

IMPROVING THE READING ACHIEVEMENT OF SELECTED AT-RISK  
READERS:  
ONE SCHOOL DIVISION'S APPROACH

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Dissertation submitted to the Faculty of the  
Virginia Polytechnic Institute and State University  
in partial fulfillment of the requirements for the degree of

DOCTOR OF EDUCATION  
in  
Curriculum and Instruction

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June 22, 2001  
Blacksburg, Virginia

Keywords: At-Risk Students, Early Intervention, Reading, Remedial Programs

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By

Alice J. Feret

(Abstract)

This study describes the long-term reading achievement of a group of children identified by teachers in 1994 as low-achieving students in reading. Four research questions guided the study, and the 165 participants came from 12 elementary schools in Montgomery County, Virginia. They were selected, because they had participated in Reading Recovery in first grade and had taken the reading portion of the Stanford 9 Achievement Test in the spring of third grade.

The literature review covers the history of reading instruction, outlines the Chapter I model, compares and contrasts the New Zealand and American Reading Recovery models, and profiles the impact of Reading Recovery on the research community.

Means and standard deviations were analyzed to compare the relative performance of four major populations: Reading Recovery, Reading Recovery/Chapter I, Chapter I, and Waitlisted.

The results of the analyses suggest that Reading Recovery students successfully discontinued in any number of lessons had means in the top half of the distribution of means for all populations in the study. With the addition of one to two years of Chapter I instruction after Reading Recovery, some students achieved the highest mean.

The scores of Chapter I students with one year of instruction nearly matched the Reading Recovery mean. Two to three years of Chapter I produced lower means.

The waitlisted students scored slightly lower than the other three populations.

The results of the study confirm the efficacy of Reading Recovery as an early intervention, but indicate that using Chapter I as a transitional step between Reading Recovery and successful independent reading sustains long-term reading achievement.

## DEDICATION

This dissertation is dedicated with much love to my parents, Alice and Nicholas Rigas, for their lifelong love and support of my every endeavor. They not only grounded me, but they gave me wings. Yet, they, themselves, are the real gift.

## ACKNOWLEDGEMENTS

I wish to express my sincere thanks to my dissertation committee chair, Dr. Larry Harris, for his patience, direction, and superb editing skills throughout this process. I extend my thanks to Dr. David Parks, for his support and the time he took to unlock the mysteries of research design. I thank my other committee members, Dr. Jerry Niles and Dr. Patricia Kelly, for their helpful questions and suggestions. To Dr. Patricia Talbot I extend my grateful thanks, for her participation and good cheer.

I am indebted to my son, Peter Feret, for his technical support, to Dr. Walt Mallory for his statistical support, and to Jayne McElvery for her “listening and problem-solving” support.

I am grateful for the encouragement and prayers of family and friends. I deeply appreciate both the silent and voiced confidence expressed by my sons, Peter and Matthew, and by my daughter, Andrea.

Lastly, I thank my mother and father for their unfailing love and invaluable lessons in hard work, sacrifice, and perseverance.

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## CHAPTER I

### STATEMENT OF THE PROBLEM

#### Background: Importance of Literacy

Once the exclusive domain of monks and scribes, literacy became accessible to all members of all social classes in modern times with the passage of compulsory-education laws by modern nations. According to Hladczuk and Eller (1992), literacy is “the vehicle of education, the means through which ideas, information, knowledge and wisdom are expressed and exchanged” (p. ix). Literate individuals possess the capacity to function fully in society: to make reasoned choices, to acquire meaningful employment, to participate in civic affairs.

Education develops human competence and potential for both personal and societal gain. But, Ryan (1992) maintained, “The most fundamental educational skill is not reading, but thinking. Reading is important precisely because it provides food for thought in nourishing doses” (p. xii). But, the current, omnipresent influence of visual media in daily life encourages indifference toward reading for information and pleasure.

On the cusp of a new century, Ryan sensed a “serious threat to the intellectual underpinnings of democratic society” (p. xii). Since democratic government depends on informed participation of its citizenry, reading in America has long been “our common concern and collective responsibility” (p. ix). For an American public that may now read less than formerly, a dependence on media personalities to process information, deliver it selectively, and meld news with entertainment could signal an historical shift in attitudes toward civic responsibility.

On a more personal level, the current technological thrust transforming America from an industrial to an information society offers many new opportunities for individual gain. Simultaneously, it underscores the obligation of public schools to raise the literacy level of the bottom tier of students by reducing today’s pronounced disparities between high and low achievers, so all learners will have the chance to find productive employment and to construct meaningful lives.

## Rationale for the Study

Perfetti and Curtis (1986) identified learning to read as “the central learning activity undertaken by children during the first few years of school. Indeed, the ability to read is the traditional criterion of beginning school achievement and is basic to success in school” (p. 155).

It seems reasonable to anticipate schools would teach students to “manipulate language in astute ways in varied situations” (Dyson, 1993, p.422). Most young children enter school with positive attitudes and high expectations for learning in general; but from the inception of public education, the sheer numbers of pupils enrolled in schools have produced a wide spectrum of achievement.

Some beginners start at a comparative disadvantage to others. Beginning readers move through developmental sequences at differing rates, validating the generally-accepted “window” for learning to read as spanning ages four through seven. Primary teachers, adept at visual and auditory assessments of reading acquisition, have consistently noted that some students arrive in kindergarten with substantially less accumulated experiences with books and reading (Scarborough et al, 1991, p.150). They appear to learn new words less efficiently than do better readers “even when differences in the knowledge base are controlled” (Stanovich, 1986, p.382). Thus, although some older students may choose failure...to remain part of a peer group that negatively values academic achievement or rejects the “culture of power” and the instruction that it mandates (Barr, 1991, p.1004), a subset of students genuinely struggles when learning to read.

Since reading difficulties affect reading development, academic achievement, and self-esteem, “accurately identifying children at-risk for reading difficulties very early in their educational experience is the first step toward forestalling reading disability....” (Hurford et al., 1994, p. 375) and disenchantment with education. “Decisions as to what it means to be below average are always arbitrary” (Barr, 1991, p.1003), because there is no benchmark. The student populations of school districts vary tremendously; and individual teachers hold broadly divergent philosophies regarding learning, literacy, and human ability. But, Hurford et al. discovered that children “can be identified as at risk very early in first grade...by [formal] measures of intelligence quotient, reading, and phonological

processing...” (p. 380) or informally; because they exhibit social, developmental or cultural differences.

Routinely, teachers label as poor or non-readers, those students at any age, who read below grade-level by one-half year or more, despite normal intelligence, instruction, and the absence of major neurological or sensory conditions. Yet, according to Chapman & Tunmer (1995), by eight years of age, children have begun to understand the concept of academic ability. They also become sensitive to the achievements of their peers. If “opportunities to acquire and refine cognitive skills and strategies...characteristic of proficient learners” (p.165) decrease rather than increase during this tenuous period, many low achievers can easily become at-risk for developing negative attitudes toward school and self. “Non-readers in particular appear to assume they are unable to learn” (McCormick, 1994, p.160) when faced with their limited progress.

Other factors affect reading achievement. Children with information-processing problems, who might benefit from increased focus or rich resources, exhibit distinctive behaviors that can derail learning. Allington (1983) claimed “poor readers are less often engaged in learning—hyperactive, unmotivated, immature, distractible” (p.549).

Students who start school without a literacy-rich background might profit from increased time with books. Stanovich (1986) found, however, that soon after experiencing greater difficulty in breaking the spelling-to-sound code, poorer readers began, in fact, to be exposed to less text than their peers (p.364). He also discovered that the poor reader who reads less text may become less and less able to read age-appropriate material...contributing to [a] distaste for reading (p.394), low achievement, and a sense of diminished self-esteem. McCormick echoed Stanovich’s findings by noting in 1994 that disabled readers “seldom can read connected text” (p.157).

The single best predictor of school reading achievement, according to Walker-Dalhouse (1993) however, is low socioeconomic status, from which low achievers seem to suffer disproportionately (p.24). Stanovich (1986) described the “Matthew-effect: the earlier low-income children start to slip, the faster they fall and the farther behind in each succeeding grade...” (p.381).

Cumulative failure to progress may lead to grade retention and eventual failure to graduate from high school. These distinct possibilities for struggling students can trigger a sequence of consequences with lasting personal and economic effects. Options for employment and financial stability may narrow, while involvement with crime, substance abuse, and/or dependence on federal public assistance may become unfortunate alternatives to purposeful lives. How much more sensible it would be to address reading issues as early as possible.

Documented concern for the achievement of children from low-income families has existed since the beginnings of the scientific movement in education during the 1920's (Chall, 1990), although literature has long been rife with examples of concern for the "less fortunate." As an outgrowth of President Lyndon B. Johnson's domestic program, "The Great Society," the federal government has formally supported the education of economically-disadvantaged students by funding virtually every school district in the nation under the Elementary and Secondary Education Act of 1965 or its successors (Allington and McGill-Franzen 1989).

Despite additional state and local efforts, which target students who struggle with literacy, reading failure persists nationwide in numbers sizeable enough to concern analysts at the National Center for Educational Statistics (1993, 1996), the National Center to Improve the Tools of Educators (1996), and the 1994 National Assessment of Educational Progress (NAEP) (Simmons and Kameenui, 1998).

Classroom teachers, who often feel inadequately prepared to teach low-achieving students effectively, refer such students for remedial reading or special education testing. The number of children qualifying for some kind of support because of reading difficulties in the early primary grades is increasing (Lyons & Beaver in Allington & Walmsley, 1995, p.117); and the search for valid, educational solutions is intense.

#### Background: Montgomery County's Reading Program

Montgomery County school district is located in the Appalachian Mountains of Southwest Virginia. Its student population of approximately 9200 comes from both rural and suburban settings; two towns, Blacksburg and Christiansburg, lie within the 393 square miles. Two universities impact the area: Virginia Polytechnic Institute and State

University in Blacksburg and Radford University in Radford, a small city adjoining the county border.

In early 1990, Montgomery County administrators actively sought new, non-traditional approaches to encourage reading, increase achievement, and decrease the dropout rate. From total school programs such as Slavin's "Success For All," to homegrown successes within Virginia communities, staff reviewed promising alternatives to the traditional channels already in place for improving reading: incentives, Chapter I, and summer school. The Assistant Superintendent for Curriculum and Instruction and the Reading Coordinator recommended the import and implementation of Reading Recovery.

Although Ohio State University had become the first regional training center for the preparation of Reading Recovery teacher-leaders, by 1991 the University of North Carolina was also an official center. Montgomery County selected a former reading coordinator-now classroom teacher to attend the University of North Carolina at Wilmington for the full year of structured training required by Reading Recovery and funded it collaboratively with Chapter I.

Upon her return in Fall 1992, Montgomery County Reading Recovery teacher-leader conducted the first yearlong Reading Recovery teacher-training class in conjunction with Virginia Polytechnic and State University, as program guidelines had mandated. Opened also to educators in surrounding geographical areas, the first class numbered ten, seven of whom were Montgomery County teachers, working at six schools. Within the next two years, 15 more reading teachers had trained. By 1994-95, all 12 elementary schools had at least one Reading Recovery teacher at work, and some had as many as three.

Two schools had "shared classrooms" in operation. Four first grade teachers with Reading Recovery training paired to share two first grade classes. Each tutored four Reading Recovery students for half a day and taught first grade for the remaining half day. One of these elementary teachers had a master's degree and the "reading specialist" endorsement. Their classroom experience ranged from 1 to 24 years.

Teacher instruction included two, three-credit graduate level semester courses combining theory and practicum offered by the Montgomery County Reading Recovery

teacher-leader at a local primary school, in a room especially designed with a one-way mirror to facilitate observation of tutoring sessions. The teacher-leader supervised teachers on- and off-site, as they apply newly-acquired techniques; and she monitored program results. The teacher-leader also stimulated collegial support and professional development by following clear Reading Recovery guidelines for continuous group contact, observation of all practitioners, and attendance at professional development conferences.

Although, Montgomery County Public Schools absorbed the instructional costs of its Reading Recovery teachers in training, responsibility for program costs in the elementary schools fluctuated between local and federal funding at the direction of the Montgomery County Board of Supervisors, which solely possessed local authority to tax. With federally-funded programs, parameters for participation depended upon the numbers of students receiving free and/or reduced lunch at each elementary school; this count changed annually. As a result, as many as all 12 schools and as few as 7 have qualified for inclusion in the RR program over the past nine years. Currently, both County and federal Title I resources optimize the program at ten schools. (Two schools have merged since the study; one has consistently exceeded income guidelines for all but one year.)

#### Purpose of the Study

The purpose of this study is to describe the long-term reading achievement of first-grade students, who qualified for supplemental reading support in 1994-1995 in Montgomery County, Virginia, by examining Stanford 9 Achievement Test scores at the end of third grade.

The researcher gathered data on all children who qualified for reading remediation in 1994, who also had Stanford 9 “Total Reading” test scores in 1997.

Eligible students formed four populations:

- (a) those who had Reading Recovery, only;
- (b) those who had Reading Recovery with Chapter I;
- (c) those who had Chapter I, only; and
- (d) those who were waitlisted.

Four questions were investigated.

1. How have students who participated in Reading Recovery performed on the Stanford 9?
2. How have students who participated in both Reading Recovery and Chapter I performed on the Stanford 9?
3. How have students who participated in Chapter I performed on the Stanford 9?
4. How have students who remained on a Chapter I waiting list performed on the Stanford 9?

Much effort on the part of central office administrators, reading coordinators, principals, reading specialists, teachers, and a parent liaison has contributed to the establishment of Reading Recovery as part of Montgomery County's specialized programming under Title I. This study will examine data that could be helpful in future curriculum planning or program evaluation.

### Significance of the Study

This study examines how one district attempted to increase the reading achievement of a select group of low-achieving readers. It also provides an opportunity to contribute to a growing body of research regarding Reading Recovery. Unlike summaries of data from any of the three, earliest teacher-leader training sites at Ohio State University, University of Illinois Urbana-Champaign and Texas Women's University that detail the achievement of successful participants (Hiebert, 1994), this project has included the outcomes for all students receiving treatment in 1994-1995. Since conflicting claims for the success rates of both Chapter I and Reading Recovery appear throughout research literature, perhaps a simple, site-specific review will add a modicum of clarity to any future national assessment.

As one of only two sites west of Richmond in 1992-1993, Montgomery County's Reading Recovery program served as a demonstration site for visitors from school systems in the western part of the state, especially. How an amalgam of town and business areas within a rural Appalachian county implemented a national reform may also be a point of interest.

### Definitions

**Reading Recovery** is an early intervention procedure designed to accelerate the reading progress of the lowest-achieving first graders and to prevent future failure.

**Stanford 9** is the particular edition of the Stanford Achievement test administered to grades 3, 5, 8, and 11 in 1997 in Montgomery County.

**Title I** and **Chapter I** are interchangeable terms to describe the federal government's largest education initiative to narrow the achievement gap between low- and high-income students.

### Limitations

The findings of this study will be site-specific.

Stanford 9 is a standardized achievement test, used nationwide and pre-selected by Montgomery County's test coordinator. Therefore, the focus of its test questions may not directly match with Reading Recovery goals and objectives.

Student participants in this study were pre-selected on the basis of need for reading remediation by a combination of teacher assessment based on observation and both formal and informal testing measures. Thus, participation in the program was not based on random assignment to study or comparison groups.

The populations included all first graders who were eligible for supplemental reading instruction in 1994-1995, who had Stanford 9 scores in 1997. No standardized test results were available for the students under study in grades one or two due to Montgomery County testing philosophy, which exempts those grade levels from testing.

Student attrition affected population size:

- (a) Stanford 9 test results were unavailable for students who had moved out of the county by 1997 or who had chosen home-or religious schooling,
- (b) some students were retained one grade level and had no Stanford 9 scores, and
- (c) some children who began Reading Recovery were later identified as special education students.

Their Stanford 9 scores were either unavailable for analysis or the tests were not administered under standard conditions. Two hundred thirty-six of the original 313 students remained in Montgomery County elementary classrooms at the end of the 1996-1997 school year.

### Organization of the Study

This study is divided into five chapters. The introductory chapter presents the background information on literacy, the rationale for the study, and a brief history of the Reading Recovery intervention in Montgomery County, Virginia. It continues with the purpose of the study, questions investigated, significance, definitions, and limitations and concludes with the organizational structure of this dissertation.

A review of pertinent literature is outlined in Chapter 2. Theoretical models of literacy acquisition, a brief history of reading instruction, an overview of remedial interventions, and reviews of Reading Recovery research are included.

The methodology used in the study is summarized in Chapter 3. The populations, measurement instruments, data collection procedures, and data analyses are described.

The results of the study are reported in Chapter 4. Data are analyzed, summarized, and illustrated with tables and histograms.

The final chapter offers a summary of findings, draws conclusions related to the questions investigated, discusses results, and provides implications for practice and recommendations for future research.

