovery teachers in the school.

Figure 1. Follow-Up Questions for Classroom Teachers: Second Grade.

DISTRICT: _____	SCHOOL: _____	TEACHER: _____
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Please complete the following information about _____

1. Check the appropriate ethnic description:

<input type="checkbox"/> Anglo	<input type="checkbox"/> Hispanic	<input type="checkbox"/> Other
<input type="checkbox"/> African American	<input type="checkbox"/> Asian	_____

2. Is this child _____ male? _____ female?

3. Is this child currently receiving any of the following services? (Check all that apply.)

<input type="checkbox"/> Chapter 1	<input type="checkbox"/> ESL	<input type="checkbox"/> Resource (LD)
<input type="checkbox"/> Speech	<input type="checkbox"/> Other _____	

(Please describe)

4. In what reading group is this child currently placed? (Circle below) If reading groups are not used, estimate placement if groups were formed.

Low	Low	Average	High	High	High
	Average			Average	

5. What information did you use to place him/her in this group?

6. What grade did this child receive in reading on the last report card?

7. In what basal reader is this child currently reading? (Circle below.)

P	P1	PP2	PP3	P	1	2-1	2-2	3-1	3-2	4	5	6
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If no basal is used, what approximate text level is the child currently reading?
 Is there a literature book that would characterize the level at which this child can read?

6. How do you predict this child will perform in third grade as a reader?

7. How do you predict this child will perform in third grade as a writer?

8. Rate the attributes that best describe this child by circling the appropriate numbers.

	Weak-----Strong
Reading ability	1 2 3 4 5
Writing ability	1 2 3 4 5
Attitude toward reading	1 2 3 4 5
Attitude toward writing	1 2 3 4 5
Chooses to read when time allows	1 2 3 4 5
Selects books on his or her own	1 2 3 4 5
Independent in class work	1 2 3 4 5
Tries hard	1 2 3 4 5
Completes work	1 2 3 4 5
Attends well in class work	1 2 3 4 5
Responds in group discussions	1 2 3 4 5

9. Other comments

Analyses

Means and standard deviations were used to describe scores of literacy tasks for the two groups. Multivariate analyses of variance (MANOVA) were used to test for significance between the groups on three retelling measures and three fluency measures. Running records for both groups were analyzed for processing behaviors on the oral reading of continuous text. Correlational and descriptive data were analyzed for factors related to teacher perceptions based on responses to questionnaires, as well as literacy and comprehending behaviors.

In contrast with the pilot study, texts representing the end of second grade (level 20) or the beginning of third grade (level 22) were used when possible for analyses of oral reading behaviors, retellings, and fluency. If a child's highest text reading was lower than those levels, the highest level at which the reading accuracy was at least 90 percent was used. Care was taken to remove any mark of group identification on retellings or fluency tapes. All scoring was completed without knowledge of group membership.

As a result of the pilot study, fluency data were analyzed using several predetermined criteria. First, the length of the selection to be analyzed was defined with consideration given to time for comprehending the major ideas and for building momentum. Therefore, all tapes were analyzed at the same point in the text. Some dialogue was included in the level 20 tapes so that fluency could reflect a child's reading of dialogue. Each tape was played twice before scoring unless the fluency was clearly outstanding on all three factors during the first playing.

Interrater reliability for scoring the retellings using Mitchell's (1988b) categories was .81. Using the Zutell and Rasinski (1991) scale, interrater reliability was established at .79 for scoring oral reading fluency. On the fluency scale, raters agreed when scores were at extremes (i. e., scores of 4 and scores of 1 on the 4-point scale). However, differences were noted when scores of 2 or 3 were assigned.

Main Study Results

Performance on Literacy Tasks

Mean scores on three literacy tasks (text reading, dictation, and spelling) are shown in Table 3. When Reading Recovery scores were considered within an average band of the random sample using one standard deviation, Reading Recovery children scored within the average of their second grade peers. The mean text reading level of 26 for Reading Recovery children paralleled a basal reader level of fourth grade. All but three children in the Reading Recovery group were able to successfully read materials at or above second grade level. The random sample group mean text level score of 29 compared with fifth grade level materials. Both groups indicated the ability to read oral passages considered to be above level at 90 percent accuracy or better.

When compared with the pilot study, comparison data on the three literacy tasks revealed similar findings (see Table 2). In both studies, Reading Recovery children had high dictation scores that almost matched those of the random group. Also, in both studies both groups were successfully reading text designated at above grade level.

