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ABSTRACT

This two-volume report on the progress of the Instructional Program in Reading/Language Arts (IPR/LA) in the Montgomery County, Maryland schools presents a brief overview of the study design, methodology, findings, recommendations, background data, and statistical analysis tables. Volume I of the report begins with an Executive Summary of the three-year-old program, which was designed to integrate the teaching of skills in reading, listening, speaking, and writing. The first chapter describes the conception and implementation of the curriculum, noting that implementation is advancing slowly, and discussing some of the reasons for the delay. Chapter 2 deals with evaluation methods, which included classroom observation, questionnaires and interviews, student reading tests, and attitude surveys. Curriculum implementation is discussed again in chapter 3, and the unavailability of books is identified as an obstacle. Chapter 4 outlines the curriculum's effect on pupils, noting that higher levels of implementation lead to higher reading gains. Volume I of the report concludes with recommendations for accelerating implementation and two appendices that define types of discourse and chart implementation of specific curricular components. The first chapter of Volume II describes the evaluation measures that were used to determine the status of all schools studied and consists of three sections that provide a detailed accounting of the data collection procedures, tables showing how the implementation scores were derived from classroom observations, and a summary of the results of the pupil attitude survey. The second and third chapters summarize analyses of curriculum implementation differences and of the language arts curriculum's effects on pupils and contain sections on correlations between implementation, academic, and reading attitude scores; regression analyses of academic outcomes and reading attitudes outcomes; and an analysis of parent opinions of pupil reading attitudes and activities. (AEW)

MONTGOMERY COUNTY PUBLIC SCHOOLS

ROCKVILLE, MARYLAND

Reading Study
Volume I
Final Report

November 1986

Wilmer S. Cody
Superintendent of Schools

Prepared by the Department of Educational Accountability

MONTGOMERY COUNTY PUBLIC SCHOOLS
Rockville, Maryland

READING STUDY:

FINAL REPORT

by

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Volume I

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EXECUTIVE SUMMARY

BACKGROUND

In 1981, the Board of Education approved a new curriculum idea, pilot tested since 1977, for instruction in English Language Arts for kindergarten through eighth grade. The new curriculum, called the Instructional Program in Reading/Language Arts (IPR/LA), integrates the teaching of skills in reading, listening, speaking and writing. Further, it breaks away from the traditional step-by-step buildup of skills from one grade to the next. Instead, comprehension and integration of the basic skills become the centerpiece of all instruction at all grade levels in reading and listening.

According to the program's developers, the new curriculum differs from traditional ones in a number of ways.

- In the "old" approach, the student is a passive practitioner of rote skills; in the new approach, the student becomes an active agent asking questions in advance about what is to be read, predicting the outcomes of what is read, and checking the accuracy of this more active engagement with the text.

- The old approach relies on a basal reader series from a single publisher which is used along with the publisher's teacher guides and workbooks. The IPR/LA approach encourages the use of trade-books from a variety of publishers, with support materials being developed by curriculum staff and teachers from MCPS.

- The old approach stresses reading mainly for facts (linked with the traditional testing for factual recall). The IPR/LA approach teaches students to construct and evaluate their interpretations of the text. Students learn to put together an understanding of the story's overall structure (characters, plot development, resolution of the action, etc.), and then they expand on and evaluate this broader comprehension by pulling in similar stories or experiences of their own.

- In traditional vocabulary development exercises, pupils tend to collect words like so many marbles in memory. But, the IPR/LA student learns new words in a meaningful context and uses them in speaking, writing, and reading.

- Traditional curricula focus mainly on one type of text, "narrative text." The IPR/LA is designed to include a variety of text types (narration, exposition, persuasion, procedure, drama, and lyric) which differ in the demands made on the reader.

In 1980, the Department of Curriculum and Instruction (since reformulated into the Department of Academic Skills) requested the Department of Educational Accountability (DEA) to design an evaluation plan for the narration component of the new curriculum in order to address the following questions:

Curriculum Implementation:
To what extent is the curriculum being implemented in the elementary schools? What conditions influence the extent of implementation? Are the administrative supports for implementation adequate?