## CHAPTER II

### REVIEW OF THE LITERATURE

#### Introduction

This chapter summarizes theories related to the acquisition of literacy, traces the history of reading instruction, and profiles Chapter I. It describes the New Zealand Reading Recovery model and its American importation and explores the impact of Reading Recovery on the research community.

#### Theoretical Models of Literacy Acquisition

A myriad of scholars can agree that producing independent readers with “clear communication, strong reading comprehension, articulate writing, and critical analysis skills...” (Chard, Simmons & Kameenui, 1998, p.142) is the goal of reading instruction. The optimal setting and techniques to accomplish that purpose persistently stir controversy.

Linguists, sociologists, anthropologists, economists, humanists, and traditional neuroscientists have investigated specialized components of the reading process. Their diverse perspectives added to those of the cognitive and educational psychologists simultaneously enrich and confuse issues. Invariably, their findings can be categorized into two philosophical models, which sharply divide the professional reading community: reductivism and constructivism.

In the former, reading is reducible to parts, which respond to “explicit instruction, guided practice, and independent application”: (Spiegel (1992) in Deegan, 1995, p. 692). The systematic relationship that exists between letters and sounds gives readers a frame of reference for identifying unknown words. Sometimes labeled the “proficient” model (Singer and Ruddell, 1976, p.1536), practitioners and researchers who support a code-emphasis maintain that development proceeds in a linear progression from letter acquisition to the decoding of words to comprehension of meaning in “bottom-up” mode.

In the latter, reading is considered a process, which flows from comprehension “...to critique to emancipation [of the self]” (Giroux (1992) in Deegan, 1995, p.689).

Readers' previous knowledge and critical interaction with text produce comprehension prior to or in lieu of perception of individual words. Sometimes labeled the developmental model, constructing and reshaping personal meaning continuously in "top-down" mode is considered "part of a [somewhat-] discontinuous progressive movement in education ranging back through the language-experience movement to the ideas of Dewey and other twentieth-century progressives" (Y. Goodman, 1989, p. 175).

A third model, referred to twenty years ago as "interactive" (Rumelhart, 1977, p.1537) and more recently as "eclectic" (Stahl et al, 1994, p. 182) or "balanced" (Fitzgerald, 1999), rejects rigid adherence to either previously described model. It blends visual and phonemic elements into a strong decoding program in the early grades and stresses comprehension strategies and literature discussion to promote understanding of text and love of reading, as fluency increases. The combination of explicit phonics instruction with authentic learning tasks, literature, and a focus on achievement incorporates the most salient components of both models.

## Brief History of Reading Instruction

Central to academics and key to maximal learning, reading has long demonstrated the capacity to stir emotions and create powerful tension among teachers, researchers, and the public. National trends in reading instruction seem to mirror current applications of educational psychology to the general learning process in somewhat cyclical fashion.

The advent of the scientific movement in education in the 1920's introduced a rational system to the studies of instructional technique and classroom management, which filtered into reading practice.

The 1930's, late 1960's to 1970's, and late 1980's to early 1990's can be characterized as periods of support for holistic practice: integrated curriculum, open classrooms for collaborative growth, whole language for personal learning. In the early 1970's, basic process research focused on language acquisition. By the mid-1980's, reading had become inseparably linked with its companion language components--writing, listening, and speaking—and with metacognitive processes, as K. Goodman (1976) urged readers to become “not...perceiver[s] of text, but as...questioner[s] of text” (p.1537). With research grounded in humanism, the whole language model valued reading behaviors which typified an ideal egalitarian society (McKenna, Stahl & Reinking, 1994, p. 213); and, the search for assessments more indicative of true growth than test scores began in earnest.

By contrast, the postwar 1940's to early 1960's and early 1980's marked periods of direct instruction, planned curriculum, and a view of students as passive receptors of learning. Because “...the pronunciation of English is related in a regular way to its writing system” (MacLean, 1988, p.516), phonics became a mainstay of these reform periods. Chall (1967), a leading spokeswoman for the letter-sound approach, claimed research demonstrated “...earlier, more systematic phonics produced better word recognition and reading comprehension...through third grade...than did later, less systematic instruction” (p.1539).

The product-approach evident in the 1950's basal focus on literal comprehension continued with the large-scale studies of beginning reading in the 1960's and into the early 1980's with the pursuit of text-related variables, such as vocabulary, to test reading achievement.

Elements of both instructional philosophies have continued to shape reading practice throughout the last decade of the century. Emergent literacy, deemed a continuum rather than a distinct stage of readiness-to-read, encompasses a broad spectrum of experiences with print, as well as specific areas of knowledge. It embraces a period of development in which very young children's informal interactions with oral and written language establish the foundation for their subsequent reading and writing acquisition.

Foremost among emergent literacy behaviors is phonemic awareness, an auditory skill which traditionally has been considered a correlate of phonics. Recent research by van Kleeck (1998) has reiterated the importance of direct instruction in the letter-sound relationship to expedite word recognition. The inclusion of phonics in child-centered instruction is currently spreading, even as authentic assessment practices continue to increase.

Although the descriptors (traditionalists vs. experimentalists, idealists vs. pragmatists, basics vs. critical thinking skills) change with the decades, the fundamental gaps between advocates of teacher- and student-directed learning remain.

### Interventions Pertinent to This Study

Despite "best practice," a subset of children who struggle with language activities has inevitably appeared as early as kindergarten. Although these students frequently have received differentiated instruction in kindergarten and support from varied school personnel, they often fail to attain proficiency in reading in subsequent years. Through careful, long-term observation, formal and informal assessment by teachers and specialists and in conference with parents, schools have ushered these children into remediation, retention or special education on a case-by-case basis.

### Profile of Chapter I/Title I Model

Of the three alternatives available to low-achieving students, remediation through the federal initiative known as Chapter I is the oldest and most widespread option. As an outgrowth of President Lyndon B. Johnson's "Great Society," Congress passed the Elementary and Secondary Education Act (ESEA) in 1965 to channel additional

resources to the children of poverty. The largest program, known intermittently as Chapter I or Title I, "...provided funds for the education of students who were considered hard to teach and in need of additional educational resources that few districts routinely provided" (Allington & Walmsley, 1995, p. 25).

Teachers employed in Title I programs ranged from paraprofessionals to specialists with masters degrees.

All aspects of the design of remedial reading programs varied by school district, nationwide. An in-class setting required the reading specialist to function as an aide to students in completion of classwork or introduction of new or as an extra resource to teachers. A pullout setting allowed the reading specialist to focus on small group instruction. Regardless of the setting, students "...experienced relatively more time on skill-related tasks than on text related activities" (R.M.Bean et al, 1991, p. 457). Student behaviors were typically passive: listening, silent reading and transcribing (p. 455).

Analyses of the results of Chapter I have been carried out at the national level by researchers interested in evaluating the total program, as well as specific program facets. (Allington et al, 1986; Bean et al, 1991; Carter, 1984; Slavin, 1991; Thistlethwaite et al, 1993). Positive results were found to be small at best, and often nonexistent (Walmsley & Allington, 1995, p. 23). Reauthorization of Chapter I that occurred in 1988 and 1994 attempted to mandate increased accountability by establishing parameters for such program elements as pre- and posttesting and classroom structure.

Over the last decade, several programs have attempted to combine the most powerful features of remedial reading instruction to accelerate the academic progress of at-risk children.

Phonemic awareness studies as early as 1983 and comprehension strategy studies of the mid-1980's to early 1990's both demonstrated that low-achieving, young students could progress satisfactorily with concrete instruction and practice (Pressley, 1994).

While some investigators focused on singular, familiar dimensions of literacy acquisition, others sought to optimize progress through more ambitious reform.

Most notable in the 1980's were two innovative programs: Reading Recovery, developed by Dr. Marie Clay of New Zealand, and Success For All, developed by Robert E. Slavin of the Johns Hopkins University in Baltimore, Maryland.

Each initiative featured an instructional blend of individual tutoring by trained teachers, elements of phonics and whole language, and staff development; but the differences were striking. Success For All, a comprehensive, preventive effort, regrouped entire grade levels of students by ability during the common reading block, supported families in need, and implemented system-wide effects on language arts instruction and assessment. Reading Recovery, an early intervention, focused intensely on first graders only, offering intensive, pullout instruction for students, training for teachers, and extended opportunities for collegial support.

Each innovation had supporters as well as detractors, but Reading Recovery alone established a network for rapid dissemination of technique that continues to this day. Marketed aggressively in Virginia at reading and language conferences and by word of mouth, Reading Recovery, as implemented by Montgomery County, became the focus of this study.

#### Profile of the New Zealand Reading Recovery Model

In 1962, developmental psychologist Dr. Marie Clay applied her methods of studying and recording child behavior to observations of children during their first year of school in Auckland, New Zealand. At primary schools chosen from high, middle, and lower income areas, children were randomly selected from class rolls in order to examine the relationship between instruction, text, and language acquisition. The study concluded in 1966 with new questions, and further research transpired.

By the mid-1970's, Clay pilot-tested the program in five schools with 122 children with "ordinary teachers released for individual teaching" (Clay, 1982, p. 173) and then conducted a follow-up study. Those students not tutored formed control groups taught by the same teachers using the same programs. Initial, final, and follow-up testing data were collected on book level and reading vocabulary variables.

Although continuous entry to school in New Zealand on children's fifth birthdays accommodates variability in the pace of students' learning, fixed, annual promotion to the next two grade levels revealed that little change in skill had occurred in the subsequent years between the end-of-instruction scores and the end-of-year follow-up scores for all groups: control, discontinued, and not-discontinued.

Clay concluded that discontinued students had maintained their gains one and two years later, while those students not discontinued predictably required further tutoring. She further inferred that the control and discontinued students had absorbed the program's processing strategies, defined loosely as those automatic habits leading to reading independence.

### Brief History of Reading Recovery in America

Researchers at Ohio State University observed the New Zealand program on site in 1983. In 1984-85 with funding from two foundations and the university, Ohio State University (OSU), Columbus Public Schools, and the Ohio Department of Education jointly imported Dr. Clay and the National Director of Reading Recovery in New Zealand, Barbara Watson, to train Reading Recovery teacher leaders and teachers.

A pilot group of six Columbus Public Schools preceded the program's first full year of operation. For research purposes, 136 children and 32 trained Reading Recovery teachers were grouped together in September 1985, joined by an alternative, compensatory reading-program group and a random sample of first graders.

Tested on text reading ability at the end of second, third, and fourth grades, the discontinued Reading Recovery group displayed a higher mean score than the comparison group. It scored within the average band of the random sample for two years and at the bottom of the average band in the third year. Woodcock Reading Mastery (1988) administered to all three study groups identified approximately two-thirds of Reading Recovery sample groups and not quite one-half of the comparison groups in the average or above-average band. Ohio State researchers were satisfied that Reading Recovery was an effective intervention for both the short and long term.

Shortly thereafter, Reading Recovery expanded to include thirty-three schools in ten Ohio districts with a total of 324 first graders, participating in one of five different intervention programs for purposes of comparison.

Test results on four reading instruments (Text Reading Level, Dictation Assessment Task, Woodcock Reading Mastery, and Gates-MacGinitie) after 14 weeks demonstrated that Reading Recovery children performed better on all tests than the children in other prevention programs. Retested at the end of grade one and again at the

beginning of grade two, Reading Recovery students alone revealed sustained performance.

Researchers concluded that those discontinued students:

- (a) were well within the average band,
- (b) had maintained their ability to profit from mainstream classroom instruction, and
- (c) had continued to learn.

Ohio State became synonymous with Reading Recovery, anchoring the North American Reading Recovery Program and copyrighting the name.

By 1987, North American educators from outside Ohio began to train at OSU; and phenomenal growth ensued. By 1991-92, 38 states in the United States and four Canadian provinces were participating in Reading Recovery programs, as were Australia and England. Within five years, 49 states had operative programs, nine states had offered Reading Recovery in Spanish at 50 sites, and more than 460,000 children had been served since program inception (Askew et al., 1998, p.24).

#### Impact of Reading Recovery on the Research Community

This section summarizes research pertaining to the specific design features of Reading Recovery. It focuses on the literature related to understanding the demonstrated effectiveness of the initiative.

The earliest Reading Recovery articles to emerge from studies of the initial American implementation of the program in Ohio riveted the attention of the large, national, reading “community.”

Researcher Pinnell (1989) reported that pilot-study data and first full-year data in Columbus, Ohio, provided evidence of Reading Recovery’s short and long-term success with low-achieving first graders. Conducted in part by colleagues Lyons and DeFord, the study revealed that Reading Recovery students performed better than a control group and compared favorably with a random sample group on seven of nine Clay Diagnostic measures. Monitored the second year, former Reading Recovery students had maintained their skills in text reading.

The results of Pinnell's study burst upon practitioners and researchers ripe for new direction. Since much of the available literature had provided updates of the whole language vs. phonics issue (Stahl, 1994) or consisted of qualitative analyses of observational studies, the quantitative results of both the New Zealand and Ohio Reading Recovery models immediately piqued the interest of researchers. They sought to compare and contrast Reading Recovery with extant intervention programs for youngsters or to replicate Pinnell's study at Reading Recovery sites, now expanding explosively.

Although Pinnell et al. (1994) ascribed Reading Recovery's success to three main factors:

- (a) one-to-one instruction,
- (b) lesson framework, and
- (c) staff development

Researchers also scrutinized the allocation of time, student selection, and instructional content. Each feature of Reading Recovery was analyzed, acclaimed, and refuted at least once throughout the decade. The program's instructional emphases and the research design itself produced the most comment.

### Individual Instruction

One-to-one teaching is the signature Reading Recovery vehicle for expressing Marie Clay's (1993) strong commitment to the goal of student independence in reading and writing. It enables a tutor to reinforce positive student responses and refute and redirect negative thought processes immediately. Tailoring Reading Recovery lessons to the unique strengths and weaknesses of students, tutors extend all learning from the context of what each particular child understands about reading at any given point in time.

Cognizant of Pinnell's (1989, 1994) work reporting results from individualized instruction in Reading Recovery as exceeding results associated with small-group instruction, Juel (1996) sought to identify elements which contributed to the power of tutoring. Her study indicated that three components mattered: (a) a supportive relationship between tutor and student, (b) significant scaffolded experience in letter-

sound instruction; and (c) continuous, clear modeling of decoding and encoding processes.

Tutoring positively affected literacy learning, as measured by standardized tests (ITBS, WRAT, DRS, and Diagnostic Test of Basic Decoding Skills), but some tutoring units were more successful than others. Juel found that the affective bond alone did not increase scores; the choice of instructional methods and materials appeared to determine success.

Ross et al. (1995) contrasted the progress of students tutored within Reading Recovery with those tutored within Success For All. He reported significant, overall effect sizes on the Passage Comprehension section of the Woodcock Reading Mastery Test for Reading Recovery's tutored students, but non-significant results on Word Identification and Word Attack (p.787).

Hobsbaum et al. (1996) focused on the effect of tutoring on writing behaviors in Reading Recovery. Her study supported Clay's premise that daily tutoring provides the comprehensive view of a student, which maximizes success; but the results suggest that its suitability may best serve short-term, task-specific goals such as accruing reading strategies, rather than sustained comprehension and writing processes.

### Instructional Emphasis

The instructional emphases of Reading Recovery are predicated on the importance of reading connected text, the interconnectedness of reading and writing, and of reading as a process. The program resonates with American educators who have recognized a need to stem declining literacy levels (Hiebert, 1994).

As long ago as 1983, Allington had examined instructional practice and had urged classroom teachers to alter their practice to produce "poor readers who read fluently and self-monitor their reading" (p.555).

Pressley (1994) noted that Reading Recovery stressed five exceedingly explicit concepts fundamental to the reading process:

- (a) the direction of print moves from left to right,
- (b) a quick return to the left from the right side of a page ensures continuity of thought,

- (c) cues to meaning appear in illustrations and sentence structure,
- (d) self-check for what is sensible, and
- (e) reread to achieve clear understanding.

He and others recognized that intensive, repeated practice of such basic strategies might actually be key to fostering growth among those first-graders, who make little progress in a traditional classroom.

Reading Recovery's lesson framework typically includes six to seven instructional activities within a 30-minute session. Each of six activities commands the student's interaction with text, whether reading, rereading, writing, or cutting sentences apart. [The seventh activity involves very basic letter identification--an interaction with words and letters--but only if deemed necessary (Clay, 1993, p. 14).]

The instructional format earned praise from Pikulski (1994) for providing daily opportunity to reread recently-mastered material.

Juel (1996) concluded "the use of specific materials and forms of instruction and communication seemed to make a difference" (p.288).

Hobsbaum et al. (1996) welcomed the concept of scaffolded learning embedded in Reading Recovery, the deliberate teaching of reading skills to empower the student to solve the challenges posed by new literacy tasks. She also praised the use of writing as a means to connect children's prior knowledge to new situations.