Oral Reading Analyses

Running records of oral reading behaviors were examined for both groups of children. When possible, levels 20 and 22 (grade-level texts) were analyzed most closely (See Table 1 for explanation of text levels.). The mean accuracy rate for text reading on level 20 was 95.83 percent for Reading Recovery children and 96.55 percent for the random group, revealing no significant differences between groups. If those levels were read with extremely high accuracy rates by an individual child, higher text levels were used in order to observe error and self-correction behaviors. Texts examined were generally read at an accuracy rate of 94-96 percent.

Table 3

Main Study Means, Standard Deviations, and Average Bands for Scores on Literacy Tasks, Retellings, and Fluency Measures

Task	Maximum Score	Reading Recovery (<i>n</i> = 54)	Random Sample (<i>n</i> = 54)	Average Band (1 SD)
Dictation Task	64	59.35 (3.37)	61.15 (2.92)	58.23-64.07
Spelling	18	12.56 (2.46)	14.57 (2.16)	12.41-16.73
Text Reading	34	26.04 (4.69)	29.51 (4.94)	24.57-34.45
Fluency: Phrasing	4	2.94 (.54)	3.10 (.74)	2.36-3.84
Fluency: Smoothness	4	3.06 (.70)	3.24 (.77)	2.47-4.01
Fluency: Pacing	4	2.87 (.66)	3.16 (.71)	2.45-3.87
Retelling: Text-Based	16	8.01 (2.48)	8.61 (2.42)	6.19-11.03
Retelling: Prior Knowledge	16	4.18 (.72)	4.33 (.82)	3.51-5.15
Retelling: Language/ Organization	8	4.02 (1.37)	4.33 (.82)	3.51-5.15

Attention was given to evidence of the following behaviors: self-monitoring, the detection and self-correction of errors, and use of information sources in errors as well as self-corrections. For both groups, there were generally a high accuracy rate and a high self-correction rate on grade-level texts. Errors that changed meaning were generally self-corrected. However, on higher level texts, both groups tended to shift more to focus at the word level. They appeared to be trying to pronounce difficult words and meaning suffered.

While the reading behaviors for both groups revealed high self-correction rates and meaning-driven construction of text, the Reading Recovery children demonstrated more reading work. There was overt evidence of reading behaviors. For the random group, most of the reading work was not audible but resulted in accurate reading. However, for the Reading Recovery group it was possible to observe the reading process more clearly. For example, there seemed to be more repetitions, self-corrections, and multiple attempts. Interestingly, however, even though there were more overt reading behaviors for the Reading Recovery children, the work must have been processed rapidly because the fluency measure of smoothness was not affected. It is possible, however, that pace was affected by the overt evidence of reading processing by Reading Recovery children.

Retelling Responses

There were three retelling indices: text-based comprehension, reader's response and reaction to text, and reader's language use. MANOVAs showed no significant differences ($p < .05$) between the Reading Recovery children and the random group on any of the three retelling indices or when all three indices were considered together. Retelling data for both groups failed to correlate significantly with the following factors: literacy task scores, teachers' reading and writing predictions, or fluency factors. For both groups retelling data correlated significantly but not strongly with basal reader placement. For the random group, there was a significant though weak correlation between retellings and group placements. Usefulness of correlational data may be questionable due to the limited potential range of scores in categorical data including group placement, and basal/text level placement (See Table 3 for means and standard deviations on retelling data.).

Retelling responses for both groups were generally short and not elaborated. However, most children in both groups revealed the main idea or general theme of the selection. Facts and inferences were generally relevant.

To illustrate the variety of retelling data, some examples follow. The text is about a proud mouse who thinks he is the master of the forest. His uncle warns him that the elephant is the king and will be angry. The mouse goes to find the elephant and meets a lizard, thinking he is the elephant.

Most retellings for both groups indicated an understanding of the topic, the main idea, or the gist of the text. A low scoring, not elaborated example follows:

Child: Okay. Once there was a small proud mouse — that had heard about a big giant elephant. That's as good as I can get it!

