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EARLY READING INTERVENTIONS: WHAT WORKS?

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May 1997

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Early Reading Interventions: What Works?

Executive Summary

Purpose of Study

The purpose of this study was to: 1) examine differences in the programs and practices employed in area schools to teach successful and unsuccessful at-risk students; 2) determine relationships among identified problems, reading interventions, and outcomes; and 3) present implications of the study for schools.

Methodology

Data were collected from two sources: student records and teacher interviews. Students whose records were analyzed were selected from those who took the Iowa Test of Basic Skills (ITS) in spring 1996 and were deemed "at-risk" by virtue of their economic status. A stratified random sampling procedure was used to derive two groups of comparable size: "successful" (reading comprehension score at and above grade level) and "unsuccessful" (reading comprehension score below grade level). The analysis of student records represented a retrospective review of three and, in many cases, four years of schooling for each student. Successful and unsuccessful at-risk students were compared on a wide range of variables associated with reading achievement including demographic characteristics, status at kindergarten entry, year-to-year performance, educational programs and services they received, and reading outcomes. A total of 147 student records were analyzed (72 successful and 75 unsuccessful) in site visits to 35 schools in three school divisions.

Classroom teachers interviewed were nominated by their principals on the basis of their experience and knowledge about K-2 reading instruction. A total of 41 teachers from 26 schools in the three participating school divisions were interviewed. Interviews focused on classroom teacher practices in identifying, assessing, and intervening with students experiencing early reading failure, the nature and adequacy of resources to assist such students, and teacher views on effective programs and strategies to prevent early reading failure.

Findings and Conclusions

At the end of 2nd grade, grade equivalent reading comprehension scores averaged 3.4 for successful students and 1.5 for unsuccessful students. African-American students were over-represented in the unsuccessful group while Asian and caucasian students were over- represented in the successful group. Little or no differences in the two groups were observed in terms of age at kindergarten entry, pre-kindergarten experience, and mobility while in school. Although not found to be associated with reading outcomes, mobility was found to be strongly associated with unsuccessful students not receiving additional reading assistance. Unsuccessful students were nearly twice as likely to have identified motor skills problems, language problems, or both at kindergarten entry. Additionally, for both successful and unsuccessful students, language or motor problems identified by kindergarten were strongly associated with subsequent retention or special education placement. On performance-related characteristics, successful students had slightly better attendance in kindergarten and grade 2 and were less likely to have conduct and study skills problems or attentional problems. In the area of school interventions, unsuccessful students were more than three times as likely to have been retained and twice as likely to have been placed in special education. Access to special education services occurred later for unsuccessful students: of the students placed in special education, 61% of successful students began to receive services while in kindergarten while only 25.9% of unsuccessful students began receiving services as early as kindergarten. Other services, however, were being provided. Student records indicate that 90.7% of unsuccessful students received reading assistance beyond the classroom during at least one year. Sixty-one percent received additional reading-related assistance during two or more years. Such services were provided for 36% of the successful students.

Comparisons of year-to-year progress in reading achievement were not possible due to the absence of standardized measures. Nor could comparisons be made as to the relative efficacy of one type of early reading intervention over another. The analysis of student records revealed marked variations in the use of terminology which appeared to reflect some lack of clarity in reading and literacy concepts. For example, "reading level" was at times used to indicate instructional levels and at other times (in the same student

record) the term was used to indicate the level at which the individual student was judged to be reading.

Indicators of early reading failure identified by knowledgeable teachers were consistent with those identified in the research literature: sound-symbol relationship problems, general readiness problems, language deficits, reading strategies deficits, and little interest in or avoidance of reading-related activities. Classroom teacher strategies with students who were having difficulty learning to read reflected the use of a “balanced approach.” Both phonics and literature-based approaches were used with stronger emphasis placed on phonics at the kindergarten and first grade levels and relatively more emphasis on literature in second grade. When asked which reading programs and practices they viewed as most effective, teachers expressed strong consensus for “a multifaceted approach, blending phonics and whole language” and “combinations of strategies based on individual student needs.” Many teachers expressed frustration at the emphasis placed on grading and competing curricular demands. Expressed needs for reduced class sizes and for additional instructional aides appeared to be related to teacher desire for increased time to devote to students who were having difficulty.

On the issue of assessment, teachers expressed strong support for the use of school- or school division-approved inventories or structured assessments. Where such procedures were not in place, teachers expressed discomfort with practices which they deemed “too subjective.” The use of more structured assessments was viewed as beneficial in terms of increasing use of diagnostic-prescriptive approaches, improving progress, and improving documentation of efforts. While expressing the desire for more guidance and structure in reading assessment and ongoing monitoring of student progress, classroom teachers clearly wish to retain latitude to exercise professional judgement in the selection of instructional strategies and materials.

When asked to rate the effectiveness of resources for students who were having difficulty learning to read, 55.5% judged resources to be adequate and 14.6% viewed them as very adequate. Lowest ratings were from teachers in schools which recently lost Title I eligibility, creating perceived gaps in reading services. Material resources were, in general, described as bountiful. What teachers identified as lacking were time for one-on-

one or very small group instruction with students and, in some cases, the availability of reading expertise to consult. In schools where principals were described as having taken a strong leadership role in reading instruction, teachers expressed a high level of satisfaction with resources and were more likely to implement a broader range of strategies. Although not specifically asked about their pre-service training, many teachers commented on their lack of preparation to assess reading problems and limited knowledge of effective strategies with students who were having difficulty learning to read. In one school division, teachers were particularly pleased with an in-service training program on structured reading assessment which had just been conducted.

The beyond-classroom reading interventions that students received were largely a function of what was available in their schools. In schools where resources were used more innovatively, students were provided more types of interventions and received additional help over a longer period of time. Strong instructional leadership from the principal was viewed as instrumental.

Recommendations

Findings and conclusions from this study were reviewed by the study advisory group and the following recommendations were developed:

1. Strengthen teacher skills in the assessment of reading problems and use of effective strategies to address identified deficits.
2. Establish policies and practices which provide more structured assessments of student reading and establish protocols for monitoring progress and modifying instruction on an ongoing basis.
3. For students who are having difficulty learning to read, increase the amount of time available for instruction in one-to-one or very small group settings.
4. Promote innovation in the use of resources and scheduling of time to increase both the types of services available and the duration of these services for students.

Early Reading Interventions: What Works?

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BACKGROUND

Reading has been termed the "gateway to all other knowledge" (McPike, 1995). Students who do not "learn to read" early in their school careers find the path blocked when they cannot "read to learn." Students who have difficulty learning to read are disproportionately poor and members of minority groups (Kennedy, Jung, & Orland, 1986a). As the number of students fitting this profile grows, interest has grown in identifying interventions which will prevent educational failure from occurring (Levin, 1988; Natriello, McDill, & Pallas, 1990). The 1994 National Assessment of Reading Progress (NAEP), a federally supported program that tracks the performance of American students in core academic subjects, found that 42% of 4th graders were reading at a "below basic" level, meaning that they were unable to understand "uncomplicated narratives and high interest informative texts." The urgency to intervene effectively in early grades is fueled by the understanding that a child's success in learning to read in first grade appears to be the best predictor of ultimate success in schooling (Juel, 1988; Adams, 1990). Failure to read by third grade is associated with significantly higher risk of dropping out, delinquency, and adult illiteracy (Kelly, Veldman, & McGuire, 1964; Lloyd, 1978; Clay, 1985; Baydar, 1994). Furthermore, Kennedy, Birman, and Demaline (1986b) found in research on Chapter 1 programs that remediation of learning problems after the primary grades is largely ineffective.

Students who have difficulty learning to read present instructional challenges in the classroom and programmatic and policy challenges at the school and school division levels. At the classroom level, the teacher must employ instructional strategies to meet a broad range of student needs. At the school and school division levels, the presence of such students has direct programmatic implications. The limited progress of such students creates considerable pressure for special education referral and placement, contributing to a longstanding concern on the part of some educators about over identification of students for special education. Also a part of the contemporary education policy context are opportunities for more comprehensive planning encouraged under the 1994 reauthorization of the Elementary and Secondary Education Act. With more flexibility permitted in the use of Title (Chapter) I funds, schools are exploring a broader range of

program models and approaches to preventing early reading failure.

Although there is consensus on the importance of preventing, or at least mediating, early reading failure, debate continues about the relative efficacy of various approaches. From the growing body of research on early reading programs there is emerging an understanding that the issue is not which program is "best" (all have demonstrated merit) but which programs are best suited to which students within particular settings.

This review will first examine research literature on early reading intervention programs with particular emphasis on more general conclusions which have recently emerged. Literature on key variables associated with reading achievement and on promising research will also be reviewed. Learning to read is a complex process -- the result of the interaction of multiple variables including learner characteristics, opportunities to learn, and experiences which allow the learner to construct meaning from the written text. Examining instructional strategies constitutes one part of the equation; learner-related variables associated with reading achievement and the process of schooling constitute another part of the equation. The following literature review will discuss research on early reading intervention programs and instructional approaches and on key variables associated with successful reading achievement.

REVIEW OF RELATED RESEARCH LITERATURE

Early Reading Intervention Programs and Instructional Approaches

In teaching children to read, schools employ interventions of varying intensity and complexity. It is useful to conceptualize such instructional interventions along a continuum ranging from basic classroom reading instruction and to adaptations for individual learners within the classroom, to formal reading programs, to more intensive and individualized services which may include special education.