Barnes (1996/1997) noted that Reading Recovery had provided valuable, accumulated knowledge regarding how students read and write. Browne et al. (1996/1997) lauded the strong emphasis on the connections between reading and writing.

But, some researchers found discrepancies between Reading Recovery and research findings or contradictions between Reading Recovery and aspects of their own practice.

Santa (1999) realized that Reading Recovery assumed students acquired word recognition skills through reading connected text. Reading Recovery-trained teachers encouraged children to check sentence context or confirm predictions of word meaning, rather than look at the interior details of words.

Hiebert (1994) noted an emphasis on word recognition and spelling, but questioned the omission of comprehension tasks and composition writing in what has been described as an “integrated program.”

Barnes (1996/1997) observed that Reading Recovery seemed to invalidate invented spelling, as spelling lessons moved swiftly from word meaning to mechanics in quest of accuracy.

Through an investigation into the progress of three matched groups of first-graders, Iversen and Tunmer (1993) discovered students in the Reading Recovery group to be particularly lacking in phonological processing skills. Introducing grapheme-phoneme activities plus word analysis systematically into Reading Recovery lessons accelerated the progress of those students under study.

Pikulski (1994) had noticed a similar lack of phonemic awareness, while Santa et al. (1999) suggested that the phonemic component is perhaps emphasized during writing, but apparently not in reading strategies.

These inconsistencies seemed to reveal a strong programmatic dependence on whole-language tenets. (i.e. Word-level information comes from context and only incidentally through sounds of letters or lists of words.)

Substantial research support exists for more than incidental, contextual reference to letter-sound correspondence in an alphabetic language, such as English, during the developmental phases of literacy learning (Adams, 1990; Beech & Harding, 1984; Ehri, 1989; Felton, 1993; Foorman & Liberman, 1989; Foorman, Francis, Novy & Liberman, 1991; Goyen, 1989; Hurford, 1990; McGuinness, McGuinness & Donohue, 1995); Simmons & Kameenui, 1998; Stahl & Murray, 1994; Stanovich & Siegel, 1994; Vandervelden & Siegel, 1995).

Gredler (1997) wondered about the affective component of the instructional environment itself. With teacher-directed talk serving only as an adjunct to instruction, how might children express their possible fear of failure or fear of the adult in charge or of the adult’s reaction to student error? Does lack of verbal interaction hinder academic progress?

### Staff Development

Commitment to Reading Recovery includes participation in a summer orientation just prior to the start of the school year, weekly class sessions, peer observations, copious record-keeping, national conference attendance, and the “continuous contact” required of trained practitioners. Pikulski (1994) identified it as the “most defined and intense consultation” (p.37) of any intervention program.

Meeting weekly for two and one-half hours, Reading Recovery teachers-in-training hone their observational skills by watching, then critiquing an actual lesson taught behind a one-way mirror by a peer attending to one of her own students. Prodded by the teacher-leader, first year teachers “...observe, analyze, and interpret the reading and writing behaviors of the student to design and implement an individual program to meet the idiosyncratic learning needs of each student” (Pinnell et al., 1994, p.12). They codify these observations into a theoretical base to support a new teaching mode.

Browne et al. (1996/1997) cited the training course for its rich opportunities for teachers to increase their observational powers. Spiegel (1995) commended Reading Recovery for consistently presenting teachers with opportunities to analyze their own instruction critically.

Barnes (1996/1997) highlighted Reading Recovery’s assessment techniques and clear directives for scaffolding learning, but questioned a training model which lacked shared inquiry.

Reutzel (1999) considered whether teacher dialog and creativity might have been sacrificed in order for Reading Recovery to maintain its internal consistency.

### Time Allocation

When Allington (1983) gathered data for his study of instructional differences for students of varying abilities, little research had addressed narrowing the achievement deficits of children experiencing difficulties learning to read. Among his recommendations was an increase in real classroom time devoted to reading in order to maximize achievement for the “poor-reader group” and reduce the achievement gap (p.554).

In a subsequent study, Allington et al. (1986) found a third of designated remedial time spent in non-academic activities. By 1989, Allington and McGill-Franzen had

teamed to compare the quantity of reading instruction in both Chapter I and special education remediation programs. They concluded that increasing the quantity and quality of both homeroom and supplemental reading instruction would serve the eligible populations more adequately.

Barr (1991) suggested that of the three variables which most impact students—time, instructional materials, teacher experience—time allocation in support of maximal content coverage for low-achieving students might be the easiest to adjust.

Meanwhile, Clay had devised Reading Recovery to accelerate the progress of children who had made little progress after a year of formal schooling. She (1993) had translated her personal belief that “the child must never engage in unnecessary activities because that wastes learning time” (p.9) into Reading Recovery’s 30-minute lesson format. Prime among other distinctive components, the format featured active, learner engagement with text in carefully-structured time segments.

The rigorous adherence to time-on-task caused Barnes (1996/1997) to question the lack of time during lessons for students to reflect on their learning. Browne (1996/1997) suggested metacognition was not the Reading Recovery goal for its individualized lessons, but rather “reading for meaning...to access information” (p.295).

Rasinski (1995) questioned not the concept of managed learning time, but the practice of using it in research studies purporting to contrast the characteristics of comparable reading interventions, when all but Reading Recovery offered less-focused instructional time.

### Student Selection

Reading Recovery was conceived as a safety net for New Zealand children, who had made negligible progress by six years of age after one year of schooling. The selection process in America has two additional complexities.

First, American six-year olds have not all commonly experienced a year of schooling, since kindergarten is not mandatory, nationwide. If schooled, American children will not all have experienced a year of reading instruction, since all kindergartens are not academic.

Second, Reading Recovery teachers administer the Reading Recovery Observational Record's battery of six measures individually to any portion of, up to and including, an entire first-grade class, depending on school district philosophy and resources not just to those who make "negligible progress."

Combining the judgment of classroom teachers and the results from the Observational Record, Reading Recovery teachers selected the lowest-achieving children as program participants.

Shanahan and Barr (1995) reported that "This is a relative notion of at-risk rather than an absolute one"(p. 962), because selection occurs not necessarily from the lowest quartile or quintile of national achievement levels on a test, but from individual performance levels relative to peers within each first-grade classroom, as assessed by teacher observations(s). Therefore, "average" and "below-average" expectations become site-specific, actually "room-specific."

Mindful of Reading Recovery design "...to help the lowest-achieving first-grade children..." (Reading Recovery Executive Summary, 1992, p.1), Hiebert (1994) studied Ohio students' entry levels from 1986 to 1991 and found that the mean score for all the "below-average" participants during that period placed them in the bottom 35%, not the lowest 0 to 20% achievement band (p.19).

She also noticed that student names repeatedly disappeared from class rolls during the introductory ten sessions, as well as between the tenth and fifty-ninth lessons. While some participants may have reached the average band early, moved away from the district or experienced insufficient time for program completion, others were dismissed due to poor attendance or referred to special education (p. 20). Yet, Shanahan and Barr had reported that Reading Recovery participation was inclusive without regard to ability or disability, because the diagnostic emphases were only on reading and writing competencies (p.962).

Hiebert (1994) and Rasinski (1995) questioned the ethical appropriateness of a program targeting the subset at the bottom of a distribution.

#### Program Effectiveness/Student Performance

To evaluate the effectiveness of any program, purpose, sample, instrument(s), methods, analysis, and conclusions must be detailed. To discern a program's effect on student performance, demographics, teacher affect, experience, instructional philosophy, test design, selection and administration, data collection and interpretation are just a few of the interactive factors, which must be considered over the short and long terms.

Since the American inception of Reading Recovery, many published studies have reported impressive, short-term outcomes. Available analyses of long-term studies are few, but they are increasing in number as cohorts of Reading Recovery participants advance through elementary schools and provide test data.

Initially, researchers were predominantly those (such as Pinnell, Lyons, and DeFord) directly involved with Reading Recovery at its primary training sites in Ohio, Illinois and Texas, because they had liberal access to data compiled and stored at OSU. Results for all studies 1988-1994 were positive and supportive.

In the last five to six years, independent evaluators (Iversen & Tunmer, Hiebert, Shanahan & Barr, Center et al.) have published reviews. Some of them have relied upon data from the in-house Reading Recovery "collection system," while others have generated precise data from independent measures of children's ability to read. Overall, results have been inconclusive; because:

- (a) incomplete data,
- (b) limited evidence of skill maintenance for successfully-discontinued students,
- (c) research flaws in sampling procedures, and
- (d) failure to control for regression to the mean

have restricted the scope of their support for one another's data.

Reutzel (1999) found that Reading Recovery was not effective with all children, but was "effective with some, even many" (p.97). Ross (1995) et al. suggested perhaps Reading Recovery might best suit schools with relatively few students at risk of failure because of its focus on so few children.

### Research Design

A number of researchers have examined the effectiveness of Reading Recovery's program results by analyzing its research design.

Levels of nuance have defined the goal of Reading Recovery. Clay's (1993) stated purpose was "...to improve literacy learning within that school and reduce strains on the upper-primary classes by having fewer literacy problems in the upper-primary school" (p.85). This has commonly been interpreted as returning lowest-achieving children to the average band within a classroom.

Hiebert (1994) synthesized research by Clay, Pinnell et al. and from technical reports from 1985 to 1993 to describe the goal as "...to bring the lowest 10% to 20% to the school average..." (p.17). Shanahan and Barr (1995) interpreted the Reading Recovery goal as "...teaching children to be independent..." (p.963); and Pinnell in 1995 stated that the goal was not achievement progress, but the development of "'a self-extending system for reading'"(p.274).

Many studies have commonly used experimental, control, and comparison groups; but Center et al. (1995) maintained that students in Reading Recovery research studies were not randomly assigned to those groups, which could compromise results. Because the experimental (Reading Recovery) groups consistently had the lowest achievement, the control groups' scores initially had to be higher.

Diagnostic measures designed by Dr. Marie M. Clay were used in many Reading Recovery pre- and posttesting sessions, which were supervised by Reading Recovery-trained teaching personnel. (Center et al. 1995) also questioned the reliability of Clay's most definitive measure--book-level reading--as illustrative of progress, since intervals between levels are not equal.) Grossen and Coulter (1999) noted the close alignment in that evaluation system, and Gredler (1997) considered the possibility of inflated test scores due to vested interest.

Hiebert (1994) pondered the purpose of data collection procedures that separated discontinued students from not-discontinued students from those finishing Reading Recovery before April.

Center et al. (1995) questioned aspects of both Clay's (1985) and Pinnell's (1988) early studies: the exclusion from results of 30% of Clay's group and the failure of nearly 30% of Pinnell's tutored group to match the progress of a control group.

Through an independent, longitudinal Reading Recovery study, Collins and Stevens (1997) correlated Center's results with former Reading Recovery students in

Massachusetts, who had a 64% discontinuation rate, but performed significantly lower than average children on a standardized achievement test. Forty-six percent of the discontinued students were found to have required additional intervention after Reading Recovery. Although Ohio State had originally confirmed a high discontinuation rate (80% to 90%) for that group, the actual test results perfectly correlated with teachers' class ranking of students' performance in reading at year's end.

Center's et al. (1995) own Reading Recovery study at ten Australian primary schools one year after discontinuation reported that 35% of the students had benefited and 35% had not recovered. The remaining 30% would have improved without intensive intervention, they surmised, because a comparable percentage of comparison and control groups had attained average reading levels by that time.

### Summary

Donmoyer (1996) categorized Reading Recovery as a reform "sold in cost-benefit terms...with research...employed...in the selling process"(p.4). Proponents had hoped that research might justify wholesale adoption of the program. But, policymakers at all levels need hard data to appraise carefully any research-based arguments and requests for non-traditional resource allocation. Hiebert (1994) noted that the effectiveness of Reading Recovery has been established relative to the effectiveness of other programs, rather than in absolute numbers of students who progress, in what manner, and how they maintain their skills over time.

Charged with bringing "...the maximum numbers of children to the highest possible levels of literacy" (Hiebert, 1994, p.17), educators lament with Dudley-Marling and Murphy (1997) the fact that the practices and basic structures that produced so much reading failure are still in place.

### CHAPTER III

#### METHODOLOGY

This chapter describes the populations examined, measurement instruments, data collection procedures, and data analyses used in this study.

The purpose of this study was to describe the outcome of student participation in Reading Recovery in Montgomery County by examining reading achievement at the end of grade three, as measured by a standardized test.

Of equal interest was an examination of the reading achievement of students who:

- (a) participated in both Reading Recovery and Chapter I,
- (b) participated in Chapter I,
- (c) participated in neither.

This study compared test scores of student participants in Reading Recovery with scores of randomly-selected students in Chapter I or those eligible for Chapter I, but waitlisted.

#### Populations

Montgomery County students in the study were those who had Spring 1997 Stanford 9 Achievement Test scores and were identified as:

- (a) eligible for Reading Recovery in 1994-1995, and
- (b) eligible for Chapter I in the years 1994-1997.

Student participants attended one of 12 elementary schools. No school had more than 512 students (one) nor fewer than 193 (one). Five schools had an enrollment of 200-285; two schools enrolled 300-360; three schools enrolled 400-460.

In 1994-95, each school qualified for the federally-funded, supplemental language arts program known as Chapter I. Based on the number of students receiving free and reduced lunch, Chapter I supported at least one Reading Recovery teacher and one reading specialist in every elementary school. Thus, County schools provided resources that included one reading specialist (.5 Reading Recovery, .5 Chapter I) at a minimum; larger schools had as many as three reading personnel in total.

### Description of Groups

The first grades in Montgomery County had 313 students who qualified for supplemental instruction in 1994-95. Of this group, 173 were male (55%) and 140 were female (45%). One hundred sixty students (97 male [61%], 63 female [39%]) entered the Reading Recovery program; 113 students (56 male [50%], 57 female [50%]) participated in Chapter I; and 40 students (20 male [50%], 20 female [50%]) remained on a waiting list.

In April 1997, all third graders in Montgomery County took the Stanford 9 Achievement Test, Ninth Edition (1996). Thus,

- (a) 105 third graders (66 males [62.86%], 39 females [37.14%]), who had participated in Reading Recovery,
- (b) 106 third graders(53 males [50%], 53 females [50%]), who had had Chapter I instruction for one to three years, and
- (c) 25 eligible third graders(15 males [60%], 10 females [40%]), who had received no supplemental reading instruction,

had scores from the vocabulary and reading comprehension subtests of the “Total Reading” section of the “Total/Complete Battery.”

During the two-year period under study, 37 documented subjects moved out of the County, 19 were retained one grade level, and 21 could not be located; because they may have acquired a special education label or moved away without requesting official records. No Stanford 9 information was available for these 77 students missing from the third grade roster. Only those students, eligible for supplemental instruction in 1994 who completed third grade in 1997 within the County and took the Stanford 9 Achievement test, were included in this study.

### Reading Instruction

All first graders received daily, regular classroom reading instruction provided by the homeroom teacher to the whole class as a group or in small literature groups or in some combination of the two throughout each week. Additionally, Reading Recovery and Chapter I students daily spent 30 minutes of extra instructional time on reading-related activities with a literacy specialist.

Classroom teachers held bachelor's or master's degrees, while all 26 reading teachers in Montgomery County in 1994 held master's degrees and the "reading specialist" endorsement on their postgraduate professional license. Each reading specialist had classroom experience, ranging from 3 to 25 years.

### Selection Process

Student eligibility for supplemental remedial reading services in the county depended upon input from classroom teachers and building reading specialist(s) working in tandem to identify the children most in need of increased reading support. First grade teachers, with assistance from Reading Recovery teachers, used screening devices as diverse as identification of alphabet letters and the Metropolitan Readiness Test to assess all first graders. From these collective, informal assessments of reading achievement, the teachers rank-ordered all students in their classrooms.

Using Dr. Marie Clay's Diagnostic Survey, Reading Recovery teachers then retested the bottom half of each first grade class and rank-ordered these students, according to their scores on the Survey's sentence dictation test. The four lowest-scoring children in the first grade became Reading Recovery entrants. In schools with more than one Reading Recovery teacher, the next tier(s) of low-scoring students in multiples of four would also be served.

Reading specialists then administered informal reading inventories, such as Silvaroli (1996) or Eckwall/Shanker (1986), to all remaining first graders positioned in the bottom half of the rank-ordered lists produced by classroom teachers. They collated the results in order to identify the students in the lowest 25% and placed them on an eligibility list to become the Chapter I roster.

Once the reading specialists had scheduled the six neediest students per half-hour Chapter I class (whether a pullout or in-class model), any students remaining unserved by reading specialists comprised a waiting list. Students on the waiting list received classroom reading instruction only.

It must be noted here that the total number of students falling at the 25% level or below that received reading services differed from school to school within the county due to the differences in the number of children receiving free and reduced lunch at each school.