The following example represents a typical elaborated story retelling for text comprehension:

Child: Okay. Once there was a mouse and he was so proud he liked to, he liked to show off and, and say that he was the master of this forest until one day his uncle said that the elephant was — had, had heard about his showing off and was mad because he, because he was bigger than him and, and he was the master of the forest and he went off to, to show the elephant he was the master of the forest. Then he came to a lizard and he, and he said, and the mouse said, "Are you the mo . . . the elephant?" And the lizard said, "No." "Well, you're lucky because when, because when I find the elephant, I'm going to break him to bits."

Although most retellings were expressed in their own words, several children offered the language of the book when the comment was particularly unusual. Many children used dialogue in their retellings. The following example demonstrates the child's use of book language and dialogue:

Child: Once there was a, um, a mouse who thinks she was *proud*. One day, uh, his uncle said, "The elephant is angry. So you should not be proud." "I'll teach that elephant." So he, *off he went*. He came to a lizard. The mouse said, "Are you, are you a elephant?" "No, not I," said the lizard. "You are lucky. If you were an elephant, *I would break you to bits!*"

There were few retellings that tied the text with the child's prior knowledge or touched affective behaviors. This is not surprising because the prompt did not invite personal comments. An exception follows.

Child: Well, there's an elephant. There's a mouse who thinks he's the master of the forest, and he's going to try to teach the elephant a lesson and he's going to break the lizard into bits."

Teacher: Can you think of anything else you want to add?

Child: He should've, he should've listened to his, to his, uncle.

Teacher: Can you think of anything else you want to add?

Child: You shouldn't try to beat up or take up for yourself when the other person's bigger. You should ask somebody to help you or tell the teacher or something.

Although many retellings were fairly nonfluent renderings, generally retellings across both groups were organized sequentially or in a way to be easily understood. Few children volunteered much additional information as the result of a teacher prompt to continue. Testers reported that the retelling task appeared to be uncomfortable for many of the children, possibly because of the lack of familiarity with the task.

When compared with results of the pilot study, retelling data were similar. This is particularly interesting because in the earlier study, retelling data were gathered on the highest level at which the child read at 90 percent or higher. Means were similar across both studies indicating no differences due to text difficulty.

Fluency Behaviors

Three holistic measures of fluency were included in the analyses: phrasing, smoothness, and pace. MANOVAs showed no significant differences ($p < .05$) between groups when fluency was considered as a single factor or when considering phrasing or smoothness as factors. However, there was a significant difference between the two groups on pacing, with the random group demonstrating a faster pace in oral reading of text.

An interesting finding was that fluency mean scores were noticeably higher for both groups in this study (see Table 3) than in the pilot study (see Table 2). The change from fluency ratings based on the highest level text read to fluency ratings based on texts designated as second grade texts seemed to increase oral fluency across groups. Text difficulty seemed to affect fluency for both groups of readers.

Relatively few children were rated as highly fluent on all three dimensions. Fifteen random children had perfect scores on all three dimensions while six Reading Recovery children had perfect scores. Descriptive patterns paralleled those of the pilot study. However, an interesting and unexpected finding was noted. Because several children were not native English-speakers, there were differences in intonation and phrasing patterns. In these cases, discourse patterns did seem to affect the expected fluency patterns making scoring more difficult. These discourse patterns deserve additional attention in future research efforts.

For the Reading Recovery group, fluency scores correlated significantly ($p < .05$) though not strongly with dictation scores, spelling scores, and teachers' predictions for reading progress. Fluency scores for the random group correlated significantly ($p < .05$) with all literacy scores, group and basal placements, report card grades, and teacher predictions for reading progress and writing progress.

Individual data provided insights that were lost with aggregated data. Of the six Reading Recovery children and the 15 random children with perfect fluency scores, teacher predictions for their progress in reading were also very high. Four of the six Reading Recovery children and 11 of the 15 random children with perfect fluency scores also received the highest teacher predictions for progress in reading. Only one child with a perfect fluency score was predicted to have difficulty in third grade. Children in both groups with the lowest combined fluency scores were generally predicted to experience average to low progress in reading. Only three out of 20 children across both groups with low fluency scores were predicted to have above average progress in reading in third grade.

Teacher Perceptions

Data from questionnaires completed by classroom teachers of both groups of children were used to describe teacher perceptions. Results are categorized.

Perceived Need for Continued Services. Descriptive data revealed information about services received by both groups of students during their second grade year. Chapter 1 services were received by four Reading Recovery children and three random children. One child in each group was served in a setting for learning disabilities. Speech services were received by three

children in each group, while eight Reading Recovery children and three random children received ESL services.

