

The Effects of Reading Recovery on Children's Home Literacy Experiences

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Abstract

One hundred thirty parents completed a literacy survey in the fall of the school year and again in the spring as their children completed first grade. At both times, parents were asked about the type and frequency of literacy activities in which the children engaged at home. Responses in the spring were compared across three groups of parents representing children who had been (a) enrolled in Reading Recovery, (b) identified in the fall as experiencing reading difficulties but received no special reading instruction, and (c) identified as having grade-level reading skills at the start of first grade. Responses provided by parents in the spring were compared to responses they gave to the same questions as their children began first grade the previous fall.

All children showed growth in literacy skills at home over the course of the year. Children who participated in Reading Recovery made significant changes in the frequency with which they read aloud to adults and with which they read independently at home. Furthermore, parents reported more frequent writing of words and simple sentences at home by the Reading Recovery children as the year progressed. Results are discussed relative to the role home literacy experiences play in early reading and writing and the reciprocal influences that home and school literacy experiences may have on each other.

All parents expect that their children will learn to read and write once they begin school. For some parents, however, this expectation is not fulfilled. Some children finish their primary school years without satisfactory achievement in reading and writing (Juel, 1988). Recent research on the home environments of young children has suggested that significant limitations in some

children's exposure to functional reading and writing materials and activities at home during the preschool years may contribute to these difficulties. The cause of such limited experiences, however, is not always clear.

For example, some children from economically disadvantaged homes have often been described as lacking access to reading and writing materials, to shared book-reading with competent adult readers, and to family members whose own reading and writing skills model or promote reading and writing as functional skills in everyday life (Heath, 1983; Marvin & Mirenda, 1993; Purcell-Gates, 1996; Sonnenschein, Brody, & Munsterman, 1996; Teale, 1986). In addition, preschool children who demonstrate cognitive abilities appropriate for their age, but show delays or impairments in speech-language skills, reportedly have fewer experiences with nursery rhymes, poems, interactive book reading, and writing and drawing activities at home than do children without disabilities or even children from economically disadvantaged homes (Katims, 1991; Light & Kelford-Smith, 1993; Marvin, 1994; Marvin & Mirenda, 1993; Marvin & Wright, 1997). These data suggest that family socioeconomic status and children's biological make-up could independently or collectively interact to affect not only the literacy opportunities provided to young children at home but also the children's preparedness for formal instruction in reading and writing once they begin school.

Clearly, some children may require greater support at home in the form of more frequent exposure to print with supportive family members, while others, already rich in their home experiences may need direct intervention at school to increase skills in generating meaning from print. For some children, both are needed if reading and writing skills are to improve quickly enough to be useful in academic endeavors in the primary grades. The Reading Recovery program proposes to improve children's reading abilities, despite limited ability and/or experience with print as the children begin first grade. This study was designed to examine what changes occur in children's home literacy activities and behaviors as a result of participation in Reading Recovery during first grade.

Reading Recovery

Reading Recovery is a school-based, early intervention program that is designed to teach first-grade children who are experiencing literacy difficulties how to read and write early in their school careers (Clay, 1993). Children are individually taught for 30 minutes per day by a specially trained teacher. The

teaching goal is to assist the lowest-achieving children in quickly developing competency in reading and writing so that they can "catch up" to their peers.

Teachers are encouraged to elicit the parents' support for their children's consistent school attendance, to invite parents to observe lessons, if possible, and to share their insights about their children's interests and strengths. During the Reading Recovery program, teachers will send home "little books" the children enjoy and can read with ease. Children benefit from the additional opportunities to read books on which they have demonstrated success, and parents have a "window" for viewing their children's reading progress across the weeks the children participate in the program. Also, children will often bring home a message (one or two sentences) that they wrote with the teacher's support during a lesson at school. The teachers cut the printed message into phrases, words, or word parts for the children to remake in class and again at home. The teachers write the complete message on the outside of an envelope so that the children have a model and a way to check the story arrangement at home. The transfer of these literacy materials between school and home on a daily basis serves both as a vehicle for communication between the parents and teachers and for the children's skill transfer and generalization; the children have the opportunity to read familiar text in different contexts and with different audiences.

Literacy Socialization

It is generally accepted that the development of literacy begins long before young children participate in formal school instruction. Adult-child interactions at home and exposure to printed materials can provide young children with the opportunity to see the various forms in which messages can be conveyed. Home environments in which children (a) are read to regularly, (b) frequently see others reading for pleasure or to complete daily tasks, (c) have easy access to reading and writing materials, and (d) are encouraged to interact during reading and writing activities are considered fundamental to the development of reading and writing skills (Anderson & Stokes, 1984; Bissex, 1980; Cochran-Smith, 1984; Heath, 1983; Purcell-Gates, 1996; Scarborough & Dobrich, 1994; Snow, 1983; Teale & Sulzby, 1987, 1989; Thomas, 1985; van Kleeck, 1990; Wells, 1985; Westby, 1985). This philosophy of literacy socialization (Sulzby & Teale, 1991; van Kleeck & Schuele, 1987) has been promoted as important to all young children, including those with high risk factors such as poverty, developmental disabilities, or unspecified delays.

Specific home-related factors that appear to be critical for literacy socialization and are positively correlated with children's ability to be successful in using print for communicating ideas and learning new information include: (a) availability of printed materials and writing utensils in the home and/or child care facility (Cochran-Smith, 1984; Dunn, Beach, & Kontos, 1994; Goelman & Pence, 1987; Thorndike, 1976), (b) guided television watching (Mason, 1980), (c) frequency of book reading at home (Goldfield & Snow, 1985; Wells, 1985), (d) interactive book reading (Bus, van IJzendoorn, & Pellegrini, 1995; Heath, 1983; Snow, 1983; Teale, 1984; Thomas, 1985; Wells, 1985), (e) functional drawing and writing tasks (McLane & McNamee, 1990; Purcell-Gates, 1996), and (f) adult-child interactions with literacy materials prior to school age (Anderson & Stokes, 1984; Bissex, 1980; Cochran-Smith, 1984; Purcell-Gates, 1996; Teale, 1986; van Kleeck, 1990). Furthermore, non-print activities that foster metalinguistic awareness of words and sounds such as nursery rhymes, finger plays, songs, poems, or stories that contain rhymes, alliterations, or nonsense sound-sequences have been correlated with children's reading competency and success with early reading instruction (Adams, 1990; Catts, 1991; Chaney, 1992; Jusczyk, 1977; van Kleeck, 1994). Finally, parental attitudes toward and aspirations for education have been considered instrumental in fostering a home environment that can support early literacy activities and experiences (Hiebert & Adams, 1987; Marvin & Mirenda, 1993; Sonneschein, Brody, & Munsterman, 1996; White, 1982).