Level 1: The first level of instructional interventions are those employed by the classroom teacher within the classroom. Effective classroom teaching practices cited by Heilman, Blair, and Rupley (1994) include provisions for ongoing assessment, interactive instruction, opportunity to learn, attention to learning tasks, accurate expectations, and

efficient classroom management. Describing the great differences in literacy skills among students in primary grades, they stress the need for differentiated instruction and state:

"The most powerful assessment tool is keen teacher observation. Knowing what to look and listen for and then translating this information into instructional decisions to improve students' ability to understand text are hallmarks of an effective reading teacher" (Heilman et al., 1994, p. 389).

Level 2: As the classroom teacher monitors learning and adapts instruction accordingly, s/he may draw on additional resources and services to assist students who continue to have difficulty learning to read. The use of resources and services beyond the sphere of the classroom teacher constitute the second level in the continuum of instructional interventions. Participation in formalized reading programs would be typical of this level of intervention. The nature of additional resources and services will vary from school to school, as will the specific procedures for securing them. Typically, these services are intended to serve low achieving students thought to be in need of more assistance than that available within the classroom.

Level 3: The third level of instructional interventions are most intensive and individualized, and may include special education or "transition" placements as well as retention.

This study examines ways teachers identify students who are having difficulty learning to read, the instructional strategies they employ in the classroom, and the resources available to both teachers and to students to address early reading failure. Teacher views on the adequacy and effectiveness of existing resources and on effective practices, and on what classroom teachers need to ensure that children read by the end of second grade are also explored.

Effective Programs to Prevent Reading Failure

Understanding of effective early reading instruction has increased considerably in recent years (Adams, 1990; Taylor, Short, & Frye, 1992; Wasik and Slavin, 1993; Lyon, Gray, Kavanaugh, & Krasnegor, 1993; Levin and Chasin, 1994; Pikulski, 1994; Foorman, 1995a & 1995b; and Lyon, 1996). However, Pinnell, Lyons, Byrk, & Seltzer (1994) cite the difficulty for both practitioners and researchers to sort through the considerable body

of findings with arguments which tend to polarize around advocacy for competing approaches. A number of programs have been demonstrated to be effective in preventing reading failure in certain groups of students in particular settings and under specified conditions. Additionally, the most well-researched of these programs have been subjected to comparative reviews from which some general conclusions have been derived.

Pikulski (1994) reviewed and identified critical features of five successful reading programs for at-risk first-grade students. Programs compared included Success for All, The Winston-Salem Project, Early Intervention in Reading (EIR), The Boulder Project, and Reading Recovery. Programs reviewed (a) had been described in reasonable detail in a nationally distributed U. S. education journal involving review by an editorial board, (b) focused primarily on first-grade at-risk students, and (c) appeared to be "effective" based on data presented. No attempt was made to determine which program was "best." Each program was described briefly then described in terms of its relationship to regular classroom instruction, organization, amount of instructional time, length of intervention, types of texts and materials, text-level strategies, word-level strategies, writing component, assessment procedures, home connections, and teacher training. Pikulski (1994) concluded that attention to the following issues will increase the probability of program success:

- Excellent and coordinated instruction both in the classroom and in the intervention program are important for maximum impact.
- Children having difficulty reading should spend more time receiving reading instruction than children who are not experiencing difficulty.
- Individual and small group instruction is essential; some students may need one-to-one tutoring.
- Special reading instruction is most profitably focused on first grade.
- Texts should be very simple so students will experience success reading them. Reading the same text several times is very effective in building confidence and fluency.
- Instruction should focus the reader's attention on words and letters and on word patterns.
- Writing is important; students should write daily.
- Ongoing assessment that monitors student progress is necessary as is ongoing refinement of interventions.
- Professionally prepared, accomplished teachers are the mainstay of successful programs.

Pikulski (1994) noted that characteristics of a school may determine which reading intervention program should be adopted. Total school intervention programs like Success for All or the Winston-Salem Project may be better suited to schools that have a high percentage of at-risk students while Reading Recovery, which serves a small number of students, may be more suitable in schools with relatively few low-achieving students.

Wasik and Slavin (1993) reviewed the research on one-to-one tutoring programs using best-evidence synthesis. Programs compared were Reading Recovery, Success for All, Prevention of Learning Disabilities, Wallach Tutoring Program, and Programmed Tutorial Reading. Characteristics, reading components, theoretical models, structures, and results of each program were described and compared. Findings supported the following conclusions:

1. Programs with the most comprehensive models and most complete instructional interventions appear to have larger impacts than programs which address only a few components of the reading process.
2. Use of tutors alone does not make the difference; the content of the reading program and form of instructional delivery appear to be important variables.
3. Using certified teachers as tutors appeared to obtain larger impacts than using paraprofessionals.
4. Success for All documented reductions in retentions and in special education referrals (Slavin, Madden, Karweit, Dolan, & Wasik, 1992).

Following this comparison of one-on-one tutorial programs Ross, Smith, Casey, & Slavin (1995) conducted a comparison of Success for All and Reading Recovery, two well-publicized, successful, broadly disseminated early reading intervention programs. The stated goal of the study was "to increase understanding of how each program operates and potentially might contribute to even more powerful designs than either provides independently" (p. 777). Specific research questions focused on (a) procedures and resources involved in implementing each program; (b) involvement in and acceptance of the program by administrators, teachers, and parents; (c) the comparative influence of the programs on reading performance; (d) the comparative influence on school climate; and (e) the relative strengths and weaknesses of each program. Findings from results of

the first year of a planned 5-year longitudinal investigation suggest the two programs have different, perhaps complementary strengths which may justify a merger of the two. Ross et al. (1995) suggest that the strong tutor training of Reading Recovery combined with the broader, more comprehensive approach of Success for All could produce stronger program effects than either program can now produce independently. Consistent with the earlier observations of Pikulski (1994), Ross et al. (1995) report that Reading Recovery is most appropriate for schools with strong instructional programs and relatively few students at risk of reading failure. Success for All is viewed as more appropriate for schools with many disadvantaged students where a more comprehensive approach is needed.

Research on effective programs to prevent reading failure has continued to accumulate and has begun to be synthesized to derive general conclusions about effective practices, to identify conditions under which one approach might be preferable to another, and to identify programmatic features which might be combined to produce enhanced effect. Important research in this area continues to be conducted and merits close examination.

The U. S. Department of Education and the National Institute of Child Health and Human Development (NICHD) have supported extensive research and reviews of research on reading instruction (U. S. Department of Education, 1996). The NICHD research shows that the beginning reader must associate speech and print in order to translate letters and letter patterns to sound. This association is termed "phonological awareness" and it is a prerequisite for word recognition and reading comprehension. Most non-readers have not developed the capacity to recognize the smallest units of speech (called phonemes) while accomplished young readers are adept at recognizing phonemes and using them to construct words and phrases. Through an initiative called Learning to Read/Reading to Learn: Helping Children with Learning Disabilities to Succeed, researchers have identified the most important strategies for improving early reading instruction, not only for children with learning disabilities but for every child (Adams 1990, 1995; Moats, 1995; Kameenui, 1995). In a summary of research findings and related instructional implications, Smith (1995) advocated the following:

“Intervention for learners who have difficulty with phonological awareness must be early, strategic, systematic, and carefully designed. It must be based on a curriculum that recognizes and balances the importance of both phonics instruction and the appreciation of meaning” (p. 247).

Variables Associated with Learning to Read

A number of variables associated with learning to read can be identified from the research literature. Key variables are listed below with a brief summary of related research findings.

Cognitive readiness - The importance of cognitive readiness in children entering kindergarten is well documented (Reynolds, 1991; Butler, Marsh, & Sheppard, (1985); Carter, 1984; Gersten, Becker, Heiry, & White, 1984).

Prekindergarten experience - Research findings have been consistent: preschool experience has a positive effect on achievement of low income populations, although some studies reveal the influence fades over time (Bronfenbrenner, 1975; Lazar & Darlington, 1982; and White, 1985-86; Campbell & Ramey, 1995).

Sex - In studies of early childhood academic achievement being female is often associated with positive outcomes (Alexander and Entwisle, 1988; Entwisle, Alexander, Cadigan, & Pallas, 1987).

Socio-emotional maturity - Socio-emotional maturity is a variable which reflects a combination of behaviors including adaptation to school and commitment to learning. Teacher ratings of socio-emotional maturity have been used in various research studies (Reynolds, 1991; Alexander & Entwisle, 1988; McKim & Cowan, 1987).

School Mobility - School mobility has been found to have negative effects on achievement and adjustment of low-income children (Kellam, Branch, Agrawal, & Ensminger, 1975).

Socioeconomic status - Both low family socioeconomic status and low school socioeconomic status have been found to be associated with higher risk for academic failure (Kennedy, 1986b; Bempechat & Ginsburg, 1989; Dubow & Ippolito, 1994). (Over 90% of the students in the present study were confirmed to be on free or reduced lunch.)

Parent involvement - Multiple studies have revealed a positive relationship between parent involvement in a child's school and the child's school achievement (Stevenson & Baker, 1987; Chicago Public Schools, 1987; Epstein & Becker, 1982; Reynolds, Weissberg, &

Kasprow, 1992).

Prior reading achievement - A key variable associated with reading achievement is the reading level previously attained. Achievement at the end of kindergarten has a direct bearing on first grade achievement which, in turn, has a direct bearing on reading outcome at the end of second grade (Reynolds, 1991).