Reading Groups, Materials, and Report Card Grades. Correlational data were influenced by the narrow range of possibilities within categorical data, with large numbers clustering in the middle range of most categories. Therefore, interpretations of these data must take this limited potential for variance among the sample population into consideration.

Reading group placement did not correlate significantly with any of the literacy tasks for the Reading Recovery group. However, placement in reading groups was significantly correlated with all three literacy tasks for the random group. Most former Reading Recovery children were in average reading group placements, with five children in the lowest group and two in the highest group. In the random group, four children were in the lowest group while 12 were in the highest group. The remainder were in average groups.

Significant, though not particularly high correlations were shown for the random group between basal reader/text level placement and literacy tasks. No significant correlations between basal/text level placement and literacy tasks were shown for Reading Recovery children. Perhaps the correlational data on basal placements are misrepresentative because so many children were placed in on-level materials regardless of text reading performance. Very few children in either group were in material leveled higher or lower than grade level. Of the 54 Reading Recovery children studied, 49 were placed in materials graded at second grade or above. For the random group, 53 of the 54 were receiving instruction at materials leveled at second grade or above. While the relationship between each literacy score and reading report card grades assigned by teachers was positive and significant for the random group, only the text reading score correlated significantly with grades for the Reading Recovery group.

Perceptions and Predictions. On a five-point Likert scale of literacy behaviors and attitudes (see Figure 1), teachers perceived that former Reading Recovery children were within an average range in reading ability; mean score on the five-point scale was 3.0. The ratings for Reading Recovery children clustered in the middle range while ratings for random children showed more children in the higher range. The stratified nature of the random group may have been an influencing factor. Teacher perceptions of writing ability were lower than reading perceptions for both groups.

Classroom teacher predictions for reading progress for the random group correlated significantly and strongly with all other factors except retelling measures. For Reading Recovery children, however, predictions correlated only slightly with spelling and more strongly with group placement, basal placement, reading grade, and writing predictions. In other words, teacher predictions for successful reading progress for Reading Recovery children did not match the child's performance on reading and writing tasks very well. Instead, the correlations were with other measures of teacher perceptions rather than measures of child performance.

Teacher predictions of reading progress of Reading Recovery children revealed a perception of average. Five children were expected to make excellent progress in third grade, five should be closely monitored, and the remainder were expected to make average progress. Seventeen random children were predicted to make excellent progress, five should be closely monitored, and average performance was predicted for the others. For both groups, teachers perceived children to be stronger in reading than in writing. Their comments, however, indicated considerable differences among teachers' notions of writing.

Additional descriptive data were analyzed from teacher comments on questionnaires from second grade teachers. Specifically, comments were examined to determine any behavioral trends among those children in either group who were perceived by the teachers to be less successful in literacy tasks. The following general categories emerged. Specific descriptors by teachers are in quotations after each category:

1. speed: "pacing," "slow;"
2. focus: "focusing on task," "attention span," "gives up," "doesn't apply himself;"

3. personal behaviors: "motivation," "emotional problems," "immaturity," "absenteeism," "work habits," "unpredictable behaviors," "talkative;" and
 4. skills: "comprehension," "vocabulary," "mastery of skills," "study skills," "low grades."
- Very few of the teacher comments about children perceived by the teacher as less successful were directly related to literacy behaviors.

Discussion

Literacy Measures

Based on findings in both the pilot study and the main study, it appears that discontinued Reading Recovery children sustain their literacy gains at least a year or more after receiving Reading Recovery. They are able to read materials at or above their grade level and compare well with their peers on three literacy measures: text reading, dictation, and spelling.

Consideration should be given to additional or revised instruments for measuring literacy behaviors in future studies. The mean text scores in this study were extraordinarily high for both groups. An examination of appropriate assessment texts/passages seems to be in order. Additional literacy assessments may include some standardized measures, including assessment of responses to silent reading tasks.

Comprehending Measures

On measures of oral reading analysis, retelling tasks, and fluency scores, Reading Recovery children appear to compare well with their classroom peers at the end of their second grade year. Oral reading analyses indicated that both groups were reading for meaning. There were no significant differences between the two groups on the comprehensive measures of retelling or fluency tasks, although there was a difference between the two groups on the pacing factor within fluency measures.