The relationship between these environmental factors and biological factors associated with literacy socialization at home was explored by Marvin and colleagues for various groups of preschool children (Marvin & Mirenda, 1993; Marvin, 1994; Marvin & Wright, 1997). Distinct differences were found in the home experiences of children who presented known disabilities and those from high- and low-risk families. Children enrolled in Head Start programs (without disabilities) and typically developing children from middle class families had far more frequent and more positive literacy experiences at home than did the preschool children with identified special education needs. Parents of children with disabilities placed far less importance on literacy at home for these children, interacted less and qualitatively less effectively during reading or writing/drawing activities with their children, and held lower expectations for their children's development of literacy skills in the future. The authors ruled out SES factors and frequency of reading aloud to children as contributing to these differences. The authors highlighted concern for their findings in light of research that reports positive correlations between parental attitudes and aspirations for educational outcomes and young children's eventual acquisition of

reading skills (Auerbach, 1989; Hiebert & Adams, 1987; Koppenhaver, Evans, & Yoder, 1991; White, 1982).

Marvin and Mirenda (1993) noted, however, a high incidence of speech and language impairments (not severe physical, sensory, or cognitive impairments) among the population of disabled children studied. Further analyses of home literacy experiences for the children with speech-language impairments and children with other disabilities suggested differences in key qualities of parent-child interaction during reading and writing activities. There were fewer reports of questions and answers being exchanged between partners during reading and drawing, less mention of fingerplays, songs, and rhymes with the children, and fewer reports of children's "pretend" reading or independent reading to adults at home for the group of children with speech-language impairments. These data suggest possible child-based biological factors that may influence parents' efforts to pursue literacy activities at home. The better able children are at relating to words meaningfully (oral or in print), the greater the variety of literacy experiences at home. Marvin and colleagues, however, did not follow these children into the primary grades to explore how the preschool home literacy experiences, risk factors, and disabilities influenced the children's ability to read and write at grade level.

Home Literacy Practices in Reading Intervention Programs

A number of programs have demonstrated positive influences on young children's literacy socialization by focusing on home environments as part of their early intervention efforts (Arnold & Whitehurst, 1994; McCormick & Mason, 1986; Toomey & Sloane, 1994). For example, Little Books (McCormick & Mason, 1990) were sent home with preschool age children and kindergarten children in a series of intervention studies aimed at encouraging parent-child reading activities at home and providing an introduction to meaningful, context-supported print for children considered at-risk for reading failure. Consistently, the children who had access to Little Books at home subsequently scored better than control subjects on tests of reading readiness, story comprehension, letter and word recognition, and spelling and emerging literacy concepts (Mason, Kerr, Sinha, & McCormick, 1990; McCormick & Mason, 1986; McCormick & Mason, 1989; Phillips, Norris, Mason, & Kerr, 1990).

Whitehurst and his colleagues also demonstrated positive outcomes in a series of studies in which they used "dialogic reading" programs with parents or adult care-providers and their young children. Children from high-risk envi-

ronments as well as low-risk (high SES) populations showed notable advances in language development, particularly in the areas of vocabulary, compared to controls following the implementation of this shared book-reading program that emphasized active involvement of the children, parental feedback to expand and praise the children's contributions to the story, and progressive adjustments in parental expectations and prompts for what the children could contribute over time (Arnold & Whitehurst, 1994; Whitehurst, Arnold, Epstein, Angell, Smith, & Fischel, 1994; Whitehurst, Epstein, Angell, Payne, Crone, & Fischel, 1994; Whitehurst, Falco, Lonigan, Fischel, Valdez-Menchaca, & Caulfield, 1988; Valdez-Menchaca & Whitehurst, 1992). Whitehurst and colleagues suggest that the positive influence dialogic reading can have on children's language development is important not only for the children's overall communication skills through the preschool period but well into the primary grades as well. Receptive language abilities at kindergarten age have repeatedly been associated with reading ability at the end of first grade (Pikulski & Tobin, 1989) and expressive language abilities are highly correlated with children's reading ability in second grade (Scarborough, 1989).

The effects of home-based extensions to school-based reading instruction programs for first-grade children have been described in only a few studies. Blum and her colleagues (Blum, Koskinen, Tennant, Parker, Straub, & Curry, 1995) provided nine second-language learners (ages 6 to 7.5 years) with books to take home each day after the students had heard the book read aloud at school and had the opportunity to read the book along with a teacher. Five of the students were provided an accompanying audio-tape of the story and were encouraged to "read along" with the tape at home at least three times before returning the book and tape. Improvements in oral reading fluency as well as letter and word identification skills were documented for all children using the audio-tapes. In addition, the authors reported positive changes in students' attitudes toward reading, more independent reading at home, and an increase in the number of books in English available to the students at home following the nine-week intervention and a nineteen-week follow-up.

Taking a slightly different perspective on the benefits of home-based reading programs, Rubert (1994) described the effects of a three-month, parent-facilitated, home-based reading program for first-grade children on the home literacy environment and reading strategies parents provided for three children. As a complement to a school-based, reading intervention program, Project Prevent staff trained parents to facilitate (a) children's echo-reading after each sentence a parent reads, (b) partner reading, alternating parent-read and child-read sentences, and (c) independent child reading of both parent-

selected and teacher-selected story books. Quantitative as well as qualitative data were used to describe two of the three parents' shifts away from an emphasis on phonics and word identification with their children, to the use of contextually based facilitation strategies for oral reading and comprehension of text during the children's reading over the course of the program. Furthermore, the children in these two families demonstrated an increase in independent and shared reading time at home with siblings and parents, reportedly joined siblings in doing homework, and benefited from the family's purchase of more easy-to-read books for the children to read at home.