Research Approaches: The Need for a Focus on Processes

The need for sophisticated research, focusing more on the complex processes involved in learning to read, has been cited by several researchers. Wasik and Slavin (1993), in an article reviewing one-to-one tutoring programs, noted the need to go beyond measuring program effects in order to better understand how at-risk children learn to read -- an understanding which will require "a far more sophisticated understanding of cognitive and motivational processes activated in tutoring" (p. 198).

The longitudinal early schooling process model developed and tested by Reynolds (1991) represented research which took into account such complex processes and effects. The heuristic model tested included not only first- and second-grade reading and mathematics achievement but also variables including cognitive readiness, prekindergarten experience, motivation, parent involvement, and school mobility. Major research implications identified by Reynolds (1991) were the need for research to "accommodate complex processes of schooling" and the need to use longitudinal models to understand how behaviors form over time and within comprehensive frameworks.

In a review and critique of intervention programs with children raised in poverty, Gallagher (1991) concluded that "there are numerous interactive factors that are influencing the results, and these factors do not interact in the same fashion in different children" (p. 438). Noting the inadequacy of standard randomized-group, experimental-control designs to capture the subtle interaction of variables, he advocated greater emphasis on studying the "*process* by which children gain in their performance level" (p. 438).

Pinnell et al (1994) examined the outcomes of four intervention programs for literacy education of high-risk first graders. Although they found that individual instruction, instructional emphasis, and teacher professional development were all factors

associated with program effectiveness, they also discovered the need to go further:

"Solving the problems related to reading failure in the U. S. may ultimately depend on our willingness to examine programmatic outcomes in ways that take into account the multiple, interacting factors that may mean success for our high-risk students" (p. 36).

These recent observations from scholars examining interventions to prevent early reading failure suggest a growing consensus in favor of research which examines the process and context of schooling, and seeks a more comprehensive understanding of the interaction of multiple variables associated with learning to read.

This study seeks a more comprehensive understanding of multiple variables associated with learning to read and of the process and context of schooling. It focuses on at-risk students and compares and contrasts those who are successful and those who are not. It then examines, retrospectively, the three or four years of school experiences of these students -- their performance, the programs and services provided them, and the reading achievement outcomes. Finally, the study examines the reading assessment and intervention practices of experienced and knowledgeable teachers and explores their views on what is needed to ensure that students learn to read early in their school careers.

PURPOSE OF STUDY

The purpose of this study was to: 1) examine differences in the programs and practices employed in area schools to teach successful and unsuccessful at-risk students; 2) determine relationships among identified problems, reading interventions, and outcomes; and 3) present implications of the study for schools.

Research Questions

Are there specific characteristics that are common to successful and unsuccessful at-risk students?

How are children entering kindergarten identified as at-risk of early reading failure?

How do teachers select literacy interventions and monitor individual student progress?

What interventions or combinations of interventions are associated with the reading achievement of at-risk students?

What are the formal and informal policies/procedures/criteria that guide decisions to refer such students for additional programs and services?

What are the relationships of learning problems identified in kindergarten, interventions implemented, and reading outcomes at the end of grade 2?

METHODOLOGY

Sample Selection

Data were collected from two sources: student records and teacher interviews. Students whose records were analyzed were selected from those who took the second grade Iowa Test of Basic Skills (ITBS) in spring 1996 and were deemed "at risk." Free and reduced lunch status was selected as the primary indicator of risk. A stratified random sampling procedure was used to derive two groups of comparable size: "successful" (defined as having an ITBS reading comprehension score at and above grade level) and "unsuccessful" (defined as having an ITBS reading comprehension score below grade level). The selection procedure yielded a total of 72 "successful" and 75 "unsuccessful" at-risk students. The records of these students were systematically analyzed.

Classroom teachers interviewed were nominated by their principals on the basis of their experience and knowledge about K-2 reading instruction. A total of 41 teachers from 26 schools in three participating school divisions were interviewed. Of teachers interviewed, 11 taught kindergarten, 13 taught first grade, 2 taught K-1 transition classes, 9 taught second grade, 5 taught third grade and 1 taught fourth grade. All of the third and fourth grade teachers had previously taught at the K-2 level.

Data collection

A total of 147 records were analyzed in site visits to 35 schools in three school divisions during a two-month period. The analysis of student records represented a **retrospective analysis** of three or, in many cases, four years of schooling for each

student. Successful and unsuccessful at-risk students were compared on a wide range of variables associated with reading achievement including demographic characteristics, status at kindergarten entry, year-to-year performance, educational programs and services they received, and reading outcomes. The student record review data collection instrument is in Appendix A.

Interviews focused on (a) classroom teacher practices in identifying, assessing, and intervening with students experiencing early reading failure; (b) the nature and adequacy of resources to assist such students; and (c) teacher views on effective programs and strategies. The study team member who planned to interview the teacher usually met the teacher the day of the site visit and gave him or her the interview questions and a letter describing the study. Copies of the teacher interview letter and protocol are in Appendix B. The study team member and the teacher negotiated a time for the interview which was most convenient for the teacher; as a result, both face-to-face and telephone interviews -- many in the evenings and on weekends -- were conducted. Interviews were designed to be brief and to minimize any burden on the teacher. Teachers contacted, however, repeatedly expressed appreciation for the opportunity to share their views. In general, their responses reflected much thought and preparation. Although not required, several submitted detailed written responses.

Data analysis

Data from the review of student records were analyzed using SPSS to yield descriptive statistics. For most variables, comparisons were made between the successful and unsuccessful at-risk students. Data from teacher interviews were analyzed using the constant comparative method (Glaser & Strauss, 1967; Strauss & Corbin, 1990).

RESULTS

A primary arena of inquiry in this study is the comparison of successful and unsuccessful at-risk students. For purposes of the study "successful" students were those reading at and above grade level by the end of second grade and "unsuccessful" students were those reading below grade level as indicated by the ITBS reading comprehension

score. Average ITBS reading comprehension grade equivalent scores for the two groups of students are reported in Table 1. At the end of three or, for many students, four years of schooling, students in the successful group were reading, on average, at the 3.4 grade level and students in the unsuccessful group were reading, on average, at the 1.5 grade level.

Table 1. Reading Outcomes for Successful and Unsuccessful At-Risk Student Groups at the End of Grade 2

Reading Achievement	Successful n=72	Unsuccessful n=75
2nd grade ITBS average reading comprehension scores	3.4	1.5
Range	2.7 to 4.9	1.1 to 2.6

Reflecting the retrospective analysis of these students' years of schooling, the comparisons first focus on their status upon entry to kindergarten, including demographic characteristics, preschool experience, and identified problems. The second set of comparisons of successful and unsuccessful students focuses on performance-related variables including social-emotional maturity, attendance, mobility, and other learner-related characteristics. The third set of comparisons focuses on school interventions experienced by successful and unsuccessful students.

Comparison of Status Upon Entry to Kindergarten of Successful and Unsuccessful At-Risk Students

Demographic Characteristics

The two groups of students were compared on a variety of general demographic characteristics. Results are reported in Table 2. Gender and age at kindergarten entry appeared to make little or no difference. Greater differences were observed in comparisons based on race. African-American students (58.5% of the sample) represented 70.7% of the unsuccessful students. Asian students (2.7% of the sample) and

Caucasian students (37.4% of the sample) represented 4.2% and 47.2% of the successful group, respectively. Having English as a second language was more strongly associated with success than lack of success: of the seven ESL students in the sample, five were in the successful group.

Table 2. Comparison of General Characteristics of Successful and Unsuccessful At-Risk Students

Characteristics		Sample percentage number		Successful percentage number		Unsuccessful percentage number	
Sex	Male	49.3%	73	48.6%	35	50.7%	38
	Female	50.7%	74	51.4%	37	49.3%	37
Race	Caucasian	37.4%	55	47.2%	34	28.0%	21
	African-American	58.5%	86	45.8%	33	70.7%	53
	Hispanic	1.4%	2	2.8%	2	0	
	Asian	2.7%	4	4.2%	3	1.3%	1
	Other	0		0		0	
Age at Kg. Entry		64.51 mos.		64.45 mos.		64.63 mos.	
English as Second Language		4.8%	7	6.9%	5	2.7%	2

Pre-kindergarten experience

Data on pre-kindergarten experience were derived from student records, primarily from kindergarten enrollment forms on which parents were asked to report pre-school programs the child had attended. Such information was not reported in the records of 26.4% of the successful students and 38.7% of the unsuccessful students. No observations or conclusions about the quality of pre-kindergarten experiences could be derived from the data available. Those reported to have attended a pre-school program included those who had been in Head Start, junior kindergarten, and day care programs known to have readiness programs and activities. "Child care only" were typically sitter situations. "No preschool experience" was indicated when parents responded "no" or "none" to questions about their children's pre-kindergarten programs. There was little

difference in the pre-kindergarten experiences of successful and unsuccessful students. Results of the comparison are reported in Table 3.

Table 3. Comparison of Pre-Kindergarten Experiences of Successful and Unsuccessful At-Risk Students.