Oral Reading Behaviors on Continuous Text. Analyses of oral reading behaviors through running records support the usefulness of the instrument for making inferences about what children are attending to and comprehending based on the kinds of errors and self-corrections they make (Clay, 1993a). From oral reading analyses, it can be argued that both groups of children were reading for meaning and strategically problem-solving on text. If evidence of "reading work" moves across a continuum of overt to covert, Reading Recovery children were still operating at a more overt level than random group children whose reading behaviors were more covert. Although pace may have been affected slightly, the important issue is that the former Reading Recovery children were able to engage in reading work and problem-solve successfully on text. The intricate relationship between reading work and fluency will be discussed later in this section.

Use of the running record, along with other instruments for systematically observing the reading behaviors of children, should enable teachers to continue to monitor these children who were initially hard to teach. Observations of children's reading work allow teachers to make specific decisions about how these children view the reading process, what strategic behaviors they control, and in what areas they continue to need supportive instruction.

Retelling Behaviors. Former Reading Recovery children seem to compare well with their peers on oral retelling tasks. However, correlations between retelling measures and other factors were low and insignificant. Interestingly, in spite of the lack of correlation of retelling factors with other literacy and perception factors, children in both groups seem to be able to report the *big picture*—either the topic, the theme, or the main idea of the selection. It is also interesting that mean scores on retelling factors in this study were similar to mean scores in the

pilot study. Pilot scores were based on the highest level read at 90 percent accuracy or better, while scores for the study were based on grade-level materials. Text difficulty, as controlled in these studies, did not seem to be a factor in explaining the phenomenon of retelling data.

Future studies should take into account some of the problems noted with retelling data in the present study. First, most of the children in both groups did not appear to be familiar with the task. Supporting Johnston's (1992) concern, they may have also seen the task as socially inappropriate, without a logical audience for the retelling. The testers did not elicit anything but text-based information, and the scores represented only one passage type—fanciful fiction.

Future studies, then, should include various ways of eliciting children's understandings. Retellings with appropriate audiences (Johnston, 1992) and engagement activities (Tierney, 1990) are two possibilities for consideration. Refinement of rubrics and scoring procedures for these interactive tasks is also needed.

Fluency Behaviors. Findings in this study indicated that former Reading Recovery children compare well with their second grade peers on fluency indicators with the possible exception of pace. Phrasing and smoothness were similar for both groups. In both groups, children's fluency scores were highest when text levels were near grade-level assignments. This finding indicated that fluency is influenced by text difficulty and supports the need for appropriate texts (Allington, 1983; Clay, 1991, 1993b).

Interestingly, in the pilot study there was no difference between groups on pace when the text level was much higher; both groups of children responded similarly to materials leveled considerably above their grade level placement. Also, the reading work of Reading Recovery children as evidenced through running record data may have influenced pace. Perhaps the evidence of problem-solving on novel text should supersede attention to fluent oral reading at this time for these children.

As indicated earlier, the relationship between fluency and comprehension is a complex one. While there seems to be general agreement that oral reading fluency has become a feature in defining good reading, the role of oral reading fluency in comprehension is ambiguous (Allington, 1983; Dowhower, 1991). Dowhower argued that there is a relationship between fluency and comprehension, but that we are not sure which comes first or if one is necessarily an indicator of the other. Based on Clay's work, DeFord (1991) suggested that rather than just increased pacing of text reading, the role of fluency involves the use of all information sources in the reading process flexibly. It is this flexibility which promotes more fluent processing in general, in turn, facilitating fluency in oral reading.

The scoring of oral reading fluency behaviors is also problematic. Although the scale used in this study was multidimensional, it failed to appropriately account for such dimensions as prosodical features—reading in expressive rhythmic and melodic patterns. Further, fluency measures in this study were obtained only on the first reading of novel text. Findings in this study also revealed that children whose first language is not English often display different prosodical patterns than native English-speakers. Considering the multitude of linguistic differences, fluency is a difficult behavior to assess.

It seems that there are three major areas of discussion about fluency resulting from the findings in this study:

1. Is fluency a suitable variable for study? Is there a generally accepted definition? Does the term confuse people? Are measures of fluency probing surface level factors, without revealing underlying processes within the reader? Perhaps the complexity of the notion of fluency is reflected in DeFord's (1991) six factors that "may impinge upon the fluent use of the reading process: (a) the material being read, (b) the flexibility of the reader's strategies, (c) the reader's knowledge about the topic, (d) the match between the language of the reader and that of the author, (e) the reader's purposes, and (f) other contextual factors" (p. 203). Simplistic definitions of fluency tend to ignore the complex relationships of these factors with fluent processing of text.