Home Literacy and Reading Recovery

Holland (1991) pursued an analyses of the effects of Reading Recovery on the home literacy experiences of first-grade children. She interviewed 13 parents of first-grade children prior to and during the year of the children's enrollment in Reading Recovery. As the children progressed in their Reading Recovery programs, the home environments took on changes that complemented the skills and interests of the first graders. As children became readers, older and younger siblings, as well as parents, surrendered their roles as readers and became listeners. Children began to read independently the cut-up sentences and selected books sent home each day. Children initiated independent and shared reading sessions with family members and often demanded an audience. Children also began copying the cut-up sentences in an effort to improve their writing skills and began writing (without copying) short sentences as messages to family and friends. Once the children began Reading Recovery, parents appeared to increase their time (a) reading with children, (b) having children read aloud and practice writing, and (c) completing schoolwork with children.

Holland's report of school-related literacy activities in the homes of beginning first graders was similar to those reported by Purcell-Gates (1996) in that introduction to reading and writing assignments at school boosted family literacy activities at home. As the children enrolled in kindergarten and first grade, the home environments included four times as many literacy-related events focused on teaching reading and writing as compared to homes with children still of preschool age. This parental focus on print for the sake of learning to read and write appeared to be prompted by children's homework assignments, but generalized to other print-related interactions with parents as the year progressed.

The tendency for families of *all* children to shift their emphasis to more

advanced literacy activities at home once their children begin reading instruction has not been explored. Holland did not have control subjects (i.e., high-risk readers not enrolled in Reading Recovery) with whom to compare her findings. Nor did Holland have a standard of typical home literacy activities for first-grade students with whom to compare the end of the year accomplishments of her Reading Recovery students. Such studies could offer insight into the secondary benefits of Reading Recovery and help explain the transactional nature of home-school literacy development.

The purpose of the present study was to examine the change in home literacy activities and behaviors of children who had participated in Reading Recovery during their first-grade year at school. This study builds on the findings of Holland (1991) for children enrolled in Reading Recovery, but offers a comparative view of children's experiences at home before and after instruction for three groups of different ability-level readers and for a larger number of families than was reported by Holland. The study also builds on the work of Marvin and colleagues (1993, 1994, 1997) regarding home literacy experiences of preschool children with varying degrees of risk for reading failure; the study compares the home experiences of first-grade children, some of whom had reportedly begun to read and some who had not or were at high risk for not learning to read. The present study used a parent report methodology to survey families at the near-beginning (October) and near-end of the school year (late April). Comparisons of parent-reported home literacy experiences were made for children reading at grade level, for poor readers at risk for reading failure but never enrolled in special reading programs, and for the poorest readers at the beginning of first grade who enrolled in and completed at least sixty sessions of Reading Recovery.

Method

Instrument

A six-page survey was used to collect information concerning family demographics, child characteristics, and the home-based opportunities provided to young children relative to early reading and writing/drawing activities (see Appendix). The 32-question survey was an adaptation of one used to survey parents of preschool children by the first author (Marvin & Mirenda, 1993; Marvin, 1994; Marvin & Wright, 1997). A simple multiple choice ("Check one" [n = 24 questions]) or checklist format ("Check all that apply" [n = 8 questions]) was used so that respondents with limited reading and writ-

ing skills could easily complete and return the surveys. In addition, respondents were invited to call the primary investigator and complete the survey by phone rather than responding in a written form if they so chose.

Twelve of the survey questions were related to characteristics of the children and families. Two questions addressed the respondents' current goals for their children and future expectations regarding their children's reading and writing abilities. Six questions focused on the children's access to printed materials, writing tools, and non-print literacy activities in the home. Four questions addressed the adults' behaviors during reading and writing activities with their children. The remaining eight questions pursued a description of the children's behaviors during independent and cooperative reading and writing activities at home.

Procedure

Forty-nine first-grade teachers, employed in 18 different elementary schools in a large midwestern school district were approached in the early fall of the school year and asked to submit the names of the children in their classrooms who (a) were enrolled in Reading Recovery (n = 117), (b) were poor readers who had been referred for assistance with reading but were not currently enrolled in a special reading program (n = 128), and (c) were randomly selected (n = 4 per class) from the remaining class list and who demonstrated grade-level reading abilities (n = 166). Children enrolled in Reading Recovery in the district were selected for participation in that program during the first month of school, based on their poor performance on screening tasks and their bottom ranking from the pool of all children referred and screened for possible reading difficulties from each first-grade classroom.

Survey packets were sent home to the families of these 411 identified first-grade children in October of the fall term. A letter explaining the purpose of the survey, and a stamped, self-addressed envelope were included with the survey. These packets were carried home from school by the children. Three weeks after the initial distribution, follow-up letters and new survey packets were sent home to all the families who failed to respond to the first survey. A final effort was made to increase the return rate by making phone contacts with the families who had failed to return the survey at the end of five weeks, and the survey was read to the parent over the phone (n = 6). Overall, 216 surveys were completed in the fall term, for a return rate of 52%. This represented 58 surveys for children enrolled in Reading Recovery (50% return rate), 63 surveys for poor readers who were not currently enrolled in special reading pro-

grams (49% return rate), and 95 surveys for children who were reading at grade level (57% return rate).

The same survey was sent again in late April to all 216 families of first grade children who had completed the survey the previous October. A total of 21 families (10%) had moved out of the district sometime during the school year and were not available for the follow-up study. The available 195 families represented 56 children who had been enrolled in Reading Recovery. In addition, the surveys were sent home to 47 children who were considered poor readers in the fall term but who were never enrolled in a special reading instruction program. Finally, the follow-up survey was sent to the families of 92 children who demonstrated grade-level reading abilities at the start of first grade. If a child's status changed during the school year, the student's fall and spring data were categorized and analyzed according to their status in the spring of the first grade. For example, if a child was identified in the fall as being a poor reader and later in the year participated in Reading Recovery ($n = 11$), the child's spring and fall data were analyzed with the Reading Recovery group.

Overall, 130 surveys were completed in the spring of the school year for a return rate of 66%. This represented 40 surveys from families associated with Reading Recovery (71%); thirty-five of these surveys represented children who had completed at least 60 Reading Recovery sessions; five students had completed less than 60 sessions at the time the spring survey was completed. Thirty surveys were from families of children who were considered poor readers throughout the school year (62%), and 60 surveys were from families of children who had demonstrated grade-level reading skills at the start of first grade (65%).