Pre-kindergarten Experience	Successful		Unsuccessful	
	percentage	number	percentage	number
At least 1 yr. preschool	34.7%	25	32.0%	24
Less than 1 yr. preschool	1.4%	1	--	0
Child care only	13.9%	10	9.3%	7
No preschool experience	23.6%	17	20.0%	15
Not reported	26.4%	19	38.7%	29

Problems identified at kindergarten entry

Data on problems identified by the time the child entered kindergarten were derived primarily from kindergarten screening and school health records. The presence of motor skills or language problems was found to be strongly associated with reading achievement status three or four years later. Overall, successful students had fewer problems than unsuccessful students. In total, 32.4% of successful students had some type of motor or language problem by the time they entered kindergarten and 57.5% of unsuccessful students had such problems. The results of this comparison, excluding students for whom no developmental information was reported, are presented in Table 4.

Table 4. Comparison of Problems Identified at Kindergarten Entry for Successful and Unsuccessful At-Risk Students, Excluding Those Not Reported.

Problems Identified at Kindergarten Entry	Successful		Unsuccessful	
	percentage	number	percentage	number
No problems identified	67.3%	33	42.5%	17
Motor skills problems only	6.1%	3	15.0%	6
Language problems only	14.3%	7	17.5%	7
Motor and language problems	12.2%	6	25.0%	10
Total with identified problem	32.4%	16	57.5%	23

Problems, interventions, and outcomes

Because motor skills and language problems identified by the time students entered kindergarten appeared to be important variables in reading achievement outcomes, the relationships among identified problems, school interventions, and outcomes were further explored. Marked differences were found in rates of retention and special education placement. Of the 50 students for whom no motor skills or language problems were identified, only 1 (or 2%) was retained. Retention rates were 22.2% for those with motor skills problems, 57.1% for those with language problems, and 37.5% for those with both motor skills and language problems. Placement in special education was at a rate of 12% for those with no problems, 22.2% for those with motor skills problems, 71.4% for those with language problems, and 56.3% for those with both motor skills and language problems. Only the group of students who had no problems had reading achievement which averaged above grade level at the end of grade 2. Comparisons of problems identified at kindergarten, retention, special education placement, unsuccessful status, and reading achievement outcomes are reported in Table 5.

Table 5. Comparisons of Identified Problems at Kindergarten, Retention, Special Education Placement, Unsuccessful Status, and Reading Achievement.

Problems Identified at Kindergarten Entry	Retained	Placed in Special Education	Unsuccessful	Reading Achievement
No problems identified (n=50)	2.0%	12%	34%	3.0
Motor skills problems only (n=9)	22.2%	22.2%	67%	2.3
Language problems only (n=14)	57.1%	71.4%	50%	2.4
Motor and language problems (n=16)	37.5%	56.3%	62.5%	2.3
Not reported (n=58)	29.3%	22.4%	60.3%	2.3

Performance-Related Comparison of Successful and Unsuccessful At-Risk Students

Performance-related comparisons of successful and unsuccessful students focus on

learner variables including K-2 social-emotional maturity, K-2 attendance, mobility, and learner attentional and medical problems.

Social-emotional maturity

Social-emotional maturity data were derived from report card ratings and comments about conduct and study skills. Year-to-year performance for each student was analyzed to determine the presence or absence of problems in conduct, study skills, or both conduct and study skills. Conduct and study skills problems were judged to be present when multiple negative ratings and/or teacher comments about conduct and/or study skills were present on the student's report card. Successful students were more likely to have no problems reported in kindergarten, 1st, and 2nd grades. Interestingly, in grades 1 and 2 conduct problems were slightly more prevalent in successful students. In grades 1 and 2 study skills problems and combinations of conduct and study skills problems were more common among unsuccessful students. Reports of social-emotional maturity comparisons, by grade levels, are reported in Table 6.

Table 6. Comparison of Social-Emotional Maturity in Successful and Unsuccessful At-Risk Students.

Social/Emotional Maturity		Successful percentage	Successful number	Unsuccessful percentage	Unsuccessful number
Kindergarten	No problems recorded	68.1%	49	62.7%	47
	conduct problems only	5.6%	4	9.3%	7
	study skills problems only	8.3%	6	8.0%	6
	both conduct and study skills problems	13.9%	10	14.7%	11
	information not available	4.2%	3	5.3%	4
Grade 1	No problems recorded	56.9%	41	48.0%	36
	conduct problems only	6.9%	5	4.0%	3
	study skills problems only	18.1%	13	24.0%	18
	both conduct and study skills problems	16.7%	12	24.0%	18
	information not available	1.4%	1	--	0
Grade 2	No problems recorded	65.3%	47	41.3%	31
	conduct problems only	4.2%	3	2.7%	2

Social/Emotional Maturity	Successful		Unsuccessful		
	percentage	number	percentage	number	
study skills problems only	13.9%	10	34.7%	26	
both conduct and study skills problems	16.7%	12	20.0%	15	
information not available	--	0	1.3%	1	
Repeat Grade (n=34)	No problems recorded	50.0%	4	61.5%	16
	conduct problems only	25.0%	2	3.8%	1
	study skills problems only	14.3%	1	15.4%	4
	both conduct and study skills problems	--	0	15.4%	4

Attention and medical problems

Both attention problems and medical conditions have been found to affect student performance. Two categories were created to reflect attention-related information: ADD (Attention Deficit Disorder) "described" and ADD "diagnosed." Categorization as "ADD described" required information, such as teacher comments, which described a pronounced pattern of attentional difficulties. "ADD diagnosed" required confirmation of a medical diagnosis. Attentional problems were found to be slightly more prevalent in the unsuccessful student group: a total of 36% of unsuccessful student and 26.4% of successful students had attentional problems either described or diagnosed. Medical problems, however, were more prevalent in successful students. Most conditions were allergy- and asthma-related. Results of these comparisons are reported in Table 7.

Table 7. A Comparison of Attention and Medical Problems of Successful and Unsuccessful At-Risk Students

Other learner characteristics	Successful		Unsuccessful	
	percentage	number	percentage	number
ADD described	16.7%	12	24.0%	18
ADD diagnosed	9.7%	7	12.0%	9
Other medical problem identified	9.7%	7	6.7%	5

Attendance

Little difference was found in the attendance of successful and unsuccessful students. Successful students had slightly better attendance in kindergarten and in grade 2. Unsuccessful students, however, had better attendance in grade 1. Results of these comparisons are reported in Table 8.

Table 8. A Comparison of K-2 Attendance of Successful and Unsuccessful At-Risk Students

Attendance		Successful		Unsuccessful	
		percentage	number	percentage	number
Kindergarten absences	< 10 da.	63.9%	46	56.0%	42
	11 to 20 da.	22.2%	16	30.7%	23
	21 to 35 da.	13.9%	10	12.0%	9
	> 36 da.	--	0	1.3%	1
Grade 1 absences	< 10 da.	65.3%	47	66.7%	50
	11 to 20 da.	27.8%	20	24.0%	18
	21 to 35 da.	6.9%	5	6.7%	5
	> 36 da.	--	0	2.7%	2
Grade 2 absences	< 10 da.	83.3%	60	76.0%	57
	11 to 20 da.	15.3%	11	21.3%	16
	21 to 35 da.	--	0	--	0
	> 36 da.	1.4%	1	1.3%	1
Repeat grade absences (n=34)	< 10 da.	75.0%	6	42.3%	11
	11 to 20 da.	12.5%	1	34.6%	9
	21 to 35 da.	12.5%	1	11.5%	3
	> 36 da.	--	0	3.8%	1

Mobility

Another issue found in previous studies to affect performance is mobility (Kellam et al., 1975). Data on mobility were derived from enrollment, withdrawal, and transfer information in the students' records. Moves associated with the opening of a new school,

where students move with classmates, were not considered moves for the purpose of this study. Although unsuccessful students were more likely to have moved once, successful students were more likely to have moved twice. Ultimately, little difference was found.

Mobility, however, was found to be strongly associated with unsuccessful students not receiving additional assistance in reading. Seven unsuccessful students were found to have received no additional, beyond-classroom assistance in reading from kindergarten through grade 2. Of the seven, five had moved once. From the analysis of mobility there emerged no clear pattern to associate mobility with successful or unsuccessful outcomes. Mobility, however, was found to be associated with unsuccessful students not receiving additional, beyond-classroom reading intervention. Results of mobility comparisons are reported in Table 9.

Table 9. Comparison of Mobility in Successful and Unsuccessful At-Risk Students.

Mobility	Successful		Unsuccessful	
	percentage	number	percentage	number
No moves	54.2%	39	52.0%	39
1 move	27.8%	20	37.3%	28
2 moves	16.7%	12	10.7%	8
3 or more moves	--	0	--	0
Data missing	1.4%	1	--	0

Comparison of School Interventions Used with Successful and Unsuccessful At-Risk Students

The third set of comparisons of successful and unsuccessful at-risk students focuses on school interventions experienced by successful and unsuccessful students during their three or four years in school. Here the focus shifts from learner characteristics and performance to the ways that schools responded to student learning needs. Retention, special education referral and placement, and additional reading-related interventions will be examined.

Retention

Retention is a typical school response to unsatisfactory progress. Unsuccessful

students in this study were three times as likely to have been retained as successful students. A total of 8, or 11.1% of the 72 successful students had been retained while 26, or 34.7% of the 75 unsuccessful students experienced retention. There were no marked differences in the grade levels at which the retentions occurred for the two groups. Results of retention comparisons are reported in Table 10.