Curriculum Effects:
Does the curriculum boost reading scores for elementary school pupils? Does it do so equally for different types of pupils (reading-level differences, race differences, grade-level differences)? Does it enhance pupil attitudes toward reading?

In its Year 1 Report on what became known as "The Reading Study," DEA confirmed several suspicions about the progress of implementation. That report cited teacher comments about inadequate in-service training and the difficulty of using the curriculum with lower-level readers, and it called for a more systematic approach to implementing curriculum reform. The Year 1 Report did not address the effects of the curriculum on pupils.

This report concludes the Reading Study by updating the implementation findings from the last two years of the study, and by examining the IPR/LA curriculum's effects on pupil performance. This document (Volume I) presents a brief overview of the study design, methodology, findings, and recommendations. Volume II presents detailed documentation of the data collection and analytic procedures.

OVERVIEW OF YEAR 3 FINDINGS

Curriculum Implementation

Implementation is advancing, but slowly. By May of 1985, the curriculum was fully implemented in only about 4 percent of the reading groups observed. About 45 percent of the reading groups studied were "partially" implementing the curriculum, but another 41 percent were only at the "beginning" level of implementation (rated on a four-point scale defined by the curriculum's authors in DAS).

Student characteristics make a difference in level of implementation. The IPR/LA is less well implemented for lower-achieving students and students in the lower elementary grades.

Teachers and schools make a difference. Large variations were found in the level of implementation due to teacher/classroom conditions and school-level factors.

Experience is not a good predictor of implementation status. Even though the schools by 1985 had been using the new curriculum for a period of time that varied from three to seven years, implementation levels were not associated with the school's length of experience with the new model.

Support is improved, but more focused training is needed. The IPR/LA curriculum materials are generally in place and seen as adequate in the schools. However, in-service training, while widespread and helpful, is still too general and too brief to meet many teachers' needs.

Effects on Pupil Performance

IPR/LA boosts reading scores. Over a two-year period, the IPR/LA curriculum had a significant effect on pupil reading gains as measured by the CRT-N. Benefits were found for all students regardless of initial achievement level, race, or grade in school. Gains were greater, however, for higher-achieving students in the upper grade levels, possibly because the curriculum was better implemented for these students.

No direct effect was found on reading attitudes. No direct or consistent curricular effects on pupil attitudes toward reading were found.

In summary, then, the IPR/LA curriculum appears to be delivering on its promise to provide higher-quality instruction for many MCPS students. However, the program remains less well implemented for lower-level readers and pupils in the lower grade levels.

Further, the study documented a "snowball effect" of implementation on pupil reading performance. That is, higher-level readers get a fuller curriculum implementation and, since the implementation leads to better reading performance, in the end they benefit more than the lower-readers by having received more of a good thing. Thus, unless implementation is strengthened at the lower achievement levels, the new curriculum implemented in its current fashion will have the effect, as time goes by, of expanding the performance gap between lower-level and upper-level readers.

Based on these findings the following recommendations are made:

RECOMMENDATION 1
Ways for accelerating the implementation of the IPR/LA are needed. Teacher reports dating back several years suggest the need for more detailed, hands-on training in specific classroom procedures rather than overall orientation to the general IPR/LA curriculum.

RECOMMENDATION 2
Increased efforts need to be made to provide fuller implementation of the curriculum for all students. The IPR/LA was not designed as a program for able students alone. Ways need to be found for more adequately implementing the program with lower-achieving, early-grade students.

RECOMMENDATION 3
To echo the final recommendation from the Year 1 Report, MCPS needs to take a more systematic approach to program implementation than has thus far been seen, and to provide the resources to support such a plan. There appears to be no formal and consistently implemented long range plan for curriculum installation. And after the first stages of program initiation and implementation, there needs to be a more formal and explicit plan for program support and evaluation, including training and material resources. The findings of this report, combined with those from earlier studies, indicate that if a curriculum is merely delivered to the school house door, it either will not take hold or will take hold only slowly and unevenly.