2. Fluency is very difficult to measure. The measures used in this study were clearly not comprehensive. Again, measures will be elusive as long as there is no accepted definition of fluency.

3. In spite of the lack of evidence linking fluency and comprehending, results of this study suggest that classroom teachers are influenced by children's fluency on oral reading tasks. There were significant correlations between classroom teachers' predictions for reading progress and scores on fluency measures for both groups. The correlations are even stronger when examining individual data as opposed to aggregated data. According to Lipson and Lang (1991), judgments about reading ability are frequently made on the basis of oral reading fluency. Placement and group decisions also emanate from these judgments. Readers who are not fluent often find themselves relegated to the low reading group for instruction (Hoffman & Isaacs, 1991).

If fluency has a strong influence on readers and their teachers, it seems important to consider classroom practices for promoting fluency. The following list represents a composite of frequently suggested practices (Allington, 1983; Askew, 1991, 1993; Clay, 1991, 1993a, 1993b; DeFord, 1991; Dowhower, 1987): (a) teacher modeling of good expressive reading through read-alouds and shared readings, (b) meaning oriented instruction, (c) increased opportunities for reading, (d) rereading of familiar text, and (e) selection of appropriate texts. One practice that has received wide attention in the literature is that of rereading familiar texts (Allington, 1983; Dowhower, 1987; Herman, 1985; Rasinski, 1990; Samuels, 1979). Dowhower (1987) reported evidence that multiple readings resulted in improved rate, accuracy, comprehension, and prosodical readings among second grade transitional students.

Askew (1991, 1993) found that first graders' control over strategic behaviors increased across multiple readings of familiar text. Findings revealed that (a) evidence of monitoring, error detection, and self-correction behaviors increased as text became more familiar; (b) children began to take more initiative in solving problems with each reading of the text; and (c) fluency or flexibility in using all information sources increased dramatically across multiple readings of texts.

Although the term repeated reading is generally used in the literature, Clay (1991) used the term familiar reading to refer to the revisiting of books previously read. She argued that children should practice the skills that they have on easy materials and build up fluency, as defined by the orchestration of flexible processing (Clay, 1991):

If children can return frequently to reread a wide variety of familiar material they have two opportunities: first, to orchestrate the complex patterns of responding to print just as the expert musician practices the things he or she knows; and second, to read those texts with increasing levels of independence. (p. 184)

Clay (1993a) further suggested that readers need opportunities to engage in two types of reading: (a) successful performance on familiar text which strengthens the decision-making processes of the reader and (b) independent problem-solving on new and interesting texts with supportive teaching. Reading Recovery lessons include both opportunities daily. Classroom opportunities for both types of reading should affect both fluency and problem-solving on text.

Teacher Perceptions

A major implication of this study is that teacher perceptions about literacy and literacy learners are important. In many instances, the literacy performances of children in both the Reading Recovery and random groups did not match the teachers' perceptions of literacy abilities. Perhaps the nature of the questionnaire influenced the responses of teachers. Perhaps there are flaws in the literacy measures, or perhaps other factors were at work (Wood, 1988):

When teachers are asked to evaluate a child's likely potential in a particular subject or discipline, their answer is likely to relate to a specific feature of the child's classroom behavior: the child's willingness or capacity to concentrate on tasks relevant to that subject.

Those children who spend most time on task in the classroom are most likely to be judged capable of doing well in the subject or discipline being taught. More importantly, if we

monitor the children's progress we will find that teacher predictions are, more often than not, borne out. (pp. 55-56)

Wood proposed that children may be limited because they do not possess the relevant experience and expertise needed for success. Children are often able to perform, with help, tasks that they are unable to perform alone. These gaps between unassisted and assisted competence are referred to as the zone of proximal development (Vygotsky, 1978).

Teachers who apply the expert-novice metaphor in their teaching help children to construct their own expertise. Well-built scaffolds help children to learn how to achieve heights they are unable to scale alone (Wood, Bruner, & Ross, 1976). The teacher's role continues to be crucial throughout the academic lives of children.