Data Analysis

A pre-post comparison was made of all data collected at the beginning of first grade with the data collected in the spring of the same school year. The samples were matched by the identification number for each respondent and the responses to each survey item were compared using the McNemar test for nonparametric, paired samples of nominal or ordinal data and a binomial distribution, $p = .05$ (Siegel & Castellan, 1988).

In addition, all completed surveys were coded and analyzed to compare responses across the three groups of children on a number of dimensions related to literacy activities that occurred at home in the spring of the school year. Three-way and two-way comparisons were made across the groups using Chi

square for k independent groups $\alpha = .05$ (Siegel & Castellan, 1988). In order to control for possible Type I errors and keep the overall error rate at .05, an adjusted alpha ($.05 / k$ tests) was calculated for sets of tests that were not orthogonal.

The SPSSx statistical package was used to analyze the data after each survey was coded and entered into a database by a graduate student in special education who was trained in the necessary protocols. To assure reliability of data entry, 40% of the surveys were selected for reentry by a second graduate student within one week of the initial data entry. Point-by-point reliability was 99.9% for data collected in the fall and spring; all of the data-entry errors were typographic in nature and were corrected before the data were analyzed.

Results

The results are organized in three sections to describe (a) the characteristics of the children and families in each of the three groups, (b) the significant changes in home literacy activities and behaviors reported for the children in Reading Recovery and their parents, and (c) home literacy experiences across the three groups of children as they completed their year in first grade.

Sample Characteristics

Families. The families of the children in the three groups were quite similar. The primary respondents for the children in each group both in the fall and spring of the school year were mothers. The majority of respondents and their spouses were employed in technical or professional settings; one-fourth of the respondents in each group were homemakers who did not work outside the home. English was the primary language spoken in all homes. Approximately one-fourth of each group were reportedly single-parent households. No significant differences were found in the respondents' education levels, with over 50% of the parents in each group reporting completion of college courses and degrees.

In the spring, the majority of respondents in the poor-reader and grade-level reading groups (67 and 78%, respectively) indicated that they expected their children to compete successfully in a college classroom when the children are 21 years of age. Only 50% of the families with a child in Reading Recovery reported such high expectations; forty-eight percent of these parents expected their children to be able to read at a high school level, $\chi^2 (6, N = 130) = 13.57$, $p = .04$. These springtime expectations for the parents of children in Reading Recovery were somewhat lower than had been reported by

these parents at the beginning of the children's enrollment in first grade when 77% of the parents expected their children to compete in college. These parents had established learning to read, write, and communicate effectively by the end of first grade as priority goals for their children, as did parents of the children in the other two groups. These goals remained priorities from fall through spring for most parents of children in Reading Recovery and the poor readers as well. In the fall of the year, over 84% of the parents in each group had prioritized reading goals for their children; however, significantly fewer parents of grade-level readers (65%) now held reading as the priority for their children, $X^2(2, N = 130) = 8.11, p = .02$. The parents in this group appeared to shift their priorities from reading, writing, and counting in the fall to having their children communicate effectively in the spring.

Children. There were no significant differences relative to age or gender across the three groups. The majority of the children turned seven years old during the school year; nearly half of the children in each group were girls and half were boys; a greater percentage of boys than girls, however made up the sample of children in Reading Recovery.

In the fall of the school year, significant differences were noted across the three groups relative to parent-reported reading and writing skills. Over one fifth of the children in Reading Recovery reportedly could not read at all at the start of first grade compared to only 10% of the poor readers and 1% of the children reading at grade level. More than two thirds of the poor readers and 72% of the children reading at grade level could reportedly read 5-25 words; approximately 20% in each of these groups could read simple text in picture books. In contrast, only one third of the children in Reading Recovery could read any words or text. The largest percentage of children in Reading Recovery were described as having the ability to recognize alphabet letters as their highest reading skill, $X^2(14, N = 216) = 38.04, p = .000$. Similar differences were noted in the respondents' description of the children's writing abilities at the start of first grade. Significantly fewer children in Reading Recovery (5%) could do more than copy words, which was the most common writing ability across the three groups. However, more children in the other two groups (20-28%) reportedly could write simple notes or sentences, $X^2(12, N = 216) = 28.58, p = .004$.

Summaries of the children's characteristics as reported by parents at the end of first grade are presented in Table 1. As was noted in the fall of the school year, children with special-education needs were represented in each group, but significantly more children with disabilities (27%) were participating in Reading Recovery. Speech and language disorders were the predominant

disability (73%) for the children in Reading Recovery, whereas behavior disorders, hearing impairments, and other unspecified disabilities were more notably represented (20% each) in the poor-reading group, $X^2(8, N = 130) = 16.05, p = .04$. No children in any group were reported to have autism, mental retardation, or orthopedic, vision, or health-related impairments.

As their children were completing first grade, parents in all groups described their children's reading and writing skills as improved from the

Table 1. Characteristics of Children

Characteristics	Respondent Groups			X^2 (df) <i>p</i>
	Reading Recovery Participants (<i>n</i> = 40)	Poor Readers (<i>n</i> = 30)	Grade-Level Readers (<i>n</i> = 60)	
Gender				
Girls	.45	.43	.50	
Boys	.55	.57	.50	
Special Education Need*	.27	.13	.07	13.2(6) .04
Spring Reading Skills*_a				24.56(12) .02
Recognizes letters	.03	.03	.00	
Reads 5-25 words	.05	.10	.03	
Reads 25-50 words	.15	.10	.03	
Reads text in picture books	.28	.20	.10	
Reads simple story books	.20	.03	.28	
Reads at 1st grade level	.28	.53	.55	
Comparison with Peers*				26.8(8) .00
Reading behind peers	.43	.37	.12	
Reading like his/her peers	.43	.43	.33	
Reading better than peers	.15	.20	.55	
Spring Writing Skills*_a				27.18(10) .00
Writes ABC letters	.00	.03	.02	
Copies name/familiar words	.30	.17	.08	
Writes simple notes	.03	.20	.02	
Writes simple sentences	.40	.33	.40	
Writes simple stories/answers*	.25	.27	.48	
Comparison with Peers*				24.55(8) .00
Writing behind peers	.30	.26	.09	
Writing like his/her peers	.63	.63	.50	
Writing better than peers*	.08	.10	.42	