### Program Description

Both supplemental reading programs operational in Montgomery County featured decoding, encoding, and comprehension components, but they occurred under differing conditions.

Reading Recovery. Reading Recovery lessons emphasized reading and writing in daily, one-to-one tutoring sessions, which followed a prescribed format (Center et al, 1995, p.240):

- (a) Rereading of two or more familiar books.
- (b) Independent reading of the previous day's new book, from which the teacher takes a running record or miscue analysis.
- (c) Letter identification (only if necessary).
- (d) Writing a story the child has composed, which includes emphasis on hearing sounds in words (phonemic awareness component adapted from Elkonin, 1973).
- (e) Reassembling a cut-up story.
- (f) Introducing a new book.
- (g) Reading the new book.

Additional unique features appealed to visual, aural, and kinesthetic senses and included a collection of short trade books (graded according to difficulty) to be read and reread by the student, a large pad of blank paper, pencils, and a tray with magnetic letters.

Instructional program procedures for Reading Recovery were carefully scripted to promote consistency and ensure quality. (e.g. Teachers would engage a student in sentence composition with close monitoring for accuracy and would record a daily analysis of student progress.) The buzzing of a kitchen timer signaled the end of one activity and the beginning of another.

Students at five instructional reading levels (Readiness, Preprimer, Primer, Grade 1, Grade 2) in Reading Recovery's program had several, assorted, age-appropriate books available for daily reading. The actual amount of text read daily by each student varied by book level; but due to close program-monitoring, it is safe to assume that students read--at a minimum--the three books prescribed per session.

Progress through book levels from 1 to 20 became a tangible indicator of student success. The short trade books took the student from decoding 19 words grouped in phrases ("my pants," "my cake," "Happy Birthday") at Level 1 to as many as 525 words grouped into

compound and complex sentences (“When Karen walked into her room, some children began to laugh.”) at Level 20. The average range of words per instructional reading level appears in Table 1.

Instruction continued until the child consistently demonstrated competence in actively creating meaning by reading text at approximately 90 percent accuracy or above and by demonstrating strategies, which provide a measure of independence in reading. At this juncture, the Reading Recovery teacher would discontinue the Reading Recovery sessions, and the student would join the average band of readers in his/her first grade class and receive in-class, group instruction with them.

Although the approximate time for “recovery” to median first-grade level and a measure of independence in reading is twelve to fourteen weeks or sixty lessons (Clay, 1979), some students exited the program more quickly; and some required more than the minimum number of lessons.

Chapter I. A highly, individualized, eclectic combination of whole language, phonics, and guided reading philosophies determined content in each Chapter I class. Lessons provided reading and writing opportunities, but the specific design of the instructional format within the thirty-minute block of time relied upon the creativity of the reading specialist.

Instruction might begin with word analysis, proceed to predicting content, move to using strategies in oral or silent reading of text, and conclude with revision of predictions based upon an individual’s comprehension and whole-group discussion. Typical activities included shared, silent, and choral reading, readers’ theater, skill lessons in workbook or on computer, response journals, and creative writing. Materials included basals, tradebooks, and poetry, often enriched with art, music, and cooking extensions.

Chapter I teachers conducted small group instruction daily. The format followed site-based decisions regarding program model: some schools preferred an in-class model, others supported pullout programs. Small groups averaged six students per class; but the numbers of students in inclusion models varied, depending upon the planned activity.

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Table 1

Reading Recovery Trade Books

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Instructional Level	Book Levels	Average Number of Words Per Book Level
Readiness	1,2	23-43
Preprimer	3-8	43-144
Primer	9-12	111-182
Grade 1	13-16	226-460
Grade 2	17-20	279-307

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The actual amount of time Chapter I students spent involved with text varied widely by day, by instructional model, and by teacher. From as much as an optimal 25 minutes on a traditional day in a pullout program or 45 minutes to 1 hour in an inclusive setting, students could read as little as “not at all,” depending on the day’s planned activities. It is safe to assume that Chapter I students overall read more text at their instructional level than they would have had they remained in their homeroom, but the approximate amount of text read cannot be ascertained due to an absence of standardized resources, curriculum, and supervision.

Students continued in Chapter I classes for the entire school year, unless they demonstrated accelerated progress in decoding or comprehension consistently throughout a six-week marking period. At that point, the Chapter I teacher could exit any student upon successful completion of an informal reading inventory posttest, administered one-to-one by the Chapter I reading teacher, and in consultation with the classroom teacher and parent(s).

Absent evidence of sudden, major improvement in reading, reading specialists relied upon a combination of:

- (a) simple gains in posttest informal reading inventory scores at year’s end,
- (b) classroom teacher and specialist assessment of decoding and comprehension skills, and
- (c) standardized test scores when applicable (grade three)

to determine whether a student’s independent reading level was commensurate with the class average, so as to ensure continued progress without specialized support.

Since the composition of homeroom classes changed annually, the average independent reading level in homerooms also changed, as teachers tested students and rank-ordered their reading achievement anew each year. Thus, it is both possible and probable that some Chapter I students spent from one to three years in the program until achieving “success.”

### Measurement Instruments

#### Reading Recovery Diagnostic Survey

Since early identification of young children in need of reading support can be arduous and inconclusive because skill level is too rudimentary for standardized tests to yield

accurate scores, Dr. Marie Clay designed a Diagnostic Survey highly dependent upon systematic observation.

The Survey's six proficiency indicators grouped together as a pretest produced a profile of the language competencies of very young school children. The first four tasks assessed learning in areas with finite sets of information:

- (a) Concepts About Print,
- (b) Letter Identification,
- (c) Sentence Dictation, and
- (d) Word Test.

The remaining two subtests were open-ended:

- (e) Text Reading, and
- (f) Writing Vocabulary.

Raw scores not only identified language strengths, but also indicated initial text level for instructional purposes or verified advanced text level for discontinuation. Standard directions for introducing and conducting every test accompanied the Survey.

Three of the six Survey subtests (Sentence Dictation, Word Test, and Text Reading) more accurately revealed the acquisition of reading behaviors than those which evaluated familiarity with several conventions of print (Concepts About Print, Letter Identification, and Writing Vocabulary). Reading Recovery teachers used those first three subtests for posttest analysis at the discontinuation of Reading Recovery sessions, as well as at the end of the school year. Alternate word lists and dictation sentences plus a variety of trade books provided fresh, accurate testing materials.

Reading Recovery teachers scored their own Diagnostic Surveys by hand when used as pretests. In order to eliminate any possible scoring bias, Reading Recovery colleagues from neighboring schools in Montgomery County administered and hand scored each other's posttests. The Reading Recovery teacher leader reviewed the scores compiled by Reading Recovery teachers for each subtest of every student's Diagnostic Survey.

All students included in this study took the Reading Recovery Diagnostic Survey pretest as first graders. All those who had experienced any Reading Recovery instruction during their first grade year participated in posttesting.

### Norms

Research norms for Clay's Diagnostic Survey were developed using two samples of New Zealand students from five different urban schools. The 1968 group included 320 children aged 5:0-7:0; the 1978 group included 282 children aged 6:0-7:3.

### Reliability

Clay (1979) reported that internal consistency analysis was based on groups of children ranging in size from thirty-four (Writing Vocabulary) to one hundred (Concept of Print, Letter Identification, Word Test). Test-retest reliability ranged from .73-.97; split-half ranged from .84-.97; and Cronbach alpha ranged from .83-.97. These ranges of correlation coefficients indicate that the Survey's subtests measure literacy competencies consistently.

### Validity

Clay reported criterion-based validity data from correlation studies with reading vocabulary to illustrate how increases in scores on three Survey subtests (Concepts of Print, Letter Identification, Word Test) relate to increases in children's reading of frequently occurring words. The validity coefficients were high, ranging from .79-.85, which suggests that the students in the sample produced a broad range of scores on the skills being measured.

### Classroom Reading Inventory

Nicholas J. Silvaroli's Classroom Reading Inventory (8<sup>th</sup> edition, Brown and Benchmark, 1997) is an informal reading inventory, which enables an instructor to identify specific word-recognition errors and approximate a program entry-level through oral reading of graded word lists and graded paragraphs.

Approximate independent, instructional and frustration reading levels can be determined through the use of the answer key provided. Examples of five common student errors serve as examiner guidelines in the manual (pp.9-10), but reading specialists are encouraged to analyze and judge whether errors significantly hinder student understanding or fluency. Thus, scoring by Chapter I teachers at the building level retained a subjective element, since students frequently would offer synonyms, examples, or anecdotes rather than precise responses.

Neither reliability nor validity information was available for the Classroom Reading Inventory, 8<sup>th</sup> edition; but a review of the 4<sup>th</sup> edition appeared in the Tenth Mental Measurements Yearbook, Conoley, J.C. & Kramer, J.J. (Eds.), 1989. Two independent reviewers reported that the graded word lists and oral paragraphs were appropriate in differences from level to level, and the manual had clear directions for administration and scoring.

## The Stanford Achievement Test

Standardized tests “provide samples of behavior that can be scored and evaluated according to an established standard” (Worthan, 1995, p. 50). They anchor informal evaluation measures and teacher observations with:

- (a) “uniform procedures for administration,
- (b) quantifiable scores,
- (c) norm referencing
- (d) validity, and
- (e) reliability” (Worthan, 1995, p. 50).

While standardized test results provide a school district with periodic reviews of general educational progress, they also can certify students’ competence. Test scores frequently help school personnel:

- (a) make student placement decisions by determining eligibility for specialized programs and/or
- (b) monitor and evaluate the progress of specific groups by comparing scores across grade levels and across years.

The Primary 3/TA form of the Stanford Achievement Test Series, Ninth Edition, (1996) included two reading subtests, Vocabulary and Reading Comprehension, in its “Total Reading” composite:

- (a) the vocabulary subtest consisted of 20 multiple-choice items focused on word knowledge: students would identify synonyms, use context clues to determine word meaning, and explore multiple meanings of a word within different contexts.
- (b) the reading comprehension subtest consisted of 30 multiple-choice items, focused on student understanding of three types of reading selections: recreational, textual, and functional.

Raw scores of each subtest were summed to create the “Total Reading” score for analysis in this study.

Although a discrepancy may exist between what tests measure and current instructional trends in reading, reading scores can be used to chart developmental progress. “Word study” cannot describe a student’s “integrated system of reading behavior[s]” (Clay,

1979, p.32), but it can reveal the extent to which a student understands components of language. Similarly, “reading comprehension” cannot identify how effectively a student constructs meaning; but it can provide multiple opportunities for a student to read continuous text, recall information, and demonstrate understanding.

By giving the Stanford 9 in compliance with the Virginia State Assessment Program in 1997, Montgomery County acknowledged the test’s importance as a tool to assess achievement in specified areas. The Stanford 9 “Total Reading” scores are a useful measure in this study; because test data, however imperfect, drive curricular decision-making and policy implementation.

Reviewers of the Stanford 9 in the Thirteenth Mental Measurements Yearbook concurred that the 9<sup>th</sup> edition was truly different from previous editions with attention paid during test creation to:

- (a) content of leading textbook series,
- (b) educational trends, and
- (c) standards of national professional organizations in content areas.

Although new, items and performance standards were included to reflect changing school curricula, neither development was relevant to the “Total Reading” component.

### Reliability

The Stanford Achievement Test Series, Ninth Edition, Technical Data Report, (TDR), 1997, notes that the Kuder-Richardson Formula 20 (K-R-20) reliability coefficient was used to estimate the internal consistency of the multiple abbreviated battery for the standardization samples normed in spring 1995 and used in this study. Pertinent data for grade three includes:

- (a) Total Reading ( $r=.92$ ,  $SEm=2.89$ ),
- (b) Reading Vocabulary ( $r=.81$ ,  $SEm=1.77$ ),and
- (c) Reading Comprehension ( $r=.88$ ,  $SEm=2.26$ ).

An alternate forms coefficient reported for equating forms SA and TA for the multiple choice assessment was  $r=.89$ ,  $SEm=4.9$ .

### Validity

The Technical Data Report authors reported validity data from item-difficulty values, scaled scores demonstrating annual growth, correlation studies between assessment forms, adjacent grade-level subtests, and test editions. The authors provided criterion and construct validity, but suggested that content validity should come from detailed, comparison studies of test content and curriculum objectives of specific school systems contemplating use of Stanford 9.

### Scoring

Stanford 9 Achievement Tests were machine-scored outside of Montgomery County, and scores were reported on printouts for the school system.

### Data Collection

The researcher collected data for the study in two stages. Two letters detailing, then refining, the purpose and design of this study were sent for review to the Montgomery County administrator and committee in charge of research prior to data collection in Fall 1998 and Winter 1999. Response to the first letter resulted in permission to visit schools and review class rolls, as well as producing a master list of successfully discontinued Reading Recovery students from the year 1994-95, who were identified by gender and school.

Initially, the researcher gained access to each of 12 elementary schools by phoning the principal and briefly explaining the nature of the study. On mutually convenient afternoons after work, the researcher drove to each school, proffered the official letter of support/permission from the Reading Supervisor, and collected third grade Stanford scores from 1997 for the population cited above.

A number of successful, Reading Recovery participants had moved both within and without the county between grades one and three. Tracking the in-county students was time consuming and frequently produced inconclusive results. Some students had transferred to private schools; some had chosen homebound schooling. Sixteen students had been retained and had not taken any of the Stanford 9.

To create a larger, more inclusive study, the researcher resolved to expand the Reading Recovery group to include all Reading Recovery students who had participated in any Reading Recovery lessons, not merely successful students. The study further enlarged to include all the students served by Chapter I or placed on its waiting list to serve as additional comparison groups.

With an expanded design requiring additional data for the study, a second letter outlining a request for access to Reading Recovery details and Chapter I files was sent to the Montgomery County Reading Supervisor.

Following receipt of the second letter, the Reading Supervisor and Reading Recovery teacher-leader met with the researcher to discuss their particular concerns about objectivity in the study. A second official letter of permission to proceed with data gathering for both long and short-term results ensued. The researcher recombined all the files for third grade Stanford 9 scores from 1997 for those students eligible as first graders for remediation and served between 1994 and 1997 by Reading Recovery, Chapter I, or placed on a waiting list.

All data used in this study were extant and systematically collected from pre-existing school or Reading Recovery files over an eleven-month period.

Student names were attached to the Reading Recovery lists and to the Stanford 9 student report forms; but they were unknown to the researcher, who was merely interested in recording scores and gender.

### Data Analyses and Procedures

In this study, four populations of struggling readers were examined using Stanford 9 test scores to describe the long-term reading achievement of students, who received Reading Recovery instruction in 1994.

Four questions were investigated:

1. How have students who participated in Reading Recovery performed on the Stanford 9?
2. How have students who participated in both Reading Recovery and Chapter I performed on the Stanford 9?
3. How have students who participated in Chapter I performed on the Stanford 9?

4. How have students who remained on a Chapter I waiting list performed on the Stanford 9?

Since random assignment to Reading Recovery groups was not possible, means and standard deviations were analyzed to compare the relative performance of four major populations: Reading Recovery, Reading Recovery/Chapter I, Chapter I, and Waitlisted.

Descriptive statistics for the four populations were computed using Microsoft Excel (1997) and SPSS (1999). These statistics were based on a total of three quantitative variables obtained for each Reading Recovery population in the study, on two quantitative variables for the Chapter I population, and on one for the waitlisted group.

Raw scores used for all statistical analyses of Reading Recovery populations included:

- (a) the number of Reading Recovery lessons received,
- (b) the number of years spent in Chapter I, and
- (c) the scores obtained on the Total Reading section of the Stanford 9 Achievement Test.

Raw scores used for the statistical analyses of the additional populations included:

- (a) the Stanford 9 test scores, and for the Chapter I population
- (b) the number of years spent in the program.

## CHAPTER IV

### RESULTS OF THE STUDY

The results of the analysis of the data are reported in this chapter. In the first section, tables are included which describe characteristics of the populations. The results of the analytical procedures are presented in the second section. Last, a brief summary is provided and illustrated with histograms.

#### Profile of the Populations

##### Eligibility

The numbers and percentages of students eligible for reading support in Fall 1994 are presented in Table 2. The 313 children represented the lowest-achieving of all first grade students screened in Montgomery County. The 160 lowest-scoring children entered the Reading Recovery program; the next higher-scoring group of 113 participated in Chapter I, and the 40 highest-scoring students in the group of 313 became the waiting list.

Thus, half of all eligible students participated in Reading Recovery; and a little more than a third of all eligible students had Chapter I instruction.

##### Attrition

Table 3 profiles the attrition of subjects in the study during the two-year period subsequent to grade one. Fifty-six subjects (18%) from the original population, who had participated in 1994 supplemental reading instructional programs, could not be included in the final analysis of scores. They had been retained a grade or they had moved away from the County.

No records existed for the remaining twenty-one students (7%) who had also received instruction in first grade.