Attention and concentration are not natural capacities that can be used to account for a child's inability to succeed on school tasks (Wood, 1988). Rather, processes of self-regulation include aspects which have to be learned. Children may seem to be incompetent when they are still struggling with the problem of making sense to other people. Children's learning takes time and creates challenges for them and their teachers. When school demands on children are greater than their current level of understanding, we cannot expect to find the child focusing on what is being said and done. Therefore, attention should be given to the match, or mismatch, between what children understand and what they are being required to do. Teachers' sensitivity to these notions may significantly reduce the number of children who are regarded as unsuccessful.

In this study, teachers' perceptions and predictions may have been influenced by an educational phenomenon that can occur when the *bottom* is removed. Because teachers in these studies were forced to rank children on numerical scales, it is possible that ratings were relative to current perceptions of the comparative performance of the members of the class. Children perceived as low may have been labeled as such due to their relative performance in a classroom. Persistence of old concepts may be keeping teachers from realizing how close to average these children are actually operating. Additional study from multiple perspectives is needed relative to classroom perceptions about literacy behaviors of children.

Challenges

The following challenges to teachers, administrators, and researchers may help to contribute answers to Clay's (1993b) question, "What is possible when we change the design and delivery of traditional education for the children that teachers find hard to teach?" (p. 97).

As in this study, when most children are performing satisfactorily on grade-level literacy tasks, classroom teachers are facing a new concept of average. All of the former Reading Recovery children studied here began their first grade year with the lowest literacy profiles in their classrooms. Accelerated progress in Reading Recovery resulted in successful performance within the average range in a classroom setting as measured by a range of assessments. That does not mean that all students are alike. The results of this study reveal that the idea of average is a complex one. It may be that programs like Reading Recovery push the curve so that the lower group is removed, and a large group make up the mainstream of classroom work, with a few children moving out ahead. In this situation a new concept of average may be considered, not as the exact middle of any one group of children, but as gathering up children to progress together, bringing their different competencies to bear on the curriculum, with no one being left behind. When all children are full participants in the mainstream of classroom education, individual differences can most readily be noticed, and when necessary, given special attention.

A new and exciting dialogue among teachers is needed to focus on the success of these children rather than on old expectations that some children must be classified as low. Opportunities to collaborate on children's strengths, to explore potentially biased perceptions of children, and to problem-solve on the scaffolds needed by children to support their continuing learning should be the challenge for educators.

It is important to acknowledge that the former Reading Recovery children in both of these studies continued to work effectively within the average band of their grade-level peers. The accomplishment of these children does not preclude the need for teacher attention and support, especially when facing novel tasks. Learning how to learn, think, and communicate is related to the acquisition of various kinds of expertise. If instruction is at the heart of human development (Vygotsky, 1978), the teacher's role as expert is a critical component of schooling and it must continue throughout a child's educational experience.

There are also challenges to the researchers. Follow-up studies with children previously served by Reading Recovery are needed that continue to look at comprehensive measures across diverse populations. Future studies may need to include some standardized measures as well as some classroom observation case studies. Because of the impact of classroom teacher perceptions, it is crucial to explore the behaviors of children in classrooms as well as the behaviors of classroom teachers with children of differing needs.

In all follow-up studies of early intervention programs, care must be taken not to attribute the literacy success or failure of children to any one single factor. Although external social, linguistic, and cultural factors must be considered, it is most crucial to continue to explore the factors for which schools can be held responsible. While searching for those factors, opportunities for children to experience early literacy success must continue (Slavin, Karweit, & Wasik, 1992):

Success in the early grades does not guarantee success throughout the school years and beyond, but failure in the early grades does virtually guarantee failure in later schooling.

If there is a chance to prevent the negative spiral that begins with early reading failure from the start, then it seems necessary to do so. (pp. 11-12)

Although it is the responsibility of the school to offer supportive and appropriately challenging opportunities for all children, the responsibility is perhaps greatest for those children for whom the road to literacy has been more difficult. The challenge is there for all educators. The systemic changes brought about by successful early intervention may be just beginning.

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Special acknowledgments to the following Texas Woman's University doctoral students for their assistance in data collection, data analysis, and literature searches: Doreen Blackburn, Ann Bullion-Mears, Cynthia Clinger, Linda Dorn, Cynthia Elliott, Diana Geisler, and Linda Mott. Appreciation is also expressed to Texas Reading Recovery teacher leaders for their support in data collection.