* Comparisons were made across groups using chi-square, $p < .05$

_a These values suggest an improvement from skills reported at the beginning of first grade for all three groups ($p < .05$)

beginning of the year. Significant differences remained, however, between the children reading at grade level and the children in the other two groups. Two-way comparisons between the Reading Recovery and poor-reader populations however, revealed no significant differences in the parents' reports of reading or writing skills for their children at the end of the school year, despite significant differences in favor of the poor readers in the fall of the year. These data suggest notable improvements over the year for the children who had participated in Reading Recovery. Although more parents of grade-level readers reported that their children were reading at grade level at the end of first grade, over 75% of the parents of children in the Reading Recovery and poor-reader groups reported that their children were now reading text (picture books, story books, and first-grade stories). Only one third of the children in Reading Recovery and two thirds of the poor readers could read single words when the school year began. Over one half of the parents in these two groups reported that their children were now reading as well as or better than their peers in first grade; over one half of the parents of grade-level readers, however, reported that their children's reading skills exceeded that of their peers.

The children's writing skills were described by their parents as also improved from the beginning of the year. Again, significant differences existed between the grade-level readers and the Reading Recovery and poor-reader groups, but not between these latter two groups. Over 60% of the parents of children in the Reading Recovery and the poor-reader groups reported that their children could now write at least simple sentences, compared to 3% and 5% in each group who reported this level skill in the fall of the year. Nearly one half of the parents in the grade-level readers, however, reported that their children were able to write simple stories or answers to questions; nearly half (42%) of these parents felt their children's writing skills exceeded those of their peers.

Significant Changes in Reading Recovery Group

Despite the similarities across groups for age, gender, single parent dwellings, parental occupation and education, and parental expectations and goals, the children enrolled in Reading Recovery presented specific deficiencies in home literacy experiences that may have contributed to their having the poorest literacy skills as they began first grade. Table 2 summarizes the significant differences in the three groups in the fall of the school year (n = 216). Compared to other children identified as poor readers and to children reportedly reading at grade level, the children beginning Reading

Recovery had less frequent singing activities with adults, listened to books on tape less often, and were less likely to receive books as gifts. They were also less likely to look at photographs or notes, or recognize logos on game boxes, T-shirts or community signs. They were less apt to look at books independently or look for familiar words in print. Fewer of these children had adults spell out words for them to print or encourage them to sound out a word the children did not recognize in print. Furthermore, the children beginning Reading Recovery were less likely to begin first grade having practiced writing words or the alphabet letters.

Pre-Post comparisons were made for each group on the children's home literacy experiences as reported by their parents in the fall and spring of first grade. Statistically significant changes in the responses given by parents of the children in Reading Recovery are noted in the following sections. References to significant changes made by children in the poor- and grade-level reading

Table 2. Significantly Different Home Literacy Abilities and Activities for Three Groups of Children at the Beginning of First Grade (n = 216).

Characteristics	Respondent Groups			X ² (df) p
	Reading Recovery Participants (n = 58)	Poor Readers (n = 63)	Grade-Level Readers (n = 95)	
Sings songs	.81	.94	.92	5.93(2) .05
Listens to books on tape	.71	.73	.86	6.59(2) .03
Looks at photos	.66	.87	.87	13.39(2) .00
Looks at notes	.64	.70	.82	6.82(2) .03
Recognizes logos on games	.59	.79	.77	8.02(2) .02
Recognizes logos on t-shirts	.57	.68	.77	6.71(2) .03
Recognizes community signs	.69	.87	.90	11.91(2) .00
Recognizes own name	.79	.91	.95	9.12(2) .01
Recognizes family names	.66	.81	.93	17.9(2) .00
Reads words or simple text*	.37	.56	.71	38.0(14) .00
Looks at books while alone	.88	.91	.98	6.44(2) .04
Received books as gift	.69	.86	.92	13.8(2) .00
Writes alphabet letters*	.88	.97	.97	6.41(2) .04
Writes words	.69	.78	.92	13.01(2) .00
Writes phrases or sentences*	.05	.20	.28	28.6(12) .00
Adult spells words out	.78	.94	.93	10.29(2) .00
Adult encourages "read the word"	.53	.57	.64	7.2(2) .03
Adult prompts "sound-it-out"	.76	.76	.90	6.49(2) .04

* Significant differences remain across the three groups for these items in the spring of first grade.

groups are made where appropriate.

Children's behaviors. Parents of children in Reading Recovery reported significant changes in their children's reading and writing behaviors between the fall and spring of the school year. Specifically, the parents reported significant increases in the frequency with which the children read independently and read aloud to adults at home ($p = .000$). Whereas 24% of the parents in this group reported in the fall that their children never read or looked at books independently, only 13% reported a lack of this activity in the spring; instead, nearly one half of the parents reported that their children read independently on a daily basis and over half reported this activity to be done at least weekly at home. Furthermore, reading aloud to adults at home had been a regular activity for less than one half of the children who participated in Reading Recovery at the beginning of first grade, but all of the children reportedly engaged in this activity at home at least weekly in the spring of the school year. These activities may have influenced the significant change in the parents' reports of their children's reading skills in the spring survey. As was noted previously, only 37% of the parents of children in Reading Recovery had reported that their children could read any words or text at the start of first grade; but over 75% reported this level of reading skill or better in the spring, with 48% reporting their children could now read storybooks and first-grade material. Increased read-aloud opportunities for children may have increased the parents' opportunities for observing their children's reading abilities.

The children who had participated in Reading Recovery also demonstrated significant changes in their at-home writing skills over the school year. Children in this group were noted to do significantly less drawing, scribbling, and copying of words at home in the spring ($p = .03$) and even less compared to their poor-reading peers ($p = .03$). This decrease in the more basic writing skills was accompanied by a significant increase in more advanced writing skills. Eighty-eight percent of the participants in Reading Recovery were, at a minimum, able to write words independently and 65% could write simple sentences and stories as the school year ended, comparable to that reported for their peers.