Thus, one quarter of the original group of eligible students was unable to participate in the follow-up study.

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Table 2

Student Participation in Supplemental Reading Programs in 1994-1995

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Group	<u>n</u>	Percent of Total
Reading Recovery	160	51
Chapter I	113	36
Waitlisted	40	13
TOTAL	313	100

---

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Table 3

Attrition of Program Participants 1994-1997

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Condition	<u>n</u>	Percent of Total
Moved	37	12
Retained	19	6
Unknown	21	7
TOTAL	77	25

---

Note. There were 313 possible participants.

### Total Numbers of Student Participants

The number of participants eligible for inclusion in the two and one-half year study and the corresponding percentage of the total for each instructional group appear in Table 4.

The Reading Recovery group (n=39, 16%) included those students who only had Reading Recovery in grade one.

Students who received Reading Recovery instruction and also participated in any (from one to three years) Chapter I instruction comprised the second group (n=66, 28%).

The Chapter I group (n=105, 45%) included all third grade students in the lowest 25% of their homerooms, who were rank-ordered just above Reading Recovery students and participated in Chapter I instruction.

The waiting list (n=25, 11%) identified those students eligible, but unserved because of relatively high scores in the bottom half of the class.

### Study Participants

The actual number of participants (N=165) in the 1996-1997 follow-up study is delineated in Table 5. The number of students in Reading Recovery programs remained constant at 105 (63%).

But, from the combined number of students (n=131) receiving Chapter I (n=106) and those waitlisted (n=25), the researcher selected 60 students (30 males, 30 females), using a table of random numbers to form a comparison group. Fifty-three of the 60 students (88%) in this group had experienced Chapter I instruction, while seven (12%) had participated in no supplemental reading program of any kind.

Thus, the study focused on four populations. Two populations included all students, who had participated in any Reading Recovery instruction:

- (a) those students who took Reading Recovery only (n=39), and
- (b) those students who took Reading Recovery plus Chapter I (n=66).

The remaining two populations included students who had never experienced Reading Recovery:

- (a) those students who took Chapter I only (n=53), and
- (b) those who took neither program (n=7).

The first three populations contained comparable numbers of students, but the fourth population was considerably smaller in size. Although it can be assumed that test scores for

the large populations were representative, scores for the smallest population in the study might be somewhat extreme or less typical of the total Waitlisted population.

### Results

Descriptive statistics for the four populations were computed. These statistics were based on a total of three quantitative variables obtained for each Reading Recovery population in the study and on two quantitative variables for the comparison group.

Raw scores used for all statistical analyses of Reading Recovery populations included:

- (a) the number of Reading Recovery lessons received,
- (b) the number of years spent in Chapter I, and
- (c) the number of correct items out of 50 on the Total Reading section of the Stanford 9 Achievement Test.

Raw scores used for the statistical analyses of the Chapter I population included:

- (a) the number of years spent in the program and
- (b) the Stanford 9 test score.

The Waitlisted population had only Stanford 9 test scores to consider.

---

Table 4

Student Eligibility for Inclusion in Study in 1997

---

Group	<u>n</u>	Percent of Total
Reading Recovery	39	16
RR/Chapter I	66	28
Chapter I	105	45
Waitlisted	25	11
TOTAL	235	100

---

---

Table 5

Student Participation in Study in 1997

---

Group	<u>n</u>	Percent of Total
Reading Recovery	39	23
RR/Chapter I	66	40
Chapter I	53	32
Waitlisted	7	4
TOTAL	165	100

---

### Summary of the Test Populations

Means and standard deviations for each population are presented in Table 6. The average scores for the three large populations in the study are within one to six points of each other. The performance of each of the four populations on the Stanford 9 is very similar.

One hundred five students (64%) in two of the populations under study had Reading Recovery instruction. The average raw score for the group of 39 students which only had Reading Recovery was 27.4, which was 2.2 points higher than the average raw score (mean=25.2) for the group that combined Reading Recovery instruction with Chapter I.

The two populations with no Reading Recovery instruction had the highest mean scores. The average raw score for Chapter I was 28.3; the Waitlisted group had a raw score of 31.1.

Missing from the four simple population totals are the statistics of some interesting subgroups formed by considering two additional independent variables. These variables tint the performance of the three large test populations and reveal observed differences.

The first variable is whether a Reading Recovery student reached criterion--called "discontinuation" by Clay--or not. At the point when students would attain the Reading Recovery program goal of successfully reading and writing within the average band or slightly above the average of their homeroom class (trade book Level 16 or 18), Reading Recovery teachers would "discontinue" Reading Recovery instruction.

Since discontinuation depends to some extent upon the number of lessons provided, the second variable is whether a student met his or her reading goal in the 1997 optimal intervention period of 12 weeks or 60 lessons.

Table 7 depicts discontinuation data for the two Reading Recovery populations under study. A clear demarcation existed between those who achieved discontinuation and those who did not. For those who attained this benchmark, the conditions under which success occurred are noted.

Table 8 adds Chapter I details to the summary of discontinuation and lesson data for both Reading Recovery populations.

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Table 6

Summary of Stanford 9 Scores: Four Populations

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<u>Group</u>	<u>n</u>	<u>M</u>	<u>Range</u>	<u>SD</u>
Reading Recovery	39	27.4	7-44	9.5
Reading Recovery/Chapter I	66	25.2	5-44	9.1
Chapter I	53	28.3	11-45	8.6
Waitlisted	7	31.1	14-46	10.9
TOTAL	165			

---

Table 7

Summary of Stanford 9 Scores: Reading Recovery Populations

Group	<u>n</u>	<u>M</u>	Range	<u>SD</u>	%
Reading Recovery:					
Discontinued					
<61 Lessons	16	32.3	16-44	7.7	41
>60 Lessons	11	24.1	15-44	9.1	28
Not discontinued					
<61 Lessons	3	21.3	7-37	15.0	8
>60 Lessons	9	24.9	12-40	8.8	23
TOTAL	39	27.4	7-44	9.5	100
Reading Recovery/Chapter I:					
Discontinued					
<61 Lessons	25	30.5	14-45	8.5	38
>60 Lessons	13	26.2	16-35	5.9	20
Not Discontinued					
<61 Lessons	20	20.5	5-36	8.7	30
>60 Lessons	8	19.1	7-31	7.3	12
TOTAL	66	25.2	5-45	9.1	100

Note. 105 students participated in Reading Recovery or Reading Recovery/Chapter I.

Table 8

Details of Stanford 9 Scores: Subgroups of Reading Recovery Populations

Lessons	Years in Chapter I			
	0	1	2	3
Fewer than 61:				
<u>n</u>	19	19	20	6
<u>M</u>	30.6	31.6	23.0	18.3
<u>SD</u>	9.5	8.8	8.0	9.4
More than 60:				
<u>n</u>	20	13	8	
<u>M</u>	24.5	24.9	21.3	
<u>SD</u>	8.7	6.9	8.0	

Note. Zero years in Chapter I identifies the Reading Recovery-only population.

### Characteristics of Reading Recovery Students.

Thirty-nine students received only Reading Recovery services (see Table 7). Of these, 27 (69%) successfully discontinued from the program.

Sixteen of the 27 completed the program in fewer than 61 lessons. These students on average received a raw score of 32.3 of 50 items on the Total Reading test of the Stanford 9. This was the second highest scoring group in the study population. It was slightly higher than the means of three other groups:

- (a) all Reading Recovery/Chapter I students (mean = 31.6) that had fewer than 61 lessons with one year of Chapter I (see Table 8);
- (b) the Chapter I-only group (mean = 31.3) with one year of instruction (see Table 9); and
- (c) the Waitlisted population with a mean of 31.1 (see Table 6).

The remaining 11 Reading Recovery-only students (mean = 24.1) achieved discontinuation with more than 60 lessons. Their mean was slightly less than the non-discontinued group (mean = 24.9) completing the program in more than 60 lessons (see Table 7). It matched the mean of all Reading Recovery/Chapter I students, who also had more than 60 lessons plus one year of Chapter I (mean = 24.9) (see Table 8).

Twelve students (31%) did not attain discontinuation in any number of lessons (see Table 7). Nine of these students had a mean score of 24.9 with more than 60 lessons.

The remaining three non-discontinued students had a mean score of 21.3 with fewer than 61 lessons. It matched the average score (mean = 21.3) of all Reading Recovery/Chapter I students who had more than 60 lessons and two years of Chapter I (see Table 7); and it was only slightly lower than the score (mean = 21.8) of the Chapter I-only group with two years of instruction (see Table 9).

The data seem to suggest that Reading Recovery students, who were successfully discontinued from the Reading Recovery program in the optimal time frame of fewer than 61 lessons, scored higher than similar groups in this study. It also appears that Reading Recovery students, who received more than 60 lessons, had means very similar to each other, whether discontinued or not.

### Characteristics of Reading Recovery/Chapter I Students.

Sixty-six students received Reading Recovery instruction in combination with Chapter I. Of these, 38 (58%) from this population were successfully discontinued from the program, as delineated in Table 7.

Twenty-five of these 38 completed the program in 61 lessons or less. On average, this group received a raw score of 30.5 of 50 items on the Stanford 9. This raw score was virtually identical to the average score (mean = 30.6) of all Reading Recovery-only students, who had fewer than 61 lessons (see Table 8).

Within this same group of 25 students, a subgroup of 14 received one year of Chapter I instruction and averaged 34.3 raw score points (see Table 10). This score exceeded the average scores of four groups:

- (a) the total Reading Recovery/Chapter I population (mean = 28.9) with one year of Chapter I (see Table 10);
- (b) the Chapter I-only group (mean = 31.3) with one year of instruction (see Table 9);
- (c) the Reading Recovery population (mean = 27.4) (see Table 6); and
- (d) the Waitlisted group (mean = 31.1) (see Table 9).

This was the highest scoring group in the study.

A second subgroup of eight discontinued students with fewer than 61 lessons had two years of Chapter I instruction (mean = 26.5). Their score exceeded the average score (mean = 22.5) of the total Reading Recovery/Chapter I population with two years of Chapter I (See Table 10) and also exceeded the score (mean = 21.8) of Chapter I students with two years of instruction. See Table 9.

Three students in the third subgroup of discontinued students with fewer than 61 lessons had three years of Chapter I (mean = 23.3). This score exceeded the average score (mean = 19.7) of Chapter I students with three years of instruction (See Table 9) and also the average score of the total Reading Recovery/Chapter I population (mean = 18.3) with fewer than 61 lessons (see Table 10).

Table 9

Summary of Stanford 9 Scores: Comparison Populations

Group	<u>n</u>	<u>M</u>	Range	<u>SD</u>	%
Chapter I:					
One year	38	31.3	14-45	6.0	63
Two years	12	21.8	12-42	10.7	20
Three years	3	19.7	11-26	6.3	5
Waitlisted	7	31.1	14-46	10.9	12
TOTAL	60				100

Table 10

Details of Stanford 9 Scores: Subgroups of Reading Recovery/Chapter I Population

Group	Years in Chapter I			%
	1	2	3	
<hr/>				
Discontinued/ <61 Lessons				
<u>n</u>	14	8	3	38
<u>M</u>	34.3	26.5	23.3	
<u>SD</u>	7.5	7.7	9.2	
Discontinued/ >60 Lessons				
<u>n</u>	9	4		20
<u>M</u>	25.6	27.8		
<u>SD</u>	7.2	3.0		
<hr/>				
Not Discontinued/ <61 Lessons				
<u>n</u>	5	12	3	30
<u>M</u>	24.2	20.6	13.3	
<u>SD</u>	8.3	7.5	7.6	
Not Discontinued/ >60 Lessons				
<u>n</u>	4	4		12
<u>M</u>	23.5	14.8		
<u>SD</u>	7.0	5.3		
<hr/>				
TOTAL				
<u>n</u>	32	28	6	100
<u>M</u>	28.9	22.5	18.3	
<u>SD</u>	8.6	7.9	9.4	
<hr/>				

The 13 remaining students (mean = 26.2) achieved discontinuation in more than 60 lessons (see Table 7). This mean was higher than the score (mean = 24.1) for Reading Recovery-only students, who discontinued with more than 60 lessons, and only slightly lower than the average score (mean = 26.5) for Reading/Chapter I students, who had fewer than 61 lessons with two years of Chapter I (see Table 10).

Nine of the 13 discontinued students with more than 60 lessons (mean = 25.6) had one year of Chapter I, but this score was lower than the average score (mean = 28.9) for all Reading Recovery/Chapter I students with one year of supplemental instruction.

A small discontinued subgroup (n = 4) received two years of Chapter I and averaged 27.8 raw score points. It was the highest scoring group among students, who had two years of Chapter I. This score exceeded the average mean for all Reading Recovery/Chapter I students with two years of Chapter I (mean = 22.5) and the Chapter I-only group (mean = 21.8) with two years of instruction (see Table 9).

It appears that Reading Recovery/Chapter I students, who were discontinued from the Reading Recovery program after any number of lessons, scored consistently higher with from one to three years of Chapter I support when compared to similar groups in this study.

Twenty-eight students (42%), who had received combined instruction, did not attain discontinuation in any number of lessons (see Table 10). Nine of these students had one year of Chapter I. Five students with fewer than 61 lessons received a raw score of 24.2 of 50 items on the Stanford 9. This score was virtually identical to the Reading Recovery-only group (mean = 24.1), which discontinued with more than 60 lessons. The remaining four students with more than 60 lessons received a raw score of 23.5. This was slightly higher than the average score (mean = 23.0) for all Reading Recovery/Chapter I students with two years of Chapter I and fewer than 61 lessons (see Table 8).

Twelve of these 28 students with a mean of 20.6 and four students with a mean of 14.8 had two years of Chapter I. These scores were both below the average mean for all Reading Recovery/Chapter I students with two years of instruction (mean = 22.5) (see Table 10).

Three students with a mean of 13.3, who were not discontinued, had three years of Chapter I. This score fell below the average score (mean = 18.3) for Reading

Recovery/Chapter I groups that had three years of Chapter I. This was the lowest scoring group in the study.

The data seem to suggest that Reading Recovery/Chapter I students, who were not successfully discontinued from the Reading Recovery program, but had one year of Chapter I instruction, had scores which were similar to other groups in the study. It also appears that non-discontinued Reading Recovery/Chapter I students scored lower than similar groups in this study, despite two or three years of Chapter I instruction.

#### Characteristics of Chapter I Students.

One hundred thirty-one students eligible for supplemental reading services had not qualified for Reading Recovery, but had qualified for Chapter I. From this population, the researcher selected 60 (46%) students to serve as a comparison group for this study (see Table 9).

Fifty-three (88%) of the 60 students received from one to three years of Chapter I instruction.

Thirty-eight (72%) of the 53 in the Chapter I population received one year of Chapter I instruction and on average earned a raw score of 31.3 of 50 items on the Stanford 9. This score was the third highest in the study population. It was slightly less than the average score (mean = 31.6) of all Reading Recovery/Chapter I students, who discontinued in fewer than 61 lessons with one year of Chapter I (see Table 8).

Twelve students (23%) from the Chapter I population with two years of Chapter I instruction earned a mean score of 21.8 (see Table 9). This score nearly matched the average score (mean = 21.3) of Reading Recovery students not discontinued and with fewer than 61 lessons (see Table 7). It was slightly lower than the average score (mean = 22.5) of Reading Recovery/Chapter I students with two years of Chapter I (see Table 10).

The remaining three students (5%), who had three years of Chapter I, had a mean of 19.7. The score exceeded the average score (mean = 18.3) for students in Reading Recovery/Chapter I with three years of Chapter I (see Table 10).

The data seem to suggest that with one year of instruction, Chapter I students in this study may score slightly higher than the average for all Reading Recovery students when

discontinued with less than 61 lessons and virtually equal to the average for Reading Recovery/Chapter I students with one year of Chapter I (see Table 8).

#### Characteristics of Waitlisted Students.

The small population of seven students that had neither Reading Recovery nor Chapter I from 1994 to 1997 earned an average raw score of 31.1 of 50 items on the Stanford 9 (see Table 9).

This score nearly matched the average mean scores of two groups from two different populations. The Reading Recovery/Chapter I group that discontinued in fewer than 61 lessons had a mean of 31.6 (see Table 8), and the Chapter I-only group that had one year of instruction had a mean of 31.3.

Although the population ( $N = 7$ ) is very small and some of the scores could be extreme, the data seem to suggest that students on the high end of the first grade eligibility list for reading support in this study scored equally as well as specific subgroups of students from the Reading Recovery and Chapter I populations.

## Summary

The achievement of all four populations in this study on the Total Reading section of the 1997 Stanford 9 Achievement Test was similar, according to the group means, which ranged from 25.2 to 31.1 (see Figure 1).