Table 10. Comparison of Retentions of Successful and Unsuccessful At-Risk Students

Retention	Successful (n=8)	Unsuccessful (n=26)
Total retained	8 11.1% of 72	26 34.7% of 75
Retained in kindergarten	3	11
Retained in Grade 1	4	12
Retained in Grade 2	1	3

Special education referrals and placements

Referral for special education consideration and placement, when eligible, are also common for students who are having difficulty learning to read. In this study referral for special education was made for 25% of the successful students and for 49.3% of the unsuccessful students. This high rate of referral, even for successful students, reflects the high risk status of the study sample. Both groups experienced comparable placement rates: of the 18 successful students referred, 13 (or 72%) were placed in special education; of the 37 unsuccessful students referred, 27 (or 73%) were placed in special education.

Placements in special education were most frequently made in speech/language and learning disabilities programs. Results of comparisons of special education referrals and placements are reported in Table 11.

Table 11. Comparison of Special Education Referrals and Placements of Successful and Unsuccessful At-Risk Students.

Special Education	Successful		Unsuccessful	
	percentage	number	percentage	number
Referred for special education	25.0%	18	49.3%	37
Placed in special education	18.1% of total 72% of those referred	13	36% of total 73% of those referred	27
Special education placements by categories*	Successful percentage of total 72		Unsuccessful percentage of total 75	
Speech only	2.7%	2	1.3%	1
Speech/language	8.3%	6	16%	12
Learning disability (LD)	4.2%	3	12%	9
Emotionally handicapped (EH)	--	0	1.3%	1
Mentally handicapped (MH)	--	0	1.3%	1
Other health impaired	1.4%	1	4.0%	3
Occupational therapy (OT)	1.4%	1	--	0
Preschool/developmentally delayed (PEDD)	--	0	4.0%	3**

* totals more than number of students placed in special education because 3 students qualified for more than one category.

** Of the three in PEDD, 2 were subsequently placed in LD programs and 1 was placed in a speech/language program.

A comparison of the grade levels at which special education placements were made for successful and unsuccessful students revealed marked differences. Access to special education services was much earlier for successful than for unsuccessful students: 61.5% of successful students received services as early as kindergarten while only 25.9% of unsuccessful students received special education services as early as kindergarten. In this case, better outcomes are clearly associated with earlier, more individualized intervention. Results of the comparisons by grade of special education placement are reported in Table 12.

Table 12. Comparison of Grade of Special Education Placement of Successful and Unsuccessful At-Risk Students.

Special Education Placements by Grade of Placement	Successful percentage	n=13 number	Unsuccessful percentage	n=27 number
Kindergarten	61.5%	8	25.9%	7
Grade 1	15.4%	2	33.3%	9
Grade 2	15.4%	2	29.6%	8
Grade 3	7.7%	1	7.4%	2
Repeat grade	--	0	3.7%	1

Additional reading-related interventions

Here the focus narrows to look specifically at reading-related interventions, above and beyond instruction within the classroom by the classroom teachers. Reading-related programs were considered to be "additional" if they were not provided universally. For example, Writing to Reading was not considered an additional reading intervention if it had been provided to every student in a class or a grade level. If, however, Writing to Reading had been part of a set of interventions designed to address the needs of an individual student then it was considered "additional." Special education services were considered "additional" if reading was addressed in the Individual Educational Program (IEP). Among the most commonly identified reading interventions, other than special education, were Title I, PRIME, Reading Resource, Reading Recovery, Writing to Read, and individualized computer assisted instruction.

When reading interventions were examined for all years that students had been in school, it was found that 90.7% of unsuccessful students had received some type of additional reading-related assistance at some point in their school careers. Sixty-one percent had received additional assistance during two or more years. Conversely, nearly 10% of the unsuccessful students had received no additional, reading-related assistance in three or four years in school and nearly one-third had received additional assistance in only one year of their schooling although it is likely that, for most, reading deficits were present every year. Results of comparisons of reading-related interventions are reported in Table

13.

Table 13. Comparison of Reading-Related Interventions Provided Successful and Unsuccessful At-Risk Students During their School Careers

Additional, Reading-Related Interventions	Successful Students		Unsuccessful Students	
	percentage	number	percentage	number
Received additional beyond-classroom interventions	36.1%	26 of 72	90.7%	68 of 75
Did not receive additional beyond-classroom interventions	63.9%	46 of 72	9.3%	7 of 75

Limitations in assessing year-to-year reading progress

Data currently maintained in the students' records do not reliably reflect specific reading achievement or progress. Much effort was devoted in the framework of this study to an attempt to identify indicators of efficacy of various reading programs and practices. The absence of standardized tests before 2nd grade was a known obstacle to establishing baselines for comparison. Record reviews, however, revealed a number of different practices for recording and reporting individual student progress in reading. Student records contained 1) checklists on which language arts skills mastery could be reported, 2) cards listing reading programs (classroom, remedial and enrichment), and 3) report cards which typically listed the reading instructional level for each reporting period. In one school student records contained K-1 "Emergent Literacy Assessments" which reported mastery of identified skills in several domains. Despite the presence of such reading-related data in each student record, significant problems were encountered in attempting to gauge the year-by-year reading progress of students whose records were reviewed. Among these problems were inconsistencies in the use of terminology. For example, "reading levels" reported in some records reflected the level at which the class was being instructed and in other records indicated the level at which the student was judged to be performing. Additionally, within individual records, reading levels reported were in some cases not supported by subsequent testing. Lack of consistency in the use of terminology suggested a lack of clarity in reading/literacy concepts. The inconsistencies in

the ways reading achievement is gauged and progress recorded precluded findings or conclusions about the relative efficacy of current programs and practices.

School Characteristics

School size and socioeconomic status (SES) have, in some studies, been found to be associated with reading achievement (Kennedy et al., 1986b). In this study which focused on lower socioeconomic status students, lower SES schools were likely to be over-represented in the sample. School characteristics and the prevalence of successful and unsuccessful students are reported in Table 14.

Table 14. Size and Socioeconomic Status of Schools Attended by Successful and Unsuccessful At-Risk Students

School Enrollment	Schools percentage number	Successful students percentage number	Unsuccessful students percentage number
< 300	5.7% 2	1.4% 1	2.7% 2
301-450	40% 14	22.2% 16	37.3% 28
451-600	31.4% 11	43.1% 31	25.3% 19
> 600	22.9% 8	33.3% 24	34.7% 26
Percent of Students Eligible for Free/ Reduced Price Lunch	Schools percentage number	Successful percentage number	Unsuccessful percentage number
< 15%	22.9% 8	12.5% 9	10.7% 8
16% to 40%	51.4% 18	38.9% 28	38.7% 29
41% to 69%	20% 7	43.1% 31	37.3% 28
> 70%	5.7% 2	5.6% 4	13.3% 10

Assessment Practices

Identifying early reading failure

Inquiry into assessment practices relied primarily on teacher interviews. When asked to describe the primary indicators that a student was having difficulty learning to read, classroom teachers described a variety of behaviors. When analyzed, the indicators cited fell into several categories. The types of indicators described, in order of frequency,

were as follows:

- a) *sound-symbol relationship problems* characterized by failure to associate printed word with spoken language, inability to hear and distinguish sounds that letters make, and no sight word recognition;
- b) *general readiness problems* (more likely to be cited by kindergarten teachers) such as not knowing letters, numbers, shapes, colors, or names of many common objects;
- c) *language deficits* characterized by a weak grasp of language concepts such as over and under or below and above, and difficulty listening and comprehending directions;
- d) *reading strategies deficits* (more likely to be cited by first and second grade teachers) such as not attempting to decode words, no grasp of context clues, and looking to the teacher for help rather than attempting to read independently; and
- e) demonstrating *little interest in or avoidance of reading-related activities* during free time or when given a choice of activities. (“shrinking violets from the start”)

Formal and informal methods of assessment

When asked about both formal and informal methods used to assess student reading difficulties and to monitor student progress, teachers described a broad range of practices. Teacher descriptions of assessment practices could be categorized as informal, quasi-formal, and formal. Informal practices included "kid-watching" during instruction and during free time to observe understanding of language and quality of responses. Examination of work samples and observations by specialists (prior to an official "referral") were other "informal" practices. Quasi-formal assessments included kindergarten screening, running records, and the informal use of formal assessment tools. Formal assessment ranged from use of reading inventories and structured assessments by classroom teachers to evaluations by reading specialists (often as part of the eligibility for reading programs) to the most formal, comprehensive evaluation associated with special education consideration.

Discussion of assessment revealed several important findings:

1. Where policies and procedures for systematic assessment of student reading had not been established, discomfort with current practice was expressed. The

assessments were considered "too subjective."

2. Use of school- and school division-approved inventories and/or structured assessments were strongly supported by teachers interviewed.
3. Benefits of additional guidance and structure in the area of assessment and ongoing monitoring of progress were seen to include (a) increased use of diagnostic-prescriptive approaches, (b) improved monitoring of student progress, and (c) improved documentation of teacher efforts.

Although teachers expressed the desire for additional guidance and structure around assessment, they were also very clear in their desire to retain latitude to exercise their professional judgement on selection of instructional strategies and materials. Many expressed gratitude that their school divisions had not prescribed a single reading program.

Several teachers interviewed had recently participated in an in-service training program on primary reading assessment being conducted in one of the participating school divisions. Teachers were very pleased with the program which had provided them with both the training and the tools to conduct structured reading assessments.

Reading Intervention Practices

Initial classroom strategies

When asked what instructional strategies they have typically employed within their classrooms when they have detected a child who was having difficulty learning to read, all but two of the forty-one teachers interviewed described efforts to *individualize* instruction. Typically one-on-one instruction was provided either by the teacher, a tutor, or an instructional aide. The use of small *reading groups* was also widespread. Of fifteen teachers who described the types of reading groups they used, five used heterogeneous groups and ten used homogeneous groups.

Many teachers described *diagnostic-prescriptive approaches* using tools such as flashcards and word exercises and materials carefully selected to address identified "gaps" in learning. Several teachers described detailed sequential processes that involved

teaching sounds and sound blends as well as strategies such as sentence patterns, discrimination of sound sequences, directional learning, scanning for letters and clusters in words, use of clues from different sources, and alternative strategies after an incorrect response.

Other frequently cited strategies teachers used when students had difficulty learning to read included efforts to enlist more *parental involvement* in reinforcing learning. Teachers reported sending work packets of flashcards and other materials home with students and asking parents to work with students in practicing skills. Data from records did not reflect either quality or level of parent involvement; therefore, no observations or group comparisons based on parent involvement could be derived.

Teachers interviewed appeared to be very aware of the current “phonics” versus “whole language” debate and, without prompting or specific inquiry about the issue, many volunteered their own views on the matter. All who made reference to the debate cited the *need to use both phonics and literature-based approaches* and offered examples of strategies using both. Their examples suggested the acquisition of phonics skills as a prerequisite for engaging in literature-reading. Because teachers were nominated by their principals, it is unlikely that teachers with extreme views would have been selected for interview.

Resources available for teachers

Resources reported to be available to support the teacher in her/his efforts to address early reading failure in students ranged from materials, to informal colleague consultation, to more formalized assistance from specialists, to the availability of in-service training and college courses. Teachers generally reported a wealth of materials available to them either within their classroom or from other sources in the building. The most frequently used informal source of supportive consultation was other classroom teachers. Also cited as supportive resources were general resource teachers, guidance counselors (primarily when there are socio-emotional issues), the principal, and special education and Title I teachers. “Teacher advisory teams” were reported to be available on a regular basis in only three schools. Such teams provide consultation to teachers on instructional strategies to address individual learner needs. Child study teams were cited by a majority

of teachers but were often seen "as a last resort" or to be used only when problems were very severe and pervasive and/or when it was thought the student might be eligible for special education.

Programs and services for students

Teachers reported and records revealed a broad range of programs and services available to students who were having difficulty learning to read. These ranged from in-classroom resources such as tutors and instructional aides to reading intervention programs (Title I, PRIME, Reading Recovery, etc.) to learning opportunities outside the regular school day (after-school, Saturday, and summer school sessions). Also observed were other practices which directly affected reading instruction. These included multiage classes, looping, extended school days, team teaching, and innovative scheduling which expanded the availability of Reading Recovery services in one school. Key observations about the programs and their availability to students are reported in the Summary and Conclusions section.

Effective practices

Teacher views on effective reading practices revealed strong consensus for "balanced approaches" employing both phonics and literature-based strategies. Selected teacher comments reflecting views about what is effective included the following:

- "Blend of strategies. Whole language with basic phonics."
- "Combination of strategies based on individual student needs."
- "Requires skillful use of appropriate intervention strategies."
- "Multifaceted approach (beyond basal), blending phonics and whole language."
- "Many different students needs demand both."
- "Whatever works best for the individual child should be used."
- "Flexibility is the best strategy."
- "KNOWING needs of child; then USING all appropriate tools available."

Elements of effective practice identified by teachers included 1) multiple strategies, 2) individualized to student needs, and 3) which have been accurately assessed.

When asked what they need to help students learn to read before they leave 2nd grade, classroom teachers identified the following, in order of frequency,

1. smaller class sizes,
2. instructional aides,
3. training to strengthen diagnostic skills and use of appropriate interventions,
4. lessening of competing curricular demands, and lessening of emphasis on grades, and
5. support for continuous progress.

Upon closer examination, teacher recommendations have in common a concern about the amount of time available to work with students who are having difficulty learning to read. Some teachers saw smaller class sizes as a solution. Others saw instructional aides as a means of creating more time for individual and very small group instruction. Similarly, lessening competing curricular demands, particularly in kindergarten and 1st grade, were seen as allowing more time and greater focus to the teaching of reading.

SUMMARY AND CONCLUSIONS

Unsuccessful students compared unfavorably to successful students on a variety of variables associated with reading achievement in the research literature. African-American students were over-represented in the unsuccessful group, Asian and caucasian students were over-represented in the successful group. Although no notable differences were found in pre-school experience and age, motor skills and language problems were found to be strongly associated with retention, special education placement, and poor reading achievement at the end of 2nd grade. The strong association of motor skills and language problems with negative outcomes suggests the need to recognize such problems as significant risk indicators for early reading failure and to consider programmatic responses to such indicators.

Students in the successful group, in general, had fewer conduct and study skills problems. Interestingly, in grades 1 and 2 conduct problems were slightly more prevalent in successful students while in grades 1 and 2 study skills problems and combinations of conduct and study skills problems were more common among unsuccessful students.

Differences between the two groups became more marked by 2nd grade when study skills problems were over 2 ½ times more prevalent among unsuccessful students. This pattern suggests study skills problems as a more significant indicator than conduct problems of risk for reading failure .

Mobility was not found to be associated with reading achievement, but was found to be strongly associated with not receiving additional reading assistance among unsuccessful students. This finding suggests that students with reading deficits who move are more likely to experience a lack of continuity in academic assistance. Contributing to the lack of continuity may also be the pattern of availability of assistance in schools. Findings about the availability of assistance are discussed below.

As expected, unsuccessful students were found to have markedly higher rates of retention and referral to and placement in special education. Access to special education services was much earlier for successful students: 61.5% received services in kindergarten compared to only 25.9% of unsuccessful students. Better outcomes were found to be very strongly associated with earlier, more individualized intervention. This finding is consistent with studies supported by the National Institute of Child Health and Human Development which stress the importance of early, strategic intervention and avoidance of “wait to fail” special education eligibility policies (Stanovich, 1991; Lyon, 1995).

Teachers rely primarily on informal methods to detect and assess reading difficulty and monitor progress in students. Teachers expressed strong support for the use of school- or school division-approved inventories or structured assessments. Where such procedures were not in place, teachers expressed discomfort with practices which they deemed “too subjective.” The use of more structured assessments was viewed as beneficial in increasing use of diagnostic-prescriptive approaches, improving monitoring of progress, and improving documentation of efforts. While expressing the desire for more guidance and structure in assessment and ongoing monitoring of student progress, classroom teachers clearly wish to retain latitude to exercise professional judgement in the selection of instructional strategies and materials. The needs perceived by teachers in this study are consistent with those in a study by Moats (1994) who found that 89 experienced teachers of reading and language arts, and special education teachers, whom she studied

understood too little about language structure to provide sufficient instruction. The teachers subsequently took a course in phonemic awareness, spoken-written language relationships, and spelling and reading behavior and judged the information essential for teaching. Similar to teachers in the Moats (1994) study, teachers in this study who had participated in an in-service training program on structured assessment of reading had judged the training to be both important and useful in their work with students who have difficulty learning to read. From teachers' perceived need for training and tools to assess and strategically address student reading problems, and the very favorable response to one school division's efforts in this area, it can be concluded that these are areas ripe for policy development and training.

Classroom teachers report and advocate using a "balanced" approach to teaching reading, using both phonics and literature-based strategies. Strong consensus exists among classroom teachers that effective reading instruction must be 1) balanced, and 2) based on individual student needs. Such views are consistent with recent views of researchers (Felton, 1992; Lyon, 1996; Adams, 1995).

Generally positive teacher views on the adequacy and effectiveness of current resources to address early reading failure suggest the need for enhancements, refinements, and innovation rather than significant reform. Low teacher ratings at both high and low socioeconomic status (SES) schools reflect some misalignment of demands and resources. At high SES schools, relatively fewer students need additional services but there are fewer types of services available. At low SES schools there are many more types of services available but the relative number of students who need additional help is much higher. These patterns of demands and resources suggest the need for flexibility and innovation to enhance capacity (particularly at low SES schools) and variety of forms of assistance (particularly at high SES schools).

The kinds of assistance received by students in this study was, in large measure, a function of what was available at their school. Although over 90% of the unsuccessful students received some type of additional reading assistance and 61% received additional assistance for two or more years, nearly 10% received no additional assistance and one-third received additional, beyond-classroom reading assistance in only one of their three or

four years in school. These findings suggest a fragmented system of service delivery in which a child in need of assistance may have additional help available one year and not the next.

The primary observation about programs and services for students who are having difficulty learning to read is that the type of assistance students get are, in large measure, a function of what is available in their schools. In examining patterns of services and resources provided to students, one school was notable: in that school, every student in the sample had received additional reading assistance multiple years and the unsuccessful students had received additional assistance every year they had been in school.

Additionally, during the site visit, several practices were found which appeared to contribute to the continuity of reading assistance provided. First, it was observed that there were multiple programs and services available. The school had not only Title I services, Writing to Read, Reading Recovery, a language arts program, computer-assisted reading instruction, and the Accelerated Reading Program, but also offered after-school and Saturday tutorial assistance as well as summer school. Several classroom teachers had been trained in Reading Recovery and, through creative scheduling, these teachers provided the program for additional students, thus, increasing the capacity of the Reading Recovery Program. Also, at this site there was systematic use of a structured reading inventory which was administered at least twice each year to every student and more frequently with students experiencing difficulty learning to read. The presence of these conditions clearly contributed to the continuity of assistance provided to students who were having difficulty learning to read. Although year-to-year progress in reading could be tracked for students at that school, comparisons with comparable students in other schools could not be conducted due to limitations in the data available.