Parental behaviors. As the children in Reading Recovery developed more advanced reading and writing skills, the parents systematically made changes in how they read to their children. In the spring of the year, significantly fewer parents in this group reported pointing to pictures ($p = .001$), pointing to letters ($p = .02$), or asking children to point to pictures while reading books aloud at home ($p = .002$). The parents of children in Reading Recovery reported significant increases in their use of incorrect reading and

waiting for the children to supply the correct word ($p = .02$), and encouraging the children to sound out words they had difficulty reading ($p = .004$). No other group demonstrated significant changes in these adult reading behaviors. Furthermore, in the spring of the year, significantly fewer parents of children in Reading Recovery (compared to poor readers) reported having to write the children's names for them ($p = .02$).

Home Literacy Experiences Across Three Groups

Despite their progress in reading and writing, the children in Reading Recovery continued to experience literacy events at home that were notably different from those reported for children who were reading at grade level. Very few significant differences remained, however, between the poor-reader and Reading Recovery groups, suggesting notable advancements in home literacy experiences over the year for the latter group.

Materials used at home. In the fall of the school year, minor differences were noted across the three groups for the types of literacy-related materials that were available to the children at home. The children in Reading Recovery, however, reportedly **used** significantly fewer of these materials at home than even the poor readers (see Table 2). In Table 3, a rank ordering of the materials used at home in the spring of the school year is presented for the three groups. As the school year came to a close, children in Reading Recovery looked at picture books, photographs, their names on packages, and comic books as much as children in the poor-reader group. Furthermore, as many children in Reading Recovery reportedly received books as gifts in the spring of the year and took notice of community signs, logos on food boxes and t-shirts, and instructions on games as did children in the other two groups. Finally, the children in Reading Recovery had developed an interest in writing at home over the year and reportedly used pencils (100%), crayons (96%), and markers (88%) comparable to children in the poor- and grade-level reading groups.

Non-Print literacy activities. In the fall of first grade, over 80% in each group reported children singing songs, and reciting ABC's and nursery rhymes at home. By spring, fewer families in each group reported that their children engaged in these simple non-print literacy activities. And although more than one half of the families in each group reported that their children participated in reciting poems, rhyming words, telling jokes with puns, singing, and listening to audio-taped stories and oral stories near the end of first grade, significantly more of the poor readers were reportedly engaging in many of these

non-print activities. Children in Reading Recovery were more like their grade-level reading peers in their use of nursery rhymes and retelling stories by the spring of first grade. And although all the children increased their attention to compound words, children reading at grade level showed the most significant increase and use of this type of non-print activity at home. Table 4 summarizes the children's non-print activities at home in the spring of first grade.

Table 3. Rank Order ^a of Materials Looked at by Children at Home in the Spring of First Grade

Materials	Respondent Groups			X ² (df) p
	Reading Recovery Participants (n = 40)	Poor Readers (n = 30)	Grade-Level Readers (n = 60)	
Reading Materials Used				
Story books	1.00	.97	.97	6.15(2) .04
Picture books*	.96	.93	.80 _b	
Community signs	.83	.87	.90	7.18(2) .03
Magazines*	.70	.87	.90	
Letters to child	.70	.87	.82 _b	4.07(1) .04
Child's name on packages*	.70	.90	.68 _b	
Food boxes	.63	.67 _b	.82	
Advertisements	.63	.73	.77 _b	
Birthday cards	.65 _b	.77	.70 _b	
Digital clocks	.60	.73	.77	
Photographs	.60	.63 _b	.75 _b	
Notes	.60	.70 _b	.72 _b	
Books as gifts	.55	.73 _b	.75 _b	
Catalogs	.55	.70	.67 _b	
Newspapers	.58 _b	.60 _b	.57 _b	
Game boxes	.50 _b	.63 _b	.65 _b	
Words/logos on T-shirts	.53	.60	.62 _b	
Brand name logos	.40	.33	.53	
Comic Books*	.40	.47	.25	4.29(1) .04

*Comparisons were made across groups using chi-square, $p < .05$.

^a Survey items reportedly used by less than 40% of the children in any group are not listed.

^b This value is significantly less than the value reported for this group at the beginning of first grade ($p < .04$).

Children's reading activities/behaviors. More children in all three groups were reading aloud to others or independently at home on a daily or weekly basis by the end of first grade. Over 60% of the children in each group were reported to be finding familiar words in text, asking their parents, "What's this say?", and commenting on what they read. In Table 5, a listing is presented of children's reading behaviors and activities at home. The vast majority of children in each group could now recognize their own names and those of family members in text and select favorite videos or foods by their labels. Significantly fewer participants in Reading Recovery, however, could demonstrate the latter skill when compared to the poor and grade-level reading groups. And, whereas over 87% in each group attempted to read independently at home and over 70% of the children in the poor-reader group could now read familiar lines independently, significantly fewer children in the Reading Recovery group (63%) could do this at home. Furthermore, significantly fewer children in

Table 4. Non-Print Literacy Activities at Home in the Spring of First Grade

Activities	Respondent Groups			X ² (df) p
	Reading Recovery Participants (n = 40)	Poor Readers (n = 30)	Grade-Level Readers (n = 60)	
Singing	.68 _b	.73 _b	.75 _b	
Telling oral stories	.70	.70	.62	
Listening to taped stories	.65	.77	.63 _b	
Telling jokes with puns	.60	.70	.68	
Reciting poems	.53	.70	.65	
Rhyming words	.58 _b	.50	.65	
Saying nursery rhymes*	.35	.60 _a	.48 _b	4.31(1) .04
Retelling stories*	.53	.70	.47 _b	4.39(1) .04
Discussing compound words*	.40	.53	.70 _a	9.01(2) .01
Saying ABC's	.50 _b	.50 _b	.37 _b	
Finding first letter in name	.43	.57	.42	
Doing finger plays	.28 _b	.40	.33 _b	

* Comparisons were made across groups using chi-square, $p < .05$

^a This value is significantly larger than the value reported for this group at the beginning of first grade ($p = .03$).

^b This value is significantly less than the value reported for this group at the beginning of first grade ($p < .05$).

Note: Survey items reportedly used by less than 40% of the children in any group are not listed.