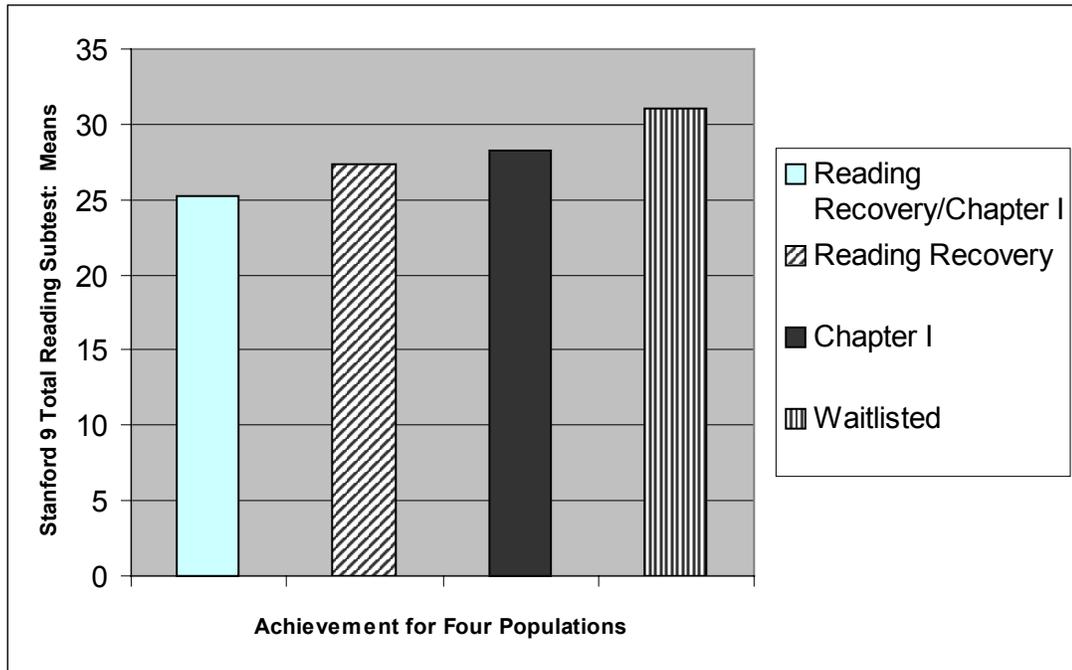


Figure 1. Means for four populations on total reading section of Stanford 9.

Although the Waitlisted population had the highest mean and the Reading Recovery/Chapter I population had the lowest, when the distribution of means for all subgroups of populations in the study was considered, a more detailed pattern of achievement emerged. Those means ranged from 34.3 to 13.3; the median was 24.15 (see Figure 2).

Similarly, when the national percentile rank for each student's raw score was examined, a clearer profile of performance was evident (see Figure 3).

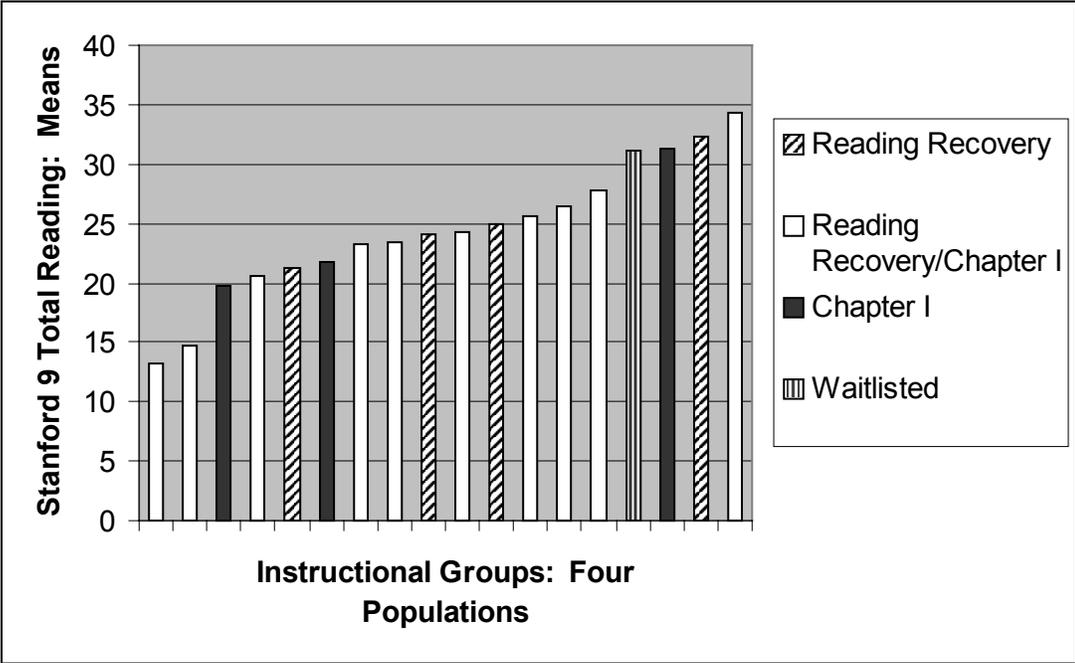


Figure 2. Distribution of means for all subgroups in four populations.

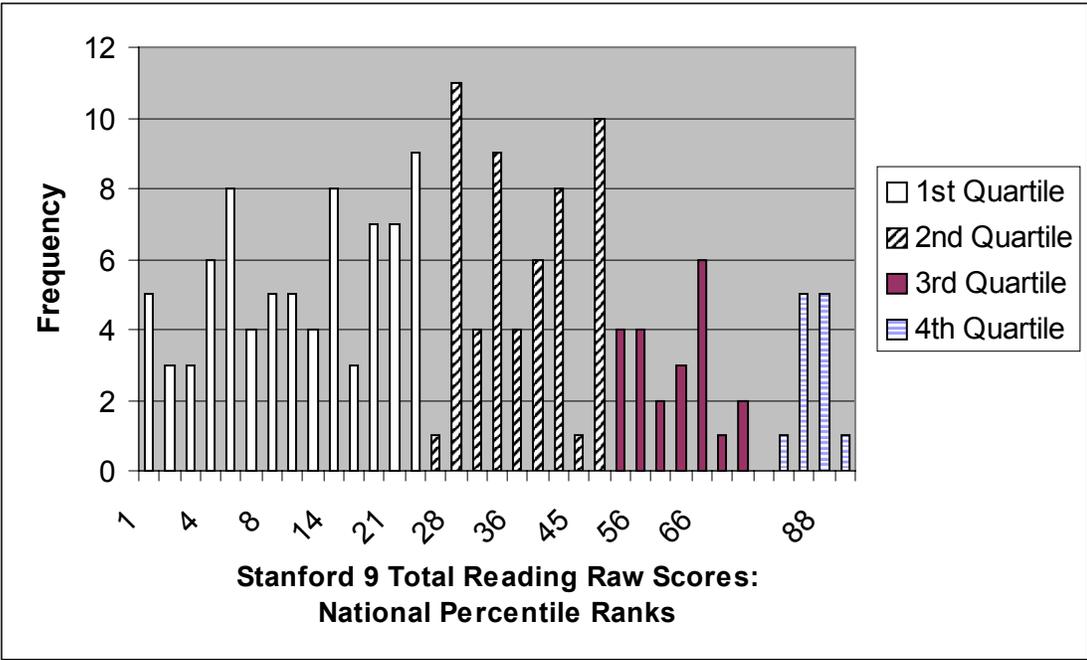


Figure 3. National percentile ranks based on Stanford 9 total reading scores for all study participants.

Thirty-four students (20%) achieved scores above the 50th percentile. Twelve students (7%) scored in the upper quartile, and 22 (13%) scored in the 3rd quartile.

One hundred thirty-one students (80%) had scores below the 50th percentile. Of these, 54 (33%) scored in the 2nd quartile, and 77 (47%) remained in the bottom quartile.

Although study participants were initially selected because of their position at the bottom of rank-ordered class lists in 1994, 53% of the students in the study ranked above the lower quartile on the nationally-normed, Stanford 9 test given in 1997.

### Top half of the distribution

Of nine higher-scoring groups in the distribution, five groups (n = 40) of students with means ranging from 34.3 to 24.2, including the highest-scoring group in this study, came from the Reading Recovery/Chapter I population (see Figure 4).

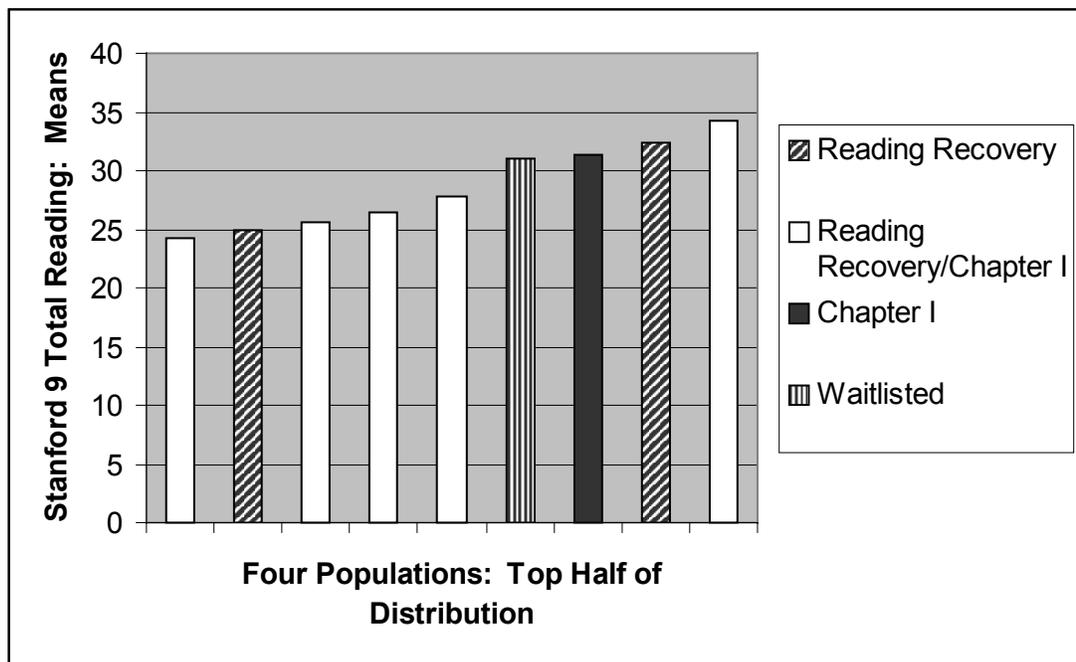


Figure 4. Upper half of the distribution of means for all subgroups in four populations.

Four of the five groups had reached Reading Recovery discontinuation; one had not. Three groups (n = 27) had received fewer than 61 lessons; two groups (n = 13) had received more than 60. Each group had participated in Chapter I instruction.

The subgroup (n = 14) that scored the highest mean of 34.3 had one year of Chapter I instruction and had been discontinued in fewer than 61 lessons (see Figure 5).

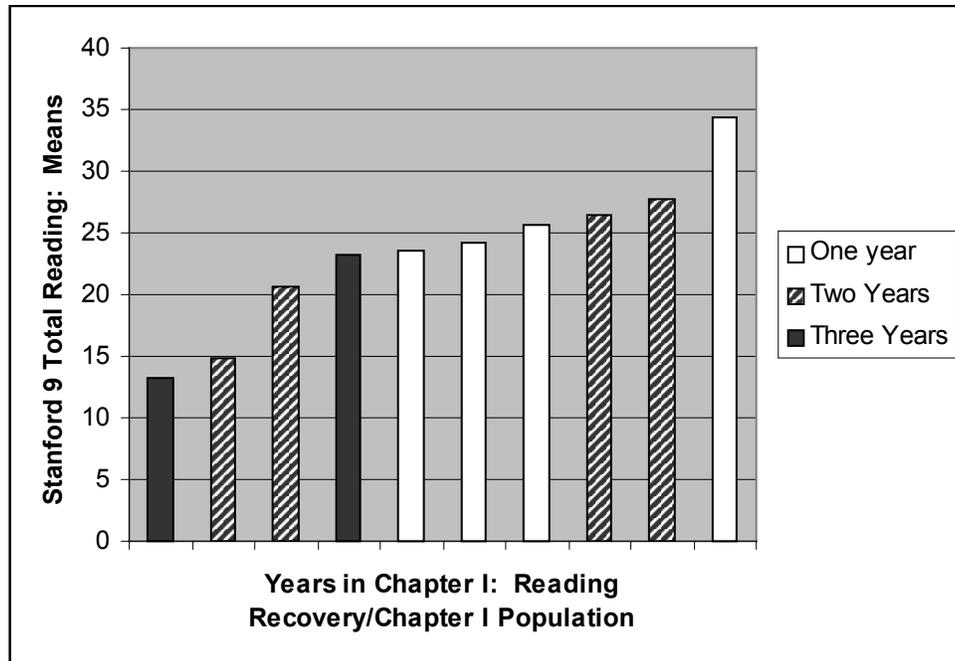


Figure 5. Influence of from one to three years of Chapter I on means of Reading Recovery/Chapter I population.

Two groups of students (n = 12) had participated for two years in Chapter I: students with a mean of 27.8 had been discontinued in more than 60 lessons, and students with a mean of 26.5 had been discontinued in less than 61 (see Figure 6).

Two groups of students (n = 17) had participated for one year in Chapter I: students with a mean of 25.6 had been discontinued in more than 60 lessons, and students with a mean of 24.2 had fewer than 61 lessons, but had not been discontinued.

The second highest-scoring subgroup (n = 16) came from the Reading Recovery-only population that had been discontinued in less than 61 lessons (see Figure 7). The score (mean = 32.3) was higher than the mean of the four populations in the study (see Figure 1) and higher than all the mean scores from the Reading Recovery populations (see Table 7).

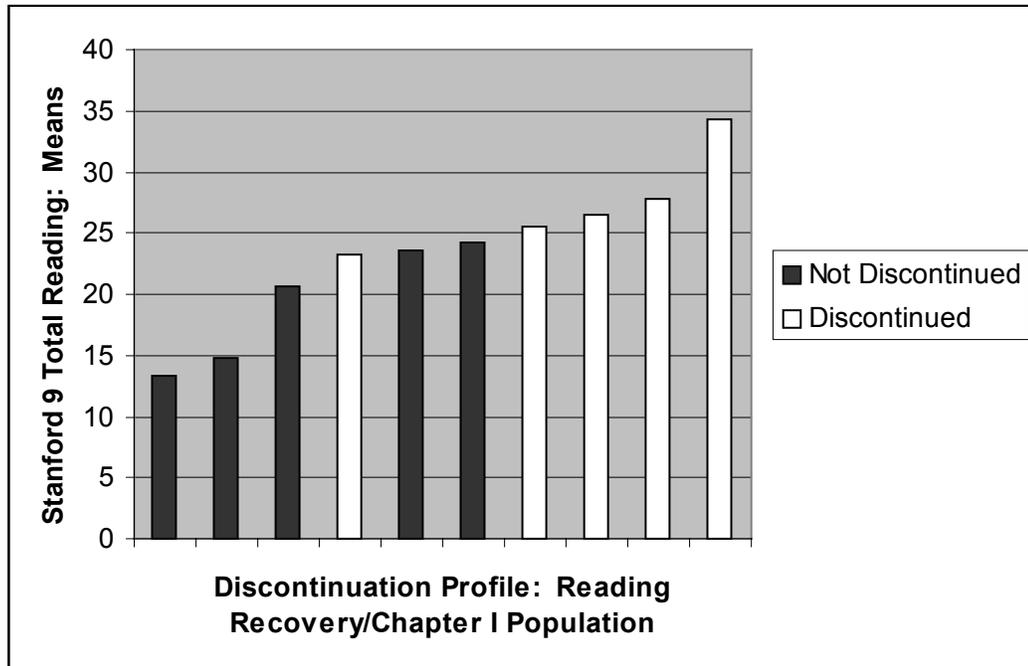


Figure 6. Influence of discontinuation on means of Reading Recovery/Chapter I population.

Two Reading Recovery-only groups had nearly identical scores. Nine students with a mean of 24.9 had more than 60 lessons, but were not discontinued from Reading Recovery. (Eleven students just below the median with a mean of 24.1 were discontinued, but also had more than 60 lessons.)

The third highest-scoring group (mean = 31.3) came from the Chapter I population (see Figure 8). Those students (n = 38) had received instruction for one year. Their score nearly matched the average score (mean = 31.6) of all Reading Recovery/Chapter I students with one year of Chapter I, who had less than 61 lessons (see Table 8). It also nearly matched the average score (mean = 31.1) of the Waitlisted population.