RECOMMENDATIONS

Findings and conclusions from this study were reviewed by the study advisory group and the following recommendations were developed:

1. Strengthen teacher skills in the assessment of reading problems and use of effective strategies to address identified deficits.
2. Establish policies and practices which provide more structured assessments of student reading and establish protocols for monitoring progress and modifying instruction on an ongoing basis.
3. For students who are having difficulty learning to read, increase the amount of time available for instruction in one-to-one or very small group settings.
4. Promote innovation in the use of resources and scheduling of time to increase the both the types of services available and the duration of these services for students.

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Appendix A: Student Record Review Data Collection Instrument

**MERC Early Literacy Intervention Study
STUDENT RECORD REVIEW**

STUDENT ID	_____	
SCHOOLSSES	_____	1 = \leq 15% free lunch 2 = 16% to 40% 3 = 41% to 69% 4 = \geq 70%
GROUP	_____	1 = high (grade level & above) 2 = low (1 yr. below grade level)
DATE OF BIRTH	_____	
		dd/mm/yy
SEX	_____	1 = female 2 = male
RACE	_____	1 = Caucasian 2 = African-American 3 = Hispanic 4 = Asian 5 = Other (specify) _____
AGE AT KG ENTRY	_____	
		yr/mo
PREKINDERGARTEN EXPERIENCE	_____	1 = at least 1 yr preschool (developmental/academic) 2 = < 1 yr preschool 3 = child care only 4 = no preschool experience 9 = not reported
KINDERGARTEN SCREENING	_____	1 = no problems identified 2 = problems in motor skills only 3 = problems in language skills only 4 = both motor and language skills problems identified 9 = not reported
SOCIAL/EMOTIONAL MATURITY - KINDERGARTEN	_____	1 = no problems 2 = conduct problems only 3 = study skills problems only 4 = both conduct & study skills problems identified 9 = information not available
SOCIAL/EMOTIONAL MATURITY - GRADE 1	_____	1 = no problems 2 = conduct problems only 3 = study skills problems only 4 = both conduct & study skills problems identified 9 = information not available

SOCIAL/EMOTIONAL
MATURITY - GRADE 2

- _____ 1 = no problems
 _____ 2 = conduct problems only
 _____ 3 = study skills problems only
 _____ 4 = both conduct & study skills
 problems identified
 _____ 9 = information not available

SOCIAL/EMOTIONAL
MATURITY - REPEAT GRADE

Grade repeated _____

- _____ 1 = no problems
 _____ 2 = conduct problems only
 _____ 3 = study skills problems only
 _____ 4 = both conduct & study skills
 problems identified
 _____ 9 = information not available

MOBILITY

- _____ 1 = same school k-2
 _____ 2 = 1 move
 _____ 3 = > 1 move

RETAINED

- _____ 1 = no
 _____ 2 = yes

ATTENDANCE

KG _____
 GR 1 _____
 GR 2 _____
 GR R _____

- 1 = ≤ 10 da. absent
 2 = 11 to 20 da. absent
 3 = 21 to 35 da. absent
 4 = ≥ 36 da. absent

ATTENTION DEFICIT DISORDER

Described _____
 Diagnosed _____

- 1 = no
 2 = yes

OTHER MEDICAL PROBLEMS (List) _____

ENGLISH AS A SECOND LANGUAGE _____

- 1 = no
 2 = yes

READING PROGRAM & LEVEL

KINDERGARTEN _____

GRADE 1 _____

GRADE 2 _____

REPEAT GRADE _____

SPECIAL EDUCATION
REFERRAL

- 1 = no
 2 = yes

If yes, grade referred: _____

SPECIAL EDUCATION

- 1 = no
 2 = yes

If yes, grade placed: _____
 Category: _____

OTHER SCHOOL INTERVENTIONS/SPECIAL PROGRAMS/SERVICES

1. _____
 2. _____

OTHER COMMUNITY INTERVENTIONS/INVOLVEMENT

1. _____
 2. _____

Appendix B: Teacher Interview Protocol and Accompanying Letter to Teachers

Teacher Interview Protocol

School _____

Date _____

1. In general, as you observe students in your class each year, what are the primary indicators to you that a particular child is having difficulty learning to read?
2. Once you detect that a particular child is having difficulty, what initial instructional strategies do you typically employ within your classroom?
3. How do you assess progress students make in learning to read? Tell me about both the informal and formal methods you use.
4. What resources are available to you, the teacher, which support your efforts to teach students who have difficulty learning to read?
5. What resources are available which provide direct assistance to students having difficulty learning to read?
6. Focusing on students who are having difficulty learning to read, how would you judge the effectiveness of resources available in your school to assist them?

Select one:

- _____ Very adequate; effective with almost all students
- _____ Adequate; effective with most students
- _____ Marginally adequate; effective with some students
- _____ Inadequate; effective with few students
- _____ Very inadequate; effective with almost no students

7. Based on your experience with reading programs and instructional strategies, which do you think are most effective?
8. What do classroom teachers need in order to help students learn to read before they leave 2nd grade?

[MERC Letterhead]

Dear Teacher:

The Metropolitan Educational Research Consortium (MERC) is an organization created by Richmond-area school divisions and Virginia Commonwealth University for the purpose of studying important educational issues and providing information designed to improve teaching and learning. We are currently taking a closer look at the educational strategies which help students learn to read in their early years of schooling. The study involves reviewing the school records of selected students and talking with selected teachers about the strategies they use to teach students to read.

You have been nominated by your principal as a teacher knowledgeable about your school's resources and approaches to teaching students to read. We would like to schedule with you a time to discuss 1) strategies that you use in teaching your students to read and 2) your general views and observations about early reading intervention. The interview should take approximately 15 to 20 minutes to complete and can be conducted in person or by telephone. Your responses to the interview are confidential and no information which identifies you will be used.

The observations and insights of classroom teachers are an important component of this study and we very much appreciate your sharing your perspectives with us. If you have questions or would like additional information please don't hesitate to call me at (804) 828-0478 or (804) 323-6387.

Sincerely,

Anne J. Atkinson, Ph.D.
Principal Investigator

ANNOTATED BIBLIOGRAPHY

Adams, M. J. (1990). Beginning to read: Thinking and learning about print. Cambridge, MA: The MIT Press.

This book provides a comprehensive review of the phonics vs whole language debate, argues that the debate need not continue, and offers alternative instructional alternatives using the "new connectionist" theory. The author analyzes the knowledge and processes required for skillful reading and their instructional implications, and proposes that phonics and whole language can work together.

Adams, M. J. and Bruck, M. (1995). Resolving the "great debate." American Educator 19 (2), 7,10-20.

This article advocates a "balanced approach" to reading instruction. The authors argue that research supports the central role of decoding in reading and that whole language advocates are wrong when they equate learning to read with learning to talk and when they view decoding as only an incidental part of the curriculum.

Alexander, K. L. and Entwisle, D. R. (1988). Achievement in the first 2 years of school: Patterns and processes. Monographs of the Society for Research in Child Development, 53(2, Serial No. 218).

This report examines longitudinal data on the cognitive performance of a large and diverse sample of Baltimore City Public School students in grades and the home and school factors which either help or hinder their adaptation to school.

Baydar, N. (1994). Early warning signs of functional illiteracy: Predictors in childhood and adolescence. National Center on Adult Literacy Washington, DC: Office of Educational Research and Improvement.

This paper reports data from a 20-year longitudinal study of 125 males and 126 females born to Black teenage mothers in a Baltimore hospital between 1966 and 1968. Data were analyzed to identify early childhood, middle childhood, and early adolescent determinants of functional literacy. The study's "most compelling finding" was that cognitive and behavioral development measured in early childhood served as "powerful predictors" of young adult literacy.

Bempechat, J. And Ginsburg, H. P. (1989). Underachievement and educational disadvantage: The home and school experience of at-risk youth. Urban Diversity Series No. 99. Washington, DC: Office of Educational Research and Improvement.

This article discusses the demographic factors associated with educational disadvantage and school failure, and the educational programs and practices that appear to be effective in increasing the cognitive development of high risk students. Among factors discussed are poverty status, race, family characteristics, parent education, and language minority status. Educational strategies examined are school-based compensatory programs, school-wide reform

and community based approaches, parent participation, and instructional approaches. The author identifies the need for more refinement in the definition and measurement of risk factors and the use of ethnographic research methods.

Campbell, F. A. and Ramey, C. T. (1995). Cognitive and school outcomes for high risk African-American students at middle adolescence: Positive effects of early intervention. American Educational Research Journal, 32 (4), 743-772.

This article reports on a longitudinal study of students from low-income families. Seven to ten years after preschool and early elementary educational intervention long-term intellectual and academic benefits were found. Students who had preschool intervention scored significantly higher on individually administered tests of reading and mathematics and had a lower rate of retention and special education placement. The authors stress the importance of early childhood intervention for at-risk students.

Clay, M. M. (1985). The early detection of reading difficulties. Exeter, NH: Heinemann.

This book, written for teachers and administrators, provides a comprehensive summary of the entire Reading Recovery program. Part 1 includes a description of systematic observation, use of the diagnostic survey including the "running record" and test instruments. Part 2 focuses on issues related to implementation of Reading Recovery.

Dubow, E. F. And Ippolito, M. F. (1994). Effects of poverty and quality of home environment on changes in the academic and behavioral adjustment of elementary school children. Journal of Clinical Child Psychology, 23, 401-412.

This article reports findings from a study of 473 children who completed an academic achievement measure in 1986, when they were 5 to 8 years of age, and again in 1990. Their mothers provided ratings of their behavior at the same points in time. Quality of the home environment was found to predict positive changes in adjustment.

Felton, R. H. (1992). Early identification of children at risk for reading disabilities. Topics in Early Childhood Special Education, 12 (2), 212-229.

This article focuses on the accurate identification of children who are at-risk of early reading failure. It reports on a study of 221 children in which 19 possible kindergarten predictors of early reading failure were examined. Of the 19, only rapid letter naming, beginning sound discrimination, and auditory conceptualization predicted reading outcome. The findings support use of phonological processing tests as initial screening measures to identify children who might require more specialized assessment.

Gallagher, J. J. (1991). Longitudinal interventions. American Behavioral Scientist, 34(4), 431-439.

The author reflects on the past quarter century of social science research on children raised on poverty and the role of politics in setting unrealistic expectations of the effectiveness of interventions. Citing the complexity of human intelligence and the subtle interactions of

individuals and interventions, Gallagher notes inadequacy to reveal complex realities of research based on randomized-group, experimental-control designs and argues for a “more qualitative research design with an emphasis on the perceptions of those involved and the use of case studies with successful children and families to determine the mix of factors leading to success.”

Glaser, B. And Strauss, A. (1967). The discovery of grounded theory. Chicago: Aldine.

This is a classic text on qualitative research. It includes the rationale for use of qualitative approaches and specific methods of analysis in the development of grounded theory.

Kameenui, E. J. (1995). Effective strategies for teaching beginning reading. Washington: Office of Special Education Programs (U. S. Department of Education).

This guide offers specific instructional strategies for teach phonological awareness. The importance of the early reading environment and of teaching sounds and then words is stressed.

Kennedy, M. M., Jung, B. E. and Orland, M. E. (1986). Poverty, achievement, and the distribution of compensatory education services. Washington, DC: Office of Educational Research and Improvement, U.S. Department of Education.

This report is part of a comprehensive evaluation of Chapter I. It summarizes a wide range of demographic information about the students whom the program targets. The report examines the operation of Chapter I programs and the relationship between poverty and achievement. It is particularly useful in gaining an in-depth understanding of the intent of the program and its actual operation.

Levin, H. M. (1988). Accelerated schools for at-risk students. CPRE Research Report Series RR-010. New Brunswick, NJ: Center for Policy Research in Education, Eagleton Institute of Politics, Rutgers.

This report provides a basic description of accelerated learning and its applicability to education of the disadvantaged including curricula and the fundamental assumptions underlying the organization of an accelerated school.

Levin, H. M. and Chasin, G. (1994). Thomas edison accelerated elementary school. In Yearbook of the National Society for the Study of Education: Creating New Educational Communities, Schools, and Classrooms Where All Children Can Be Smart Chicago: University of Chicago.

This article reports early outcomes of an elementary school that participated in the Accelerated Schools Project. Increased enrollment, decreased student suspensions and absences, and improved standardized test scores were reported. An unusually rapid shift of decision making to small advisory/planning groups was attributed to strong leadership and readiness for change.

Lyon G. R. (1996). Learning disabilities. Future of Children, 6 (1), 54-76.

This is a particularly comprehensive overview of major findings from research supported by the National Institute of Child Health and Human Development are summarized. It is included in a David and Lucile Packard Foundation publication focusing on learning disabilities. Lyon cites recent research indicating that disability in basic reading skills is widespread and is primarily caused by deficits in phonological awareness which is independent of any achievement-capacity discrepancy. Historical influences on the study of learning disabilities are reviewed and difficulties in developing a diagnostic standard are discussed. Conclusions focus on definitional issues, identification and assessment practices, instructional issues, teacher preparation, and policy implications.

Moats, L. C. (1995). The missing foundation in teacher education. American Educator, 19(2), 43-51.

Results of a survey of experienced teachers reveal pervasive weaknesses in their knowledge of the structure of written and spoken language which impair their ability to teach reading. Article illustrates the importance of specific linguistic knowledge and recommends policy changes for improved teacher preparation and performance.

Moats, L. C. and Lyon, G. R. (1996). Wanted: Teachers with a knowledge of language. Topics in Language Disorders, 16 (2), 73-86.

The article reviews recent research in language acquisition and the need for teacher instruction to emphasize language knowledge as a foundation for literacy instruction. It concludes that teachers are inadequately prepared to teach children with language-based learning problems.

Pikulski, J. J. (1994). Preventing reading failure: A review of five effective programs. The Reading Teacher, 48(1), 30-39.

Success for All, the Winston-Salem Project, Early Intervention in Reading, the Boulder Project, and Reading Recovery are compared in terms of the program's relationship to regular classroom instruction, organization of the intervention, amount of instructional time, length of intervention, types of materials used, text level strategies, word level strategies, writing component, assessment procedures, home involvement, and teacher training. The article includes a list of general conclusions derived from the review.

Pinnell, G. S., Lyons, D. E., Byrk, A. S. and Seltzer, M. (1994). Comparing instructional models for the literacy education of high-risk first graders. The Reading Teacher, 29(1), 9-39.

This article reports findings from a study designed to examine the effectiveness of Reading Recovery as compared to three other instructional models: 1) Reading Success, 2) Direct Instruction Skills Plan, and 3) Reading/Writing Group. The lowest-achieving first-grade readers from ten school districts were randomly assigned to one of the four interventions or to a comparison group. The Reading Recovery children performed better on four measures than any other treatment or comparison group. The study attempts to explore reasons for the better performance and identifies one-to-one lessons, the lesson framework, and the Reading

Recovery teacher staff development model as program components which were found to be related to success.

Reynolds, A. J. (1991). Early schooling of children at risk. American Educational Research Journal, 28(2), 392-422.

Reynolds reports on the development and testing of a longitudinal early school process model of early reading achievement. Cognitive readiness in kindergarten had pervasive effects on both first and second grade reading outcomes as did prekindergarten experience, motivation, mobility, and parent involvement. The need for timely and multifaceted interventions was cited. Additionally cited was the need for research designs which reflect the complex processes occurring in early schooling.

Ross, S. M., Smith, L. J., Casey, J., and Slavin, R. E. (1995). Increasing the academic success of disadvantaged children: An examination of alternative early intervention programs. American Educational Research Journal, 32(4), 773-800.

This article provides an in-depth examination of the processes and outcomes associated with Reading Recovery and Success for All. The authors identify complementary features of the two programs and suggest the merger of the two or different applications, with Reading Recovery being most appropriate in schools with strong basic programs and relatively few students who are at-risk of reading failure and Success for All more appropriate for schools serving many disadvantaged students where a more comprehensive approach is needed.

Slavin, R. E., Madden, N. A., Karweit, N. L., Dolan, L., Wasik, B. A. (1992). Success for all: A relentless approach to prevention and early intervention in elementary schools. Arlington, VA: Educational Research Service.

This monograph provides a comprehensive description of the Success for All program including its philosophical orientation and rationale, its language arts component, tutoring programs, prekindergarten and kindergarten programs, family support and services, staff development and school restructuring, evidence of its effectiveness, and policy implications.

Stanovich, K. E. (1991). Conceptual and empirical problems with discrepancy definitions. Learning Disability Quarterly, 14, 269-282.

This article argues against the use of IQ in defining learning disabilities and advocates use of more educationally relevant measure such as listening comprehension.

Taylor, B. M., Short, R. A., Frye, B. J., and Shearer, B. A. (1992). Classroom teachers prevent reading failure among low-achieving first-grade students. The Reading Teacher, 45(8), 592-597.

This article describes the implementation of the Early Intervention in Reading Program in one small school district, reducing the risk of failure among low-achieving first grade students.

- U. S. Department of Education. (1996). Learning to read/reading to learn: Helping children with learning disabilities to succeed information kit. Washington, DC: Office of Special Education Services.

This packet of materials includes pamphlets, reprints of articles, and a resource guide which provide teacher and parent strategies for teaching reading to children with learning disabilities.

- Wasik, B. A. and Slavin, R. E. (1993). Preventing early reading failure with one-to-one tutoring: A review of five programs. Reading Research Quarterly, 28(2), 179-200.

Using best-evidence synthesis, the authors review the research on effective one-to-one tutoring programs to identify theoretical similarities and differences, their approaches to reading instruction, key components of reading found in each program, the nature of the tutors, and how the programs are implemented. Programs reviewed were Reading Recovery, Success for All, Prevention of Learning Disabilities, the Wallach Tutoring Program, and Programmed Tutorial Reading. Key findings are that (a) programs with the most comprehensive models of reading were found to have larger effects, (b) tutors alone are not enough, (c) using certified teachers appeared to obtain larger impacts, (d) Success for All produced some of the largest effect sizes. The authors discuss the issue of cost-effectiveness and suggest future research focusing on the process of learning to better understand why tutoring is effective and whether there is greater potential for preventive (rather than remedial) tutoring.