Table 5. Children's and Parents' Reading Behaviors at Home in the Spring of First Grade

Characteristics	Respondent Groups			X ² (df) p
	Reading Recovery Participants (n = 40)	Poor Readers (n = 30)	Grade-Level Readers (n = 60)	
Children's Behaviors				
Reads aloud to others weekly	1.00 ^a	.97 ^a	1.00 ^a	
Reads independently weekly	.87 ^a	1.00 ^a	1.00 ^a	
Recognizes his/her name	.93	1.00	.95	
Chooses books	.95	.97	.98	
Recognizes family names	.90	.97	.92	
Selects favorite foods at store*	.75	.97	.93	10.47(2) .005
Selects videos for rent	.85	.90	.83	
Listens quietly as adult reads*	.80	.67 ^b	.87	5.00(1) .03
Reads familiar lines*	.63	.73	.83	5.55(1) .02
Finds familiar words	.63	.73	.70	
Asks "What's this say?"	.63	.73	.60	
Asks questions/comments	.58	.63	.70	
Turns pages	.73	.60	.55 ^b	
Announces the title	.58	.57	.73	
Reads title page	.53	.60	.65 ^a	
Visits library*	.48	.60	.73	6.90(2) .03
Guesses what will happen	.60	.63	.43	
Answers adult questions	.48	.67	.57	
Points to words you read	.48	.63	.52	
Points to pictures*	.73	.57 ^b	.38 ^b	11.45(2) .003
Tells story in own words*	.40	.57	.35	3.84(1) .04
Labels pictures	.30	.47 ^b	.37 ^b	
Adults' Behaviors				
Reads words in book	.98	.97	.97	
Reads title page*	.65	.73	.85	5.42(1) .02
Encourages "sound it out"	.93 ^a	.90 ^a	.90	
Encourages guessing words*	.55	.77	.85 ^a	11.34(2) .003
Points and reads words aloud	.68 ^b	.73	.73	
Asks child to read word	.68	.87	.70	
Supplies word as child hesitates*	.60	.80 ^a	.58	4.15(1) .04
Relates characters to child's life	.55	.57	.62	
Asks "What happened?"	.50	.67	.57	

Table 5. Continued

Characteristics	Respondent Groups			X ² (df) p
	Reading Recovery Participants (n = 40)	Poor Readers (n = 30)	Grade-Level Readers (n = 60)	
Asks child to "turn page"	.53	.70	.55 ^b	
Asks child to label pictures*	.55	.73	.33 ^b	13.57(2) .001
Asks child to point to pictures	.50 ^b	.63 ^b	.43 ^b	
Asks child to point to word	.55	.60	.43	
Asks "What will happen next?"	.50	.40	.53	
Points/Labels pictures	.35	.53	.43 ^b	
Reads incorrectly-waits	.30 ^a	.27	.30	
Points to ABC letters	.18 ^b	.33	.18 ^b	

* Comparisons were made across groups using chi-square, $p < .05$

^a This value is significantly *higher* than values reported at the beginning of first grade ($p < .05$).

^b This value is significantly *lower* than values reported at the beginning of first grade ($p < .05$).

Note: Survey items reportedly used by less than 50% of the children in any group are not listed.

Reading Recovery were visiting a public library with their families. However, when children from the three groups were compared in the spring of first grade, children in the Reading Recovery group were as likely as grade-level readers to have sat and listened quietly as adults read aloud to them.

Parents' reading behaviors. Almost all parents continued to read the precise words in a book rather than using their own words to tell a story in the spring of first grade, but fewer parents asked their children to point to or label pictures, turn the pages, or close the book when reading together. Table 5 provides a summary of the adult reading behaviors used with children at home as the children completed first grade. All parent groups reported an increase in asking children to read the words in a text; parents of children in Reading Recovery did this in the spring as often as the parents in the other groups. In addition, parents of children in Reading Recovery and poor-reader groups significantly increased their use of asking the children to sound out words while reading, matching levels comparable to the grade-level reading group. Finally, approximately 30% of all parents now read words incorrectly and waited for their children to correct them. Parents of children in Reading Recovery, however, were less likely than other parents to read the title page of a book or

encourage their children to guess at words. Significantly more parents of children in the poor-reader group reportedly still asked their children to label pictures and supplied words when their children hesitated in reading aloud.

Children's writing activities/behaviors. All the children were writing more at home as they approached the end of first grade than they were at the beginning of the school year. According to their parents, only 5% of the children in Reading Recovery "seldom or never" wrote at home; over 95% of the children in all three groups wrote daily at home, and over 80% were able to write their names and other words independently. Significantly more children in Reading Recovery, however, still engaged in pretend writing and wrote their ABCs at home; more children in the poor-reader group copied words that the adults at home wrote first. Grade-level readers, in contrast, were advancing to typing words independently. Table 6 is a ranked listing of the children's writing behaviors and activities at home in the spring of the school year. Although none of the groups reported statistically significant increases in particular writing skills for their children at home, children in Reading Recovery were now reportedly engaging in writing activities and behaviors like their peers in the poor and grade-level reading groups.

Parents' writing supports. As the children developed more competence in independent writing tasks at home, parents in all three groups were able to play a less active role in their children's writing efforts. In Table 6, a ranked list is displayed of the adult behaviors that were used to support their children's writing in the spring of first grade. Less than half of the parents of children in Reading Recovery and less than one third of the parents of children in the poor- and grade-level reading groups reported having to write their children's name for them. Over 80% of the parents in each group reported commenting on what the children wrote and asking or answering the children's questions. Parents of children in Reading Recovery were spelling words aloud for their children like the parents in the other two groups and showed a significant increase in the practice of sounding out words for their children to write. However, significantly more parents of children in Reading Recovery (35%) reported still having to position the writing utensils in their children's hands.