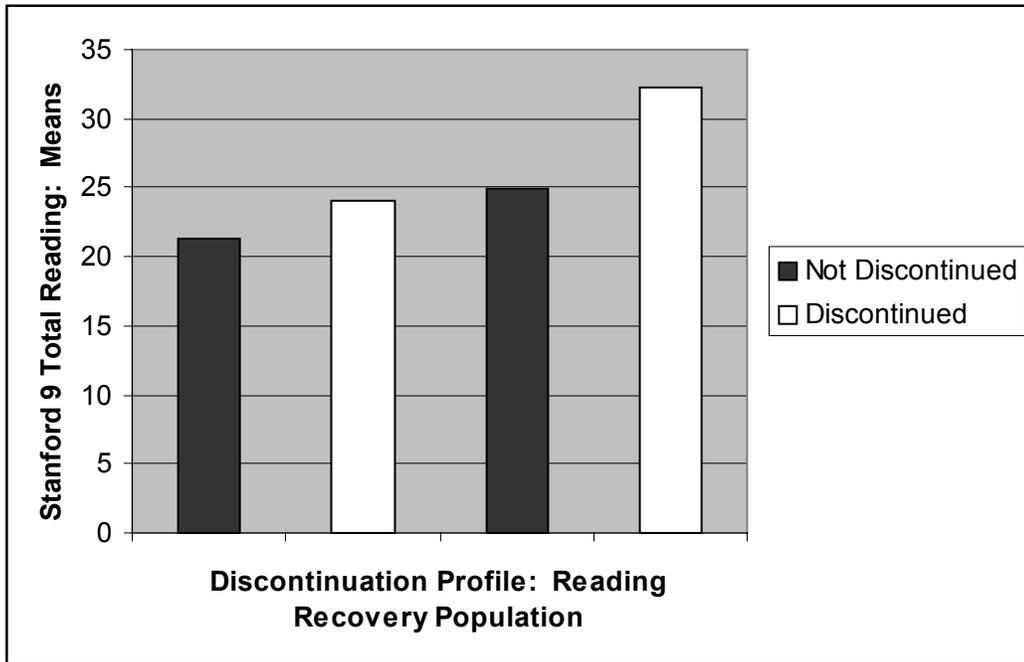


Figure 7. Influence of discontinuation on means of Reading Recovery population.

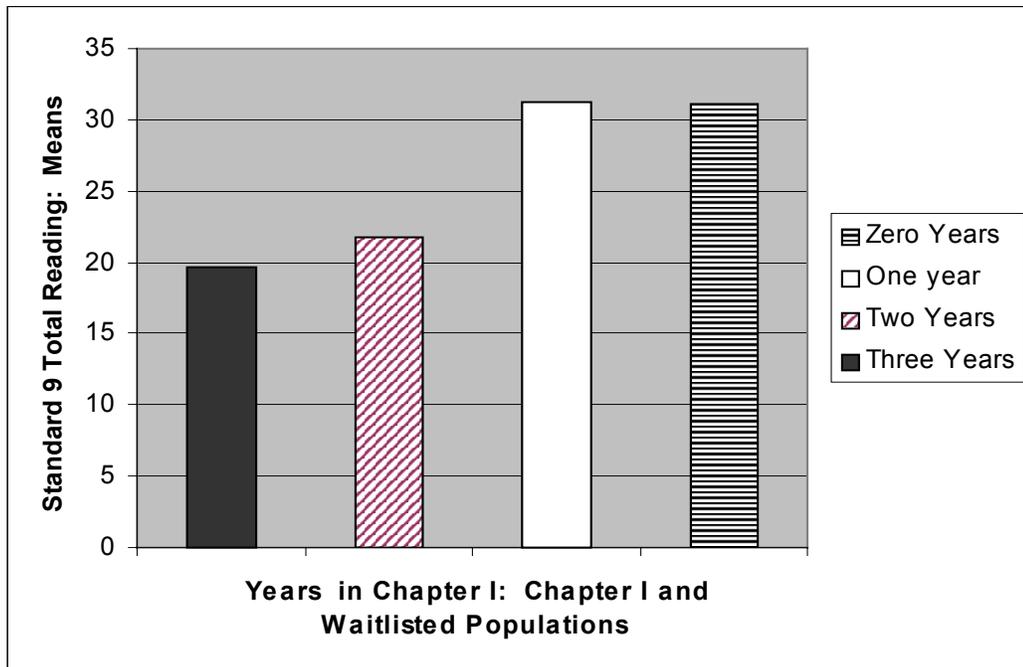


Figure 8. Influence of zero to three years of Chapter I instruction on means of Chapter I and Waitlisted populations.

Seven of the nine groups scoring in the top half were from the Reading Recovery populations (see Figure 4), and five of the seven had been successfully discontinued from the program (see Figure 9).

Each of five Reading Recovery/Chapter I groups had enjoyed one or two years of Chapter I instruction (see Figure 5).

For four of the Reading Recovery/Chapter I groups, the number of lessons seemed to make only small differences in test performance. But, the highest scoring group had received less than 61 lessons, as had the second highest scoring group that came from the Reading Recovery-only population (see Figure 9).

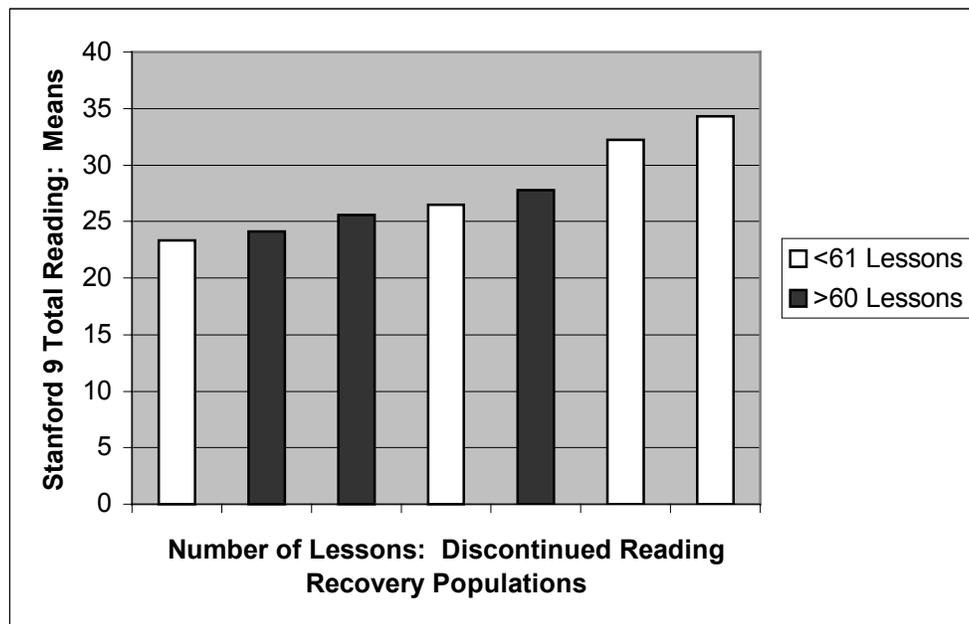


Figure 9. Influence of number of lessons on discontinued Reading Recovery and Reading Recovery/Chapter I populations.

In this study, the data appear to suggest that students successfully discontinued from the Reading Recovery program had higher mean scores than students who were not discontinued (see Figures 6 and 7). Also, the number of Reading Recovery lessons received is a slight indicator of higher means among those students, who were successfully discontinued from the Reading Recovery program (see Figure 9).

It also appears that one year of instruction was meaningful for the Chapter I population. Its mean nearly matched, but was one to three points less than, the means of two subgroups of Reading Recovery populations; and it was nearly identical to, but .2 less than, the mean of the Waitlisted population, whose members had been higher-ranked initially (see Figure 4).

Bottom half of the distribution

Eleven Reading Recovery-only students, who discontinued in more than 60 lessons, had the highest score (mean = 24.1) in the lower half of the distribution (see Figure 10).

Of nine lower-scoring groups of students, five groups (n = 26), including the second-highest and the lowest scoring groups, came from the Reading Recovery/Chapter I population.

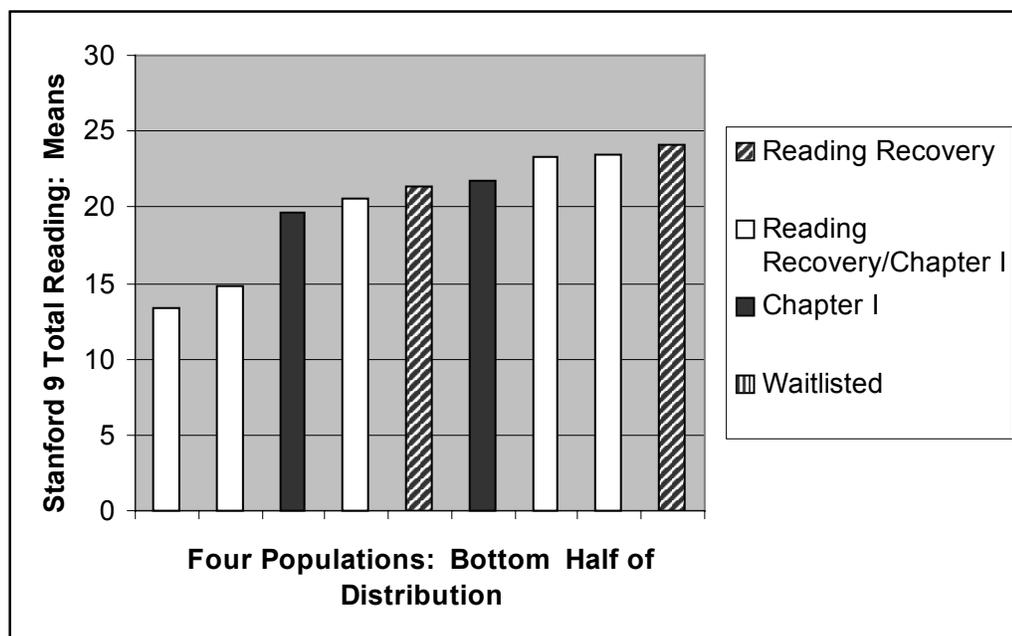


Figure 10. Lower half of the distribution of means for all subgroups in four populations.

One of the five groups from Reading Recovery/Chapter I population had been successfully discontinued from Reading Recovery; four had not (see Figure 6). Each group had participated in Chapter I.

The second and third-highest scoring groups had nearly identical means (see Figure 10). Four students (mean = 23.5) had not been discontinued in more than 60 lessons with one year of Chapter I, but a group of three (mean = 23.3) had been discontinued in fewer than 61 lessons with three years of Chapter I (see Figure 6).

Two Reading Recovery/Chapter I groups that had two years of Chapter I had not been discontinued from Reading Recovery. Twelve students with a mean of 20.6 had fewer than 61 lessons, and four students with a mean of 14.8 had more than 60 (see Figure 5).

The lowest-scoring group (mean = 13.3) had not been discontinued, but had fewer than 61 lessons plus three years of Chapter I instruction.

Two groups of Chapter I-only students scored in the lower half of the distribution. See Figure 10. A group of twelve students with two years of instruction had a mean of 21.8. The mean almost matched identically the score (mean = 21.3) of the lowest-scoring Reading Recovery-only group (n = 3). A second Chapter I group (n = 3) with three years of instruction had a mean of 19.7.

One Reading Recovery group (mean = 21.3) in this half of the distribution had not been successfully discontinued, but had received fewer than 60 lessons.

Only two of the seven lower-scoring groups from the Reading Recovery populations had been successfully discontinued from the program. One was from the Reading Recovery population (mean = 24.1), and one was from Reading Recovery/Chapter I (mean = 23.3) (see Figure 9).

For the seven groups in the bottom half of the distribution that had received Reading Recovery instruction, the number of lessons seemed to make no discernible difference in performance. Four groups had received fewer than 61 lessons; three had received more than 60 (see Figure 11).

Each of five Reading Recovery/Chapter I groups and two Chapter I-only groups had enjoyed from one to three years of Chapter I. The one group that had received only one year of instruction had the second-highest mean of 23.5, but the group with the third-highest mean of 23.3 had received three years of Chapter I. The remaining three groups with means ranging from 20.6 to 13.3 had received two and three years of supplementary instruction (see Figure 5).

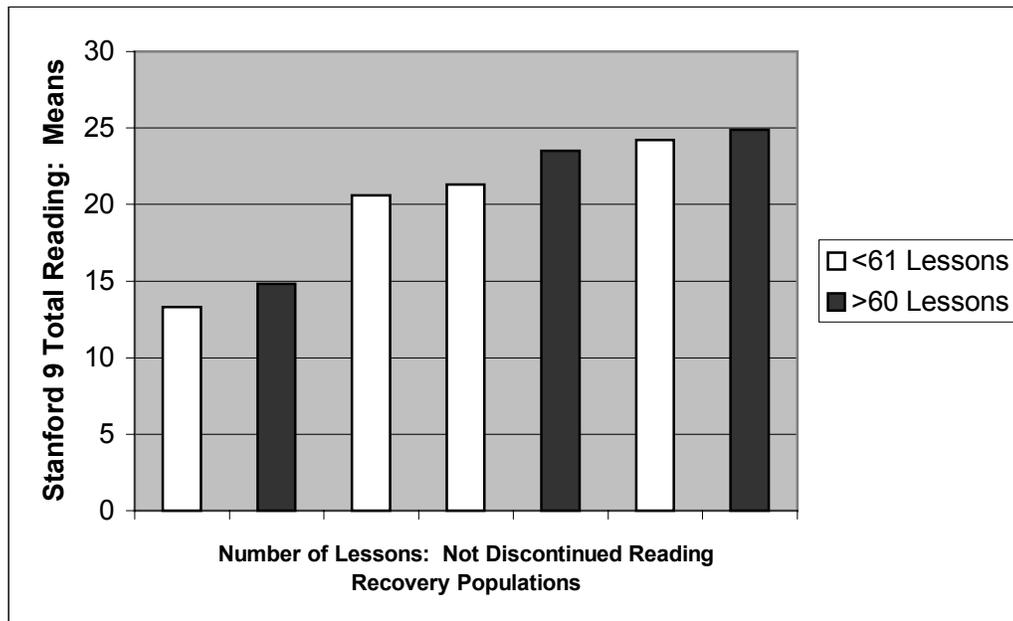


Figure 11. Influence of number of lessons on Reading Recovery and Reading Recovery/Chapter I populations that were not discontinued.

In this study, the data suggest that Reading Recovery groups that were not successfully discontinued from the program had lower mean scores. Neither the number of lessons received nor cumulative years of Chapter I appeared consistently to affect the test performance of non-discontinued students (see Figures 11 and 5).

It also appears that two or three years of supplemental instruction for the Chapter I population had an inverse effect upon mean scores. Students with two years of Chapter I achieved a mean of 21.8, while students with three years of instruction achieved a mean of 19.7 (see Figure 8).

## CHAPTER V

### SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This chapter presents the summarized results of the study. It reviews the methodology used, draws conclusions related to the questions investigated, discusses the results of the study, and provides implications for practice and recommendations for further research.

#### Methodology

The purpose of this study was to describe the long-term reading achievement of the 1994 Reading Recovery population in Montgomery County (VA) Public Schools by examining standardized test scores. Four research questions guided the study, and the 165 participants came from 12 elementary schools. They were selected, because they had participated in Reading Recovery in first grade and had taken the reading portion of the Stanford 9 Achievement Test in the spring of third grade.

The 105 Reading Recovery students had received from 5 to 117 half-hour Reading Recovery lessons daily in grade one from a Reading Recovery-trained teacher in their home school. In addition, 66 of these students had participated in from one to three years of supplemental Chapter I instruction, taught by reading specialists also at the children's home school. An additional group included 60 randomly-selected children, who were eligible for Chapter I, but did not qualify for the Reading Recovery program.

Administered in April 1997, the Stanford 9 Achievement Test was used to demonstrate student performance in comprehension and word analysis, two major components of the reading process. Data were extant and collected from files by the researcher.

Descriptive statistics were computed using Microsoft Excel (1997) and SPSS (1999). Since random assignment to Reading Recovery groups was not possible, means and standard deviations based on:

- (a) the numbers of Reading Recovery lessons received,
- (b) years spent in Chapter I, and
- (c) total reading scores on the Stanford 9

were analyzed to compare the relative performance of four major populations: Reading Recovery, Reading Recovery/Chapter I, Chapter I, and Waitlisted.

Of particular interest was the performance of Reading Recovery students who:

- (a) reached Reading Recovery's goal of discontinuation,
- (b) received Reading Recovery instruction, but failed to be discontinued, and
- (c) also participated in Chapter I.

Of additional interest was the achievement of Reading Recovery populations in comparison to the performance of the Chapter I and Waitlisted populations.

#### Summary of Results and Conclusions

The study participants came from the population of all first grade children eligible for supplemental reading support in Montgomery County in 1994, who also took the Stanford 9 in 1997. Students, who received Reading Recovery lessons, represented the lowest-scoring children in the lowest 25% of first grade classrooms. Chapter I students represented the next higher-scoring group, and the waitlisted students represented the highest-scoring children in the bottom 25%.