Chapter 1

INTRODUCTION

A NEW IDEA FOR READING INSTRUCTION

In 1981, the Board of Education approved a new curriculum idea, pilot tested since 1977, for instruction in English Language Arts for kindergarten through eighth grade. The new curriculum, called the Instructional Program in Reading/Language Arts (IPR/LA), integrates the teaching of skills in reading, listening, speaking and writing. Further, it breaks away from the traditional step-by-step buildup of skills from one grade to the next. Instead, comprehension and integration of the basic skills become the centerpiece of all instruction at all grade levels in reading and listening.

According to the program's developers, the new curriculum differs from traditional ones in a number of ways.

- In the "old" approach, the student is a passive practitioner of rote skills; in the new approach, the student becomes an active agent asking questions in advance about what is to be read, predicting the outcomes of what is read, and checking the accuracy of this more active engagement with the text.

- The old approach relies on a basal reader series from a single publisher which is used along with the publisher's teacher guides and workbooks. The IPR/LA approach encourages the use of trade-books from a variety of publishers, with support materials being developed by curriculum staff and teachers from MCPS.

- The old approach stresses reading mainly for facts (linked with the traditional testing for factual recall). The IPR/LA approach teaches students to construct and evaluate their interpretations of the text. Students learn to put together an understanding of the story's overall structure (characters, plot development, resolution of the action, etc.), and then they expand on and evaluate this broader comprehension by pulling in similar stories or experiences of their own.

- In traditional vocabulary development exercises, pupils tend to collect words in isolation like so many marbles in memory. But, the IPR/LA student learns new words in a meaningful context and uses them in speaking, writing, and reading.

- Traditional curricula focus mainly on one type of text, "narrative text." The IPR/LA is designed to include a variety of text types (narration, exposition, persuasion, procedure, drama, and lyric) which differ in the demands made on the reader. Appendix A presents definitions of each of these types of texts.

In 1977-78, the MCPS Department of Academic Skills (hereafter noted as DAS, but known earlier as the Division of Academic Skills) began developing this new curriculum in 1977-78, starting with the units which focus on narrative

text. In-service training for teachers and staff and new materials, core books, novels, curriculum guides, and other supports were gradually made available to back up the implementation of the IPR/LA curriculum. A new series of pupil tests was developed, the Criterion-referenced Tests for Reading (CRT-N), to supplement the data obtained from the California Achievement Tests and, in particular, to assess more adequately the new emphasis on reading for comprehension. The curriculum itself has been expanded, with the speaking and writing curricula being developed and components covering exposition, persuasion, and procedure being added.

EVALUATING THE NEW READING CURRICULUM

This was the new curriculum idea, but is it working? Is the curriculum really being implemented according to the blueprint? Is the in-service training adequate? Are the required materials and administrative supports in place? And, finally, how does the new approach benefit pupil reading performance?

Questions like these began to surface as early as 1980. By then, the narration component of the IPR/LA had been installed on a pilot basis in 15 schools for several years. At the request of the Department of Curriculum and Instruction (a department since dropped in central office administrative changes), the Department of Educational Accountability (DEA) formulated an evaluation plan for the narration component of the new curriculum (the feeling was that it was premature to begin to look at other components of the IPR/LA as they were in the early stages of development). In 1981 DEA conducted a feasibility study across 18 elementary schools of that evaluation plan and its measuring instruments.

Even though that early evaluation was only a pilot study, its preliminary findings brought into question the curriculum's implementation[1]. The feasibility study found that more adequate in-service training was needed and that the new curriculum was time consuming to implement. Early indications were that the curriculum was more difficult to use with lower-level readers. And finally, teachers seemed to be reluctant to relinquish their hold on the familiar basal reader series with its workbooks and grade-by-grade sequences organized so well by the textbook publishers.

It was agreed to proceed with a three-year evaluation of the narration component of the IPR/LA curriculum beginning in the fall of 1982 (hereafter called the Reading Study), focusing on two basic issues:

> **Curriculum Implementation:**
> To what extent is the curriculum being implemented in the elementary schools? What conditions influence the extent of implementation? Are the administrative supports for implementation adequate?

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1. The Design for the Second-Year Study of Elementary Reading Instruction. Department of Educational Accountability, MCPS, November, 1982. And, Reading Study: First-Year Report, Department of Educational Accountability, MCPS, August, 1984.

Curriculum Effects:
Does the curriculum boost reading scores for elementary school pupils? Does it do so equally for different types of pupils (reading-level differences, race differences, grade-level differences)? Does it enhance pupil attitudes toward reading?

In its Year 1 Report on the Reading Study, DEA confirmed several suspicions about implementation raised in the pilot study and other informal reports from the schools. That report cited teacher comments about inadequate in-service training and the difficulty of using the curriculum with lower-level readers, and it called for a more systematic approach to implementing curriculum reform. The Year 1 Report did not address the effects of the curriculum on pupils.

This report concludes the Reading Study by updating the implementation findings from the last two years of the study, and by examining the IPR/LA curriculum's effects on pupil performance. This document (Volume I) presents a brief overview of the study design, methodology, findings, and recommendations. Volume II presents detailed documentation of the data collection and analytic procedures.

OVERVIEW OF YEAR 3 FINDINGS

The findings here summarize the study's results up through the 1984-85 school year. Several conditions indicate that despite the one-year period of analysis between final data collection and the current report, last year's findings are not outdated. The reader will find that certain outcomes reported as early as the pilot study persist in the latest data. Also, the length of time schools had been using the curriculum was found to bear no relationship to curriculum implementation levels. Thus, the latest findings remain important for current planning.

Curriculum Implementation

Implementation is advancing, but slowly. By 1985, the curriculum was fully implemented in only about 4 percent of the reading groups observed. About 45 percent of the reading groups studied were "partially" implementing the curriculum, but another 41 percent were only at the "beginning" level of implementation (rated on a four-point scale defined by the curriculum's authors in DAS).

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In summary, then, the IPR/LA curriculum appears to be delivering on its promise to provide higher-quality instruction for many MCPS students. However, adaptations in the method and/or more intensive in-service training may be needed to make the new approach more successful with low-achieving pupils. Also, more lengthy and focused in-service training is needed to accelerate the implementation of the IPR/LA.

What follows in this report is a discussion of the Reading Study's methods in Chapter 2. A more lengthy discussion of the implementation findings is found in Chapter 3 as well as in Appendix A and B of this report. Chapter 4 describes in more detail the curriculum's effects on pupils, and Chapter 5 concludes with several recommendations arising from the Reading Study's findings.

To facilitate the reading of the lengthy and at times complex findings of the study, the details of the study's methods, the specific descriptive data from various analyses, and the statistical tests of the data have been removed from the main text and enclosed in a separate document, Volume 2 of the Reading Study. Readers familiar with descriptive and inferential statistics are referred to Volume 2 for specific analyses supporting the findings summarized here in Volume 1.

Chapter 2

EVALUATION METHODS

The Reading Study is a comprehensive evaluation of the curriculum implementation process and its outcomes. The measures used included staff interviews and questionnaires, pupil testing across several years, and a complex classroom observation system. The analysis examined data at the levels of individual pupils, reading groups within classrooms, and the teacher. Because of its complexity, an overview of the study design is needed to understand fully the findings of the Reading Study. Thus, in this chapter there appears a description of the sample of schools and pupils included in the study, the measures used for the study, and the interpretation of these measures in the analysis. Note particularly the manner in which the observation data were summarized to produce an "implementation score" for reading groups within classrooms.

SAMPLE

In 1982, a sample of 20 MCPS elementary schools was selected for the three-year reading study. The sample was representative of the MCPS elementary schools regarding achievement levels and length of time the schools had been exposed to IPR/LA. Schools from each of the three administrative areas were included and are listed in Table 2.1.

TABLE 2.1
Sample of Elementary Schools Included in the Reading Study, Grouped by Achievement Level and Years of IPR/LA Curriculum Implementation (in 1982)

Years Implementing Curriculum	Achievement Level: Below County Mean	Achievement Level: Above County Mean	Total
Since 1981-82	Broad Acres Maryvale Rolling Terrace	Potomac Fallsmead Sherwood	6
From 1980-81	*Beall Fields Road Viers Mill	Seven Locks Cedar Grove Greenwood	6
Prior to 1980	Poolesville Clarksburg Glenallan	Bannockburn Laytonsville Kemp Mill	6
Nonimplementing Schools		Bethesda Farmland	2 20

*Beall consolidated with a school in this category of implementation.

Within each school, four classes (two first grade and two fourth grade) were randomly selected for study the first year. Classrooms at these two grade levels were selected to allow comparisons of program implementation and student outcomes at the primary and upper elementary grades. The approximately 1800 students contained in these classes during Year 1 were followed for three years as they progressed from first to third grade or from fourth to sixth grade. As these students moved into different classrooms in Years 2 and 3, their classmates and teachers were also included in the study. Due to resource constraints, it was not possible to follow students who changed schools within the county.

MEASURES

Curriculum Implementation

Formulating a set of instruments to measure the IPR/LA curriculum process was crucial to the first objective of the Reading Study since no such measure existed during the early years of the curriculum. During the planning year (1980) and the pilot study (1981), DEA developed the instruments and methods described below.

Classroom Observations. Using a direct classroom observation measure modeled after the specifications of the IPR/LA curriculum, observers trained by DEA recorded the frequency of selected classroom events. The main categories of events recorded by the observation instrument were as follows:

- Comprehension activities
- Teaching strategies
- Narrative materials usage
- Vocabulary development
- Grouping practices
- Decoding activities

Detailed descriptions are provided in Table 2.2.

Classroom observations were conducted at unannounced times at three periods during the school year (fall, winter, spring). During an observation period, data were collected for each reading group in the class.

Volume II, the technical appendix, provides a detailed description of the data collection procedures and the items used on the classroom observation instrument.

Questionnaires and Interviews. The study also collected extensive questionnaire and interview data from school staff during each of the three years concerning the implementation process and its impact. Classroom teachers, media specialists, resource room teachers, and special education teachers completed questionnaires. Teachers who participated in the observations, principals, and reading specialists were interviewed. The interviews and, in less detail, the questionnaires provide information on three aspects of the implementation process central to the main study issues:

TABLE 2.2
Classroom Observation Items for Six Major Curricular Categories

Curricular Category	Classroom Observation Items Teacher Activities	Definitions/Examples
COMPREHENSION ACTIVITIES	Develop understanding of **gist** of discourse	**Gist** is what the story is mostly about, the main idea, theme, best title, conclusions.
	Develop understanding of **overall structure** of discourse	The **overall structure** of narrative discourse includes characterization, plot, and setting.
	Use **enrichment/extending** activities	Some **enrichment/extending** activities are: dramatize story, make poster of favorite character's adventure, rewrite story with new ending, construct mural/model.
TEACHING STRATEGIES	Encourage **student discussion**	**Student discussion** occurs among students and teacher rather than in teacher-directed question/answer format.
	Encourage students to **predict** while reading a selection	**Prediction** questions include: What will happen next? What will the unit be about?
	Use **open-ended questions** to promote critical thinking and discussion	**Open-ended questions** are, for example, "how" and "why" questions rather than literal questions.
	Use **varied strategies**	**Varied strategies** include webbing, brainstorming, active listening, paired talking, discussion plays, and language experience.
	Clearly **establish purpose** for reading	Examples of **establishing purpose** are: Read this selection to find out..., listen for rhyming words in the passage.
	Relate text to student's **background knowledge and experience**	**Experience** questions include: Did you ever...?, How would you feel if it happened to you?, Have you even been to...?
	Avoid **round robin oral reading**	**Round robin oral reading** is students reading passages aloud in turn.
NARRATIVE MATERIALS USAGE	Emphasize **tradebooks**	**Tradebrooks** are library books.
	Use **experience stories**	**Experience stories** are student-authored accounts of an individual or group experience.
	Rely less on **basal readers** and the accompanying **workbooks and dittos**	**Basals** are a series of readers developed by publishers.
VOCABULARY DEVELOPMENT	Present and develop selected words/concepts in **meaningful context**	**Meaningful contexts** include presenting words in phrases, sentences, or passages rather than lists.
	Encourage **word use**	Examples of **word use** are: Students use words, teacher asks questions relating to words.
GROUPING PRACTICES	Use **multiple grouping patterns**	**Grouping patterns** include student interest groups, heterogeneous groups, whole-class grouping, homogeneous groups, and individualized groups.
DECODING ACTIVITIES	Use **context clues** to help students decode unfamiliar words	**Context clues** are semantic, syntactic clues (e.g., pictures, surrounding words/sentences).
	Discourage student use of **isolated phonemes** to sound out words	**Isolated phonemes** are individual letters.
	Avoid **isolated phonic elements** in helping students decode unfamiliar words	**Isolated phonic elements** are letter/sound relationships (e.g., blends, diphthongs).

- o Administrative supports
- o Instructional practices
- o Opinions about curriculum implementation and its impact

Pupil Outcomes

At the outset of the Reading Study, there were no systemwide end-of-year pupil measures specific to the goals and style of the new IPR/LA approach. The only data collected systemwide came from the California Achievement Tests administered in Grades 3, 5, 8, and 11. These were judged by the program's developers to provide only a partial look at reading achievement. No data were collected on attitudes toward reading, another area that the developers of IPR/LA felt would be affected. To fill in the gap in achievement testing, DAS developed a new series of pupil tests to assess the reading comprehension goals of the new curriculum. To assess reading attitudes, DEA formulated a pupil questionnaire.

Student Reading Tests. The Criterion-referenced Tests for Reading (CRT-N) were administered at the end of each school year to record pupil progress. Reading performance was assessed at the beginning of each year on the reading subtest of the California Achievement Tests. The exception to this schedule was in Year 1 when the Woodcock Reading Tests were used as a pretest for first-grade students and the ORBIT test, a test which resembles the CRT-N, was used as a year-end measure for first- and fourth-grade students.

Attitude Surveys. Student attitudes toward reading were measured during the fall of each year with a brief (16 item) inventory administered to all of the students in the study. A description of these items is included in Volume II.

Deriving Implementation Scores From Classroom Observations

The classroom observation instrument provided many items covering the various curriculum areas observed. To simplify this volume of information, an overall "implementation score" was developed in much the same way that, for example, pupil math test items are summarized into a single math score. Working in collaboration with the curriculum developers in DAS, DEA staff formulated the following scoring system:

First, the various observation items were separated into the six main areas of the IPR/LA curriculum, a process similar to identifying subtests on an achievement test. These six categories and their observation items, listed in Table 2.2, provide a more detailed description of the curriculum's recipe than the overview given in Chapter 1.

Second, for each of the curricular areas, DAS specified the patterns of items which most exemplified, or least represented, the curriculum as designed. This process produced a 0-to-7 rating in each of the six areas. Details of this process are included in Volume II.

Third, while the seven-point scale rated relatively high or low implementation across the six areas, these ratings were neither directly comparable nor interpretable. Thus, DAS reduced these ratings to a

four-point scale with roughly equivalent interpretations for each scale point across the six curriculum areas. The scale points for curriculum implementation were:

1. Not implemented
2. Beginning to implement
3. Partially implemented
4. Fully implemented

Details of the translation from the seven-point to the four-point scale are included in Volume II. Using this scale, each of the six areas could be scored and the scores could be roughly compared to each other.

Fourth, the scores for six curricular areas were combined into an overall implementation "total score." The six scores were not, however, simply averaged together. According to the curriculum authors in DAS, certain of the areas are better indicators of IPR/LA implementation. Thus, DAS provided a weighting system for combining the six areas according to their relative importance in the overall curricular approach. The weighting scheme is more suitable for judging the IPR/LA in grades three through six, according to DAS, than it is for the lower elementary grades where decoding activities may be more prevalent. These weights are as follows:

Curriculum Area	Percentage
Comprehension activities	35
Teaching strategies	25
Narrative materials usage	20
Vocabulary development	12
Grouping practices	6
Decoding activities	2
	100 %

These weights mean that the the best way to get a high implementation score is for teachers to engage in comprehension activities and use a variety of teaching strategies and materials as found in the IPR/LA recipe. By contrast, the grouping practices or the decoding activities do not contribute much in the overall implementation score. The weighted average of the six curricular areas produced the four-point implementation total score analyzed in Chapters 3 and 4.

UNIT OF ANALYSIS

The Reading Study uses two basic units of analyses. For most questions regarding implementation, the reading group within the classroom is the unit of analysis. This unit was selected over other possible candidates such as the total classroom or the individual student because DEA felt it provided the most accurate reflection of how teachers typically organize the bulk of their reading instruction. For some questions, however, these reading group scores are averaged to provide a single score characterizing teacher performance.

For questions regarding student outcomes, both achievement and attitudinal, the individual pupil is the unit of analysis.

Finally, for questions regarding the relationships between implementation and pupil achievement, these units are combined. Specifically, each pupil is given an average score representing the level of implementation of the reading groups in which he or she participated during the last two years of the Reading Study.

This discussion on unit of analyses completes the Methods chapter. What follows in Chapter 3 is a report on the implementation levels observed in 1985 and several analyses examining various group factors which make a difference in curricular implementation. Chapter 4 reviews the pupil outcomes from the IPR/LA curriculum, and Chapter 5 follows with the conclusions and recommendations.

Chapter 3

CURRICULUM IMPLEMENTATION

The first goal of the Reading Study is to identify whether and to what extent the IPR/LA curriculum is being implemented. Specifically, the study was designed to address the following questions regarding the status of the IPR/LA:

> To what extent is the curriculum being implemented in the elementary schools? What conditions influence the extent of implementation? Are the administrative supports for implementation adequate?

To answer these questions, the following series of analyses was undertaken. First, data on implementation levels were examined to measure the extent to which the IPR/LA was in place in the schools studied during 1985. This examination looked not only at the overall implementation of the program but also at various curriculum components--comprehension activities, teaching strategies, use of narrative materials, vocabulary development, grouping practices, and decoding activities.

Second, to see whether the new approach appeared to be working in some situations and not in others, analyses examined whether the degree of implementation varied across schools, teachers or pupils. Certain characteristics were selected which had previously been found in the literature to affect implementation of new programs or had been reported by MCPS teachers as influencing the delivery of IPR/LA.

Finally, analyses examined whether staff were receiving the necessary administrative supports for program implementation. Of particular concern was the question of whether sufficient training, materials, and monitoring were provided.

PROGRAM IMPLEMENTATION

Classroom observations indicate that, judging from the 1985 data, the curriculum is fully implemented in only a handful of elementary schools.

Figure 3.1 below shows that about 4 percent of the reading groups observed in the third and sixth grades are fully implementing the curriculum; it is partially implemented in 54 percent of the sixth-grade and 39 percent of the third-grade groups. It is at the "beginning level" of implementation in about half of the third-grade groups and in one-third of the sixth-grade groups.

Examination of the six major curriculum components--comprehension activities, teaching strategies, use of narrative materials, vocabulary development, grouping practices, and decoding activities--indicates important differences in their levels of implementation. And, more important components are not necessarily better implemented than less important ones (see Figure [illegible]). For example, while comprehension activities are seen by the program's developers to be the most important component of the curriculum, Figure 3.2 shows that they are implemented less completely than

vocabulary development, the component ranked fourth out of six in importance.

FIGURE 3.1
Percentages of Third- and Sixth-Grade Reading Groups
at Each Stage of Implementing the IPR/LA Curriculum in 1985

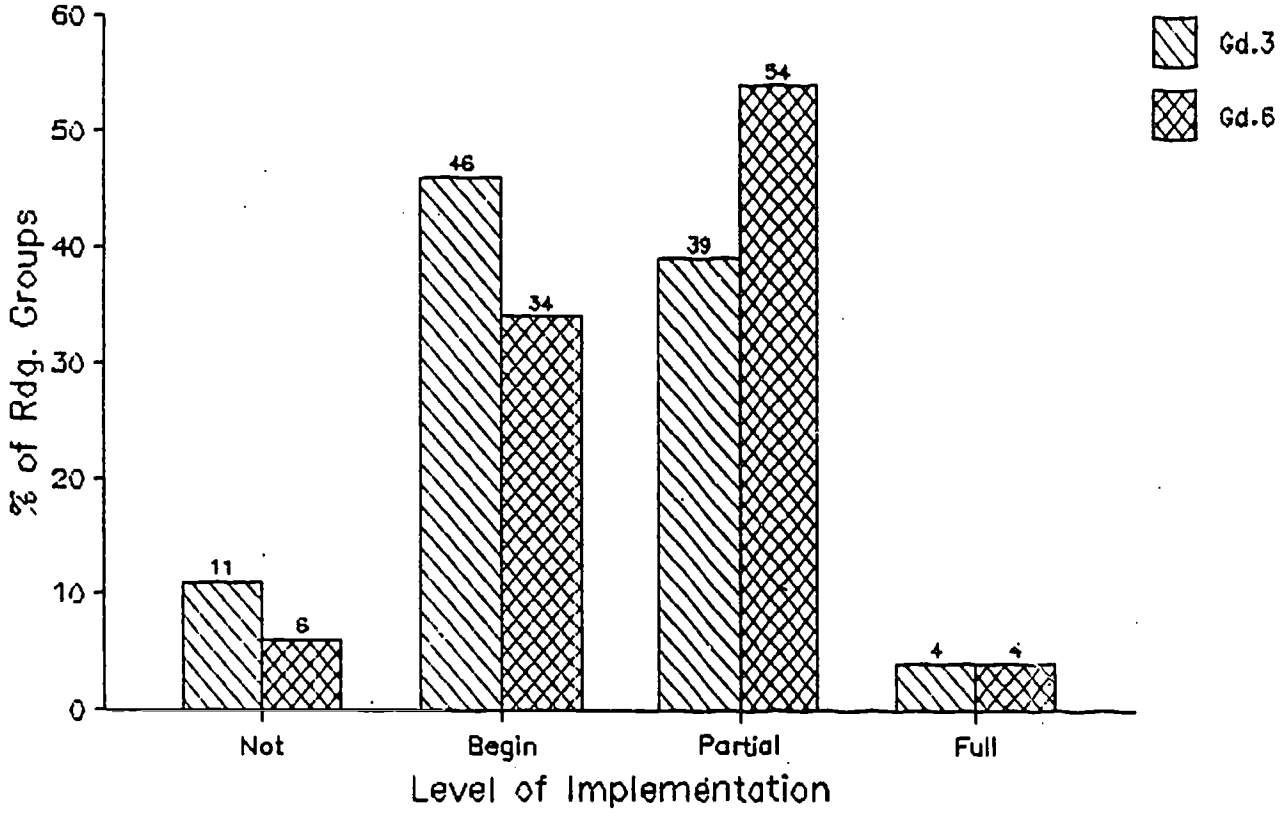