Discussion

The present study complements and extends the findings by Holland (1991). The 40 first-grade students in the present study demonstrated similar changes in their home literacy activities as did Holland's 13 students during enrollment in Reading Recovery. The children reportedly read more at home

Table 6. Children's and Parents' Writing Behaviors/Activities at Home in the Spring of First Grade

Writing Behaviors	Respondent Groups			X ² (df) p
	Reading Recovery Participants (n = 40)	Poor Readers (n = 30)	Grade-Level Readers (n = 60)	
<u>Children's Writing Behaviors</u>				
Writes daily/weekly*	.95	1.00	1.00	11.65(2) .02
Prints his/her name	1.00	.97	.98	
Writes words independently	.88	.83	.95	
Draws with markers	.83 _b	.97	.82 _b	
Writes ABC letters*	.80	.67 _b	.60 _b	4.41(1) .04
Copies words adult writes*	.63 _b	.80	.57 _b	4.75(1) .03
Makes signs to post on doors	.73	.63	.75	
Plays with drawing toy	.65	.53	.48	
Plays with calculator	.38	.47	.53	
Pretends to write under picture*	.68	.47 _b	.43	5.62(1) .02
Dictates for others to write	.40	.40	.30 _b	
Draws on computer	.35	.23	.38	
Scribbles left to right	.55 _b	.37 _b	.37 _b	
Types words independently*	.25	.33	.50	6.71(2) .03
<u>Adult Writing Behaviors</u>				
Comments	.88	.90	.92	
Answers child's questions	.80	.83	.92	
Asks child to tell what they did	.83	.83	.85 _b	
Spells words aloud	.75	.83	.88	
Encourages child to do more	.70	.73 _b	.67 _b	
Sits silently and watches	.75	.67	.68	
Writes words dictated	.53	.60 _b	.50 _b	
Sounds-out words for child	.43 _a	.47	.32 _b	
Writes child's name	.45 _b	.27 _b	.32 _b	
Provides hand-over-hand	.35	.37	.08 _b	
Positions writing utensil*	.35	.20 _b	.07 _b	12.86(2) .001

* Comparisons were made across groups using chi-square, $p < .05$

_a This value is significantly *higher* than the values reported at the beginning of first grade ($p = .05$).

_b This value is significantly *lower* than the values reported at the beginning of first grade ($p = .05$).

Note: Survey items reportedly used by less than 50% of the children in any group are not listed.

once they began the program and advanced their literacy activities to include reading aloud to others, reading independently, and writing names and words independently. The results of the study also demonstrate that the changes were in the direction of more mature reading and writing skills and approached the level of home activity reported at the end of first grade for grade-level readers. Although Reading Recovery may not be fully credited with the changes reported here, the association between Reading Recovery efforts and the children's improved home literacy activities and skills should be given some consideration.

As Purcell-Gates (1996) had reported for her kindergarten-1st grade families, the parents of children in the present study made appropriate adjustments in their reading and writing supports and expectations with children at home as the children initiated reading instruction at school and brought home "homework" to complete. The parents of children in Reading Recovery continued to read aloud to children through the year but significantly reduced pointing at words while reading aloud, pointing out letters, or asking children to point at named pictures. Instead, these parents in the spring of the school year were asking children to read the words, encouraging their children to "sound it out," and reading words aloud incorrectly to see if children would catch the mistakes. Without explicit instruction to do so, parents and children made changes in home literacy activities and behaviors that appeared responsive to the children's increased reading and writing abilities. Noteworthy is the fact that Reading Recovery does not purport to influence home literacy activities and, therefore, any positive effects are welcomed indirect outcomes of the program.

Furthermore, the reported shift in the type of parental behaviors used during shared reading and writing activities at home may explain the slight shift some parents in the Reading Recovery group reported in their expectations for their children's future literacy abilities at age 21. These parents may have had somewhat uninformed opinions about their children's abilities and potential for reading in the fall of the school year. Once they began to attend more closely and interact with their children during reading and writing activities, they may have come to recognize the challenges their children faced in learning to read. This new knowledge could explain their lowered, perhaps more realistic, expectation for their children.

Overall, the results of this yearlong investigation lend support to the transactional nature of the relationship between home and school reading environments. Children with greater home-based literacy experiences came to first grade as better readers. As all children increased their reading and writing

competencies during first grade, we saw a corresponding change in parents' reading and writing support behaviors and the children's literacy activities at home. This was most evident in the Reading Recovery group where the children had the greatest gains to make during first grade. The children selected for Reading Recovery exhibited the lowest level of literacy skills and had fewer opportunities than other students to use materials and engage in productive literacy-related interactions with adults at home. Evidence from this study indicates that implementation of Reading Recovery services may have had an impact on the activities and interactions these children experienced at home. Subsequently, whether a result of the direct instruction received through Reading Recovery at school, the first grade reading activities in the classroom, or the changed literacy experiences at home, the children enrolled in Reading Recovery reportedly demonstrated improvements over the year in reading and writing at home that were developmentally and often grade-level appropriate. Given the children's lack of skills as they began the school year, participation in Reading Recovery may have influenced both the children's role as reader at home (as active and capable) and the parent's perceptions and support of the children's reading and writing abilities.

The educators who welcome kindergartners and first graders to school know that they must be prepared to greet children with wide-ranging literacy experiences and skills. It is the responsibility of educators in each school to find ways to respond differentially to children with varying levels of competence such that all will have the opportunity to learn to read and write. The implementation of Reading Recovery is one way for schools to address the needs of children who do not arrive in first grade with literacy skills and experiences comparable to their peers. Reading Recovery offers a way for schools to respond to children experiencing difficulties in emerging literacy, extending support directly to the children and indirectly to the families, beyond that which may be provided by an individual first-grade teacher. This attention to children's skills, and indirectly to home literacy environments, makes Reading Recovery unique in its efforts to address the multifaceted factors associated with many children's failure to learn to read.

Future studies are needed to compare quantitative measures and qualitative reports of the children's home-based and school-based reading and writing behaviors at the beginning and end of the first grade. Such studies could confirm or refute the differences noted across groups in this present study and changes reported by parents in home literacy interactions and reading and writing skills for children who enrolled in Reading Recovery. Information about the home literacy environments of children who successfully discontinue

Reading Recovery and those who continue unsuccessfully through 60+ lessons would provide insight into the role children's abilities vs. the homework assignments play in changing home literacy environments. Finally, studies that differentially compare the reading and writing progress for Reading Recovery students who had rich home experiences prior to beginning school with those who had limited experiences would be insightful. The results of such studies might provide parents and teachers with additional information that would most likely benefit Reading Recovery efforts.

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Biography

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