Specific to this study were 39 students (24%) who had received Reading Recovery lessons in 1994, 66 students (40%) who had had their 1994 Reading Recovery instruction supplemented with Chapter I classes, 53 students (32%) who had received Chapter I instruction, and seven students (4%) who were eligible, but had participated in neither supplemental reading program.

One hundred five first graders received Reading Recovery lessons in 1994. For the 39 students (37%) who only received Reading Recovery lessons, subsequent reading instruction came from the classroom teacher in grades one, two, and three.

Of the remaining 66 Reading Recovery students (63%), 32 (49%) had one year of Chapter I, 28 (42%) had two years of Chapter I, and six (9%) had three years in addition to Reading Recovery lessons and regular classroom instruction.

Sixty first graders eligible for supplemental reading instruction in 1994 comprised the sample group. Of these, 53 students (88%) received Chapter I instruction: 38 (72%) took one year of supplemental classes, 12 (22%) had two years, and three (6%) took three years.

Seven waitlisted students (12%) received only classroom instruction in reading from 1994 through 1997.

The research questions for the study help provide structure for summarizing the results and conclusions.

1. How have students who participated in Reading Recovery-only performed on the Stanford 9?

Twenty-seven (69%) of 39 students had been successfully discontinued. Of these, 16 achieved a mean of 32.3—the second highest score in the study—in fewer than 61 lessons, and 11 had a mean of 24.1 in more than 60 lessons.

Twelve (31%) had not been discontinued; but nine of these students with more than 60 lessons had a mean of 24.1, and three earned 21.3 in fewer than 61 lessons.

The analysis revealed that Reading Recovery students successfully discontinued in fewer than 61 lessons scored two points below the top of the distribution of all means, while those discontinued with more than 60 lessons fell .05 points below the median. Those not discontinued with more than 60 lessons had a mean slightly above the median, but those not discontinued with fewer than 61 achieved a mean 2.85 points below the median.

This analysis suggests that students successfully completing the Reading Recovery program in the optimal time frame of fewer than 61 lessons achieved a meaningful difference in scores.

2. How have students who participated in both Reading Recovery and Chapter I performed on the Stanford 9?

Thirty-eight (58%) of 66 students, who received Reading Recovery lessons and Chapter I instruction, were successfully discontinued from Reading Recovery.

Twenty-five were discontinued in fewer than 61 lessons. Of these, 14 had one year of Chapter I and achieved a mean of 34.3—the highest score in the

study. Eight students with a mean of 26.5 had two years of Chapter I, while three students with a mean of 23.3 had three years of Chapter I.

Thirteen students were discontinued in more than 60 lessons. Nine of these 13 students had one year of Chapter I and achieved a mean of 25.6. Four students had two years of Chapter I with a mean of 27.8.

Twenty-eight (42%) Reading Recovery/Chapter I students had not been discontinued from Reading Recovery. Nine students had one year of Chapter I. Of these nine, five with fewer than 61 lessons achieved a mean of 24.2; four with more than 60 lessons had a mean of 23.5.

Sixteen students, who were not discontinued, had two years of Chapter I. Twelve of these sixteen with fewer than 61 lessons achieved a mean of 20.6; four with more than 60 lessons had a mean of 14.8.

Three students, who were not discontinued with fewer than 61 lessons, had a mean of 13.3 after three years of Chapter I.

The analysis revealed that groups of Reading Recovery students successfully discontinued in any number of lessons with one to two years of Chapter I scored in the top half of the distribution of means. Although one group that had not been discontinued placed slightly above the median (24.2), the remaining subgroups that had not been discontinued had means from 1 to 10.8 points below the median, despite any number of lessons and two to three years of Chapter I.

The scores indicate that students successfully completing the Reading Recovery program in the optimal time frame achieved the highest mean with one year of Chapter I. The implication here, also, is that all students successfully completing Reading Recovery in any number of lessons with the support of one or two years of Chapter I had a meaningful difference in scores.

### 3. How have students who participated in Chapter I performed on the Stanford 9?

Thirty-eight (72%) of 53 Chapter I students in the comparison population participated for one year in Chapter I classes to supplement regular classroom reading instruction. They achieved a mean of 31.3, which was the third highest score in the study.

Twelve students (23%) achieved a mean of 21.8 after two years of Chapter I instruction; three students (5%) had a mean of 19.7 after three years of Chapter I.

The analysis revealed that Chapter I students with one year of instruction scored within one point of Reading Recovery-only students successfully discontinued from the program and within three points of Reading Recovery students successfully discontinued in fewer than 61 lessons with one year of Chapter I instruction.

The analysis suggests that students with one year of Chapter I achieved a meaningful difference in scores, one comparable to the scores of students who had completed the Reading Recovery program with a minimal number of lessons.

Additional years of Chapter I instruction appeared to produce diminished scores, the opposite of expectations.

#### 4. How have students who remained on a Chapter I waiting list performed on the Stanford 9?

Seven (12%) of 60 students in the comparison population were eligible for supplemental instruction but participated in neither Reading Recovery nor Chapter I from 1994 to 1997. They received regular classroom reading instruction during that time period and achieved a mean of 31.3, which was the fourth highest score in the study.

The analysis revealed that these waitlisted students scored within .2 points of the mean of Chapter I students, who had one year of instruction. The waitlisted mean was also 1.2 points lower than the mean of Reading Recovery students, who were discontinued in fewer than 61 lessons, and 3.2 points below the Reading Recovery/Chapter I group that was discontinued in fewer than 61 lessons, but had one year of Chapter I classes.

The analysis suggests that waitlisted students with no additional reading support scored only slightly below the means of three groups that received from three months (<61 lessons) to nine months (one school year) of supplemental instruction. The implication is that while the scores of waitlisted students did not

rise dramatically neither did they plummet drastically in the absence of remedial instruction.

### Discussion

The purpose of this study was to describe the long-term reading achievement of the 1994 Reading Recovery population in Montgomery County (VA) Public Schools.

Unlike other Reading Recovery studies involving only successful students, the population under analysis was inclusive. It embraced students who met the central tendencies of the study: they had received Reading Recovery instruction in the county in 1994, and they had taken the Stanford 9 in the spring of 1997. Within the population were children who were successfully discontinued from the program and those who were not, children who needed support from Chapter I and those needing none, children who absorbed content in minimal time periods and those requiring time extensions. The inclusion of the entire spectrum of students as subjects permits a more confident interpretation of results.

Two groups of students successfully discontinued from the Reading Recovery program, who learned and internalized effective reading strategies in fewer than 61 lessons, had the two highest means: one group bolstered by a year's support from Chapter I, one group without.

The means of other Reading Recovery students, discontinued with more than 60 lessons, hovered around the median of the distribution of means. Students discontinued with fewer or more than 60 lessons but with one to two years of Chapter I achieved means in the top half of the distribution.

Although two Reading Recovery groups that were not successfully discontinued had means slightly above the median, five groups not discontinued with any number of lessons despite one to three years of Chapter I had means in the bottom half of the distribution, including the two lowest.

The results from this study suggest that the achievement of Reading Recovery populations was solidly sustained for the long-term when:

- (a) students were successfully discontinued in any number of lessons, and
- (b) Reading Recovery instruction was buoyed with one to two years of Chapter I.

Since Reading Recovery prescribes a model of reading behaviors that can rapidly propel the lowest-achieving first graders toward literacy, the question arises as to why

successful students might need subsequent support. Keeping in mind that “successful” might be a tenuous term for so recent a group ranked “lowest-achieving,” several elements of the study could be contributing factors.

#### The intervention

Successful discontinuation from Reading Recovery indicated that a child understood and could apply reading strategies with a degree of independence comparable to the average students in his homeroom class. But, new skills need practice. Momentum could be lost if the child returned to a classroom where Reading Recovery strategies were not reinforced either philosophically or practically by the classroom teacher.

The absence of successful discontinuation could indicate that Reading Recovery sessions simply began too late in the school year for a child to complete the series of lessons. It could highlight a developmental unreadiness based on biological immaturity that might decrease over time or it could suggest visual or auditory processing problems that might require a special education referral.

The Reading Recovery instructional format is tutorial. Students might need help transitioning from the easy familiarity of a tutor to large-group or whole-class instruction. The small-group structure of Chapter I could provide that bridge.

#### The supplement

Chapter I provided focused instruction plus daily opportunities to read and write in a small-group setting. In Montgomery County, as noted in Chapter III, site-based decisions determined the program model; but the precise instructional format relied upon the diagnostic and creative abilities of reading specialists to craft remedial content appropriate to each student. It seems reasonable to assume that the quality, intensity, and quantity of instruction could vary widely from day to day, year to year, and school to school.

According to this study, one or two years of Chapter I instruction could maximize students’ progress. In some cases, two or three years of such support produced little measurable growth.

Perhaps the intrinsic value of Chapter I is the opportunity of extra time it offers students: time to absorb explicit instruction, time to practice reading aloud and responding to literature in the company of peers under the guidance of teachers who respond adeptly to the specific instructional needs of individuals who need support.

If that were the case, one or two years of well-planned supplementary “time” might be just what was needed to implant reading strategies firmly in students first considered to be struggling. Poor test performances, despite additional years of instruction, might signal a need to investigate causes other than a need for expanded “time.” Possible contributing factors could include: processing problems (as noted earlier), underlying issues of motivation, or teacher affect.

### The instrument

The Stanford 9 Achievement Test was selected as the measurement tool for this study, because it was the division-wide assessment instrument in 1997 that was used to determine student achievement and to evaluate curriculum. Did it effectively measure achievement for remedial reading students?

A comprehensive picture of reading achievement is difficult to capture in any 50-item test. The Total Reading section featured word analysis and comprehension. Those two components of the reading process are often considered part of a more traditional approach to reading, but they demanded that a student demonstrate a grasp of skills such as phonemic awareness, letter-sound correspondence, syllabication, and syntax in order to read both narrative and expository graded passages fluently and accurately. Multiple-choice questions targeted a student’s ability to distinguish main idea and detail, understand multiple meanings of vocabulary, identify inference, sequence, and cause and effect to assess comprehension.

In as much as reading is not a string of isolated skills, the Stanford 9 composite picture of student reading performance measured students’ ability in a particular time and place to integrate reading strategies to discover meaning. Worthan (1995) cautioned that more descriptors were needed than informal measures and teacher observation, but an achievement test would not be the only option. Perhaps an instrument specifically designed to test multiple facets of reading in depth would have produced a totally different distribution of scores.

A study that is descriptive by definition must “describe” what occurs as “usual practice” in a given place, not prescribe. Thus, the resulting Stanford 9 scores allowed the reading supervisor to ascertain the impact of the instructional programs in reading by scrutinizing the responses to test items, and the standardized instrument easily satisfied the test coordinator interested in comparing scores within the school division and the nation.

### Implications for Practice

The results of this study present intriguing possibilities for school personnel interested in or charged with the task of maximizing use of school time, talent, and resources.

The two groups of students with the highest means successfully completed the Reading Recovery program in fewer than 61 lessons. Perhaps the children or their Reading Recovery teachers had characteristics in common that deserve further analysis (and possible replication) that enabled them to score well and within the ideal time frame.

Discontinuation seemed to correlate with scores in the top half of the distribution. Perhaps students should not begin a Reading Recovery program that cannot be completed before the close of the school year, since the results show that children with any number of lessons, but not discontinued, repeatedly produced disappointing scores at the bottom of the distribution.

The group of Chapter I students, who received one year of instruction, had the third highest score. This suggests that the majority of students eligible for Chapter I in the primary grades may just be developmentally ready to benefit from a one-year concentrated boost to classroom instruction.

Discontinued Reading Recovery children, also, seemed to produce higher scores with the complement of one to two years of Chapter I. Perhaps it would be advantageous for Chapter I teachers to consciously package their program for delivery in a one or two year time span. This approach could enable Chapter I teachers to help transition Reading Recovery students as a matter of course, as well as accommodate English-as-a-Second-Language (ESL) or new students at any grade level.

Such a role for Chapter I would utilize its strengths alone or as a valuable adjunct to Reading Recovery, but not dilute its effectiveness by habitually assigning the same roster of low-achievers to the program.

A plan such as this has implications for elementary classrooms. It suggests that curriculum supervisors support a slight realignment of the language arts and reading curriculum at the building level, as recommended by Allington (1983). It suggests that teachers at all grade levels create literacy-rich environments by actively engaging students in reading and writing tasks across the curriculum, as implied by Barr (1991). Devoting blocks of time daily to the reading and discussion of quality literature, as advocated by Allington

and McGill-Franzen (1989), identifying the instructional reading level of each student at the start of the school year, differentiating instruction, and supplying classroom libraries (as well as school libraries) with high-interest books at various independent reading levels are just a few of the concrete steps teachers may take to help students see themselves as readers.

The fourth highest score belonged to the Waitlisted population. Those students scored nearly as well as students in the other three populations, who had special help. Their performance was not surprising; because it can be assumed that these were among the strongest students eligible for remediation in grade one, since they never received supplemental instruction. They scored adequately, but what could they have achieved with additional support?

As detailed in Chapter IV, 20% of the participants (n = 34) scored above the 50<sup>th</sup> percentile, and 33% more (n = 54) scored just below it. Given that the study participants were rank-ordered in the bottom 25% of all County first graders, and allowing for a few exceptions, the data seem to suggest that slightly more than half of the students clearly made gains in reading achievement.

It would appear prudent to review the circumstances of students who scored in the lowest percentile rank, in hopes of discerning a more effective means to guide subsequent student learning. Perhaps standardizing the screening device(s) used in the initial assessment of first graders or refining the selection process for both Reading Recovery and Chapter I students would help verify the identification of the lowest readers at the outset. Judicious management of resources ought to be able to raise the level of the bottom tier steadily.

It seems important to restate here that 18-19% of all students, who participated in supplemental reading programs in grades one through three, were unable to participate in the follow-up study due to student/family mobility. Such an attrition rate weakens attempts by any school system to help its struggling students. Since instructional opportunities can frequently be lost during the re-admittance process to a new school, moving during the early elementary years may compound the difficulties of low-achieving readers. Perhaps a sense of community among division reading supervisors could be fostered; so at least within a region or a state, a sense of shared responsibility for the reading success of all children could manifest itself particularly in caring attention to detail when placing low achievers who have moved.

### Recommendations for Further Research

Issues in reading worthy of research abound. These particular recommendations for further research, as well as for school systems that regard Reading Recovery as a strong component of their instructional program in reading, have emerged from the results obtained in this study.

Research on the nearly 100 reading assessments available for purchase and use should be done to determine which instrument(s) measure most closely curriculum content taught by state or district. Mismatches can produce damaging inaccuracies.

The present study is descriptive. The same data reexamined using the intelligence quotient (IQ) of participants as a covariate might provide useful information for primary level curriculum coordinators, among other school personnel.

In this study, “long-term reading achievement” was defined as the two and one half to three year period after Reading Recovery instruction. Since it is reasonable to assume that most of the students under study still attend school in Montgomery County, the “long term” could be expanded into a longitudinal study by tracking the reading achievement of Reading Recovery students in grades 5, 8 and 11, or as frequently as the Stanford 9 is administered.

Growth in reading achievement is a common focus for many classroom teachers, as well as for remedial educators. But, as a tool to unlock meaning, reading can be examined in relationship to other content areas. Research examining the short and long term effects of reading achievement on math, social studies, and science could help administrators select appropriate tests and more knowledgeably interpret test results.

As Reading Recovery has expanded throughout the United States, elements of the program, such as systematic observation of reading behaviors and an abundance of leveled texts in classrooms, have become assimilated into classrooms as general tenets of “best practice.” Theoretically, struggling readers should thrive in classes with teachers, who have strong reading backgrounds, promote literacy, and possess empathy for low achievers. Research describing the effect of placing Reading Recovery students in literacy-rich, first-grade classrooms could yield valuable information regarding the efficacy of grouping practices on students’ sustained reading achievement.

One finding of the current study regarding Chapter I could be further investigated. If it is true that one or two years of Chapter I maximizes the progress of students in the lowest

25% of grades one through three, it would be most beneficial to discover the most opportune time to begin supplemental instruction.

It is recommended that research be pursued to determine what methods are in place in schools to monitor the progress of the lowest-achieving students regularly. Since education is a collaborative effort among many, is there a difference in the reading achievement of children in schools whose principal, guidance counselor, speech, reading, and special education specialists, physical therapist, social worker, and psychologist meet frequently to review the growth of individual students, who struggle?

The question Montgomery County seems to have asked of itself nearly ten years ago was “How can we accelerate the reading progress of our lowest-achieving children most efficiently?” In response to that request, a new program, Reading Recovery, took its place in the language arts curriculum next to the old standby, Chapter I. In the third year of Reading Recovery’s implementation, students took instruction at all county elementary schools. Three years later, an analysis of test results revealed that the two programs, especially in concert, produced meaningful differences in scores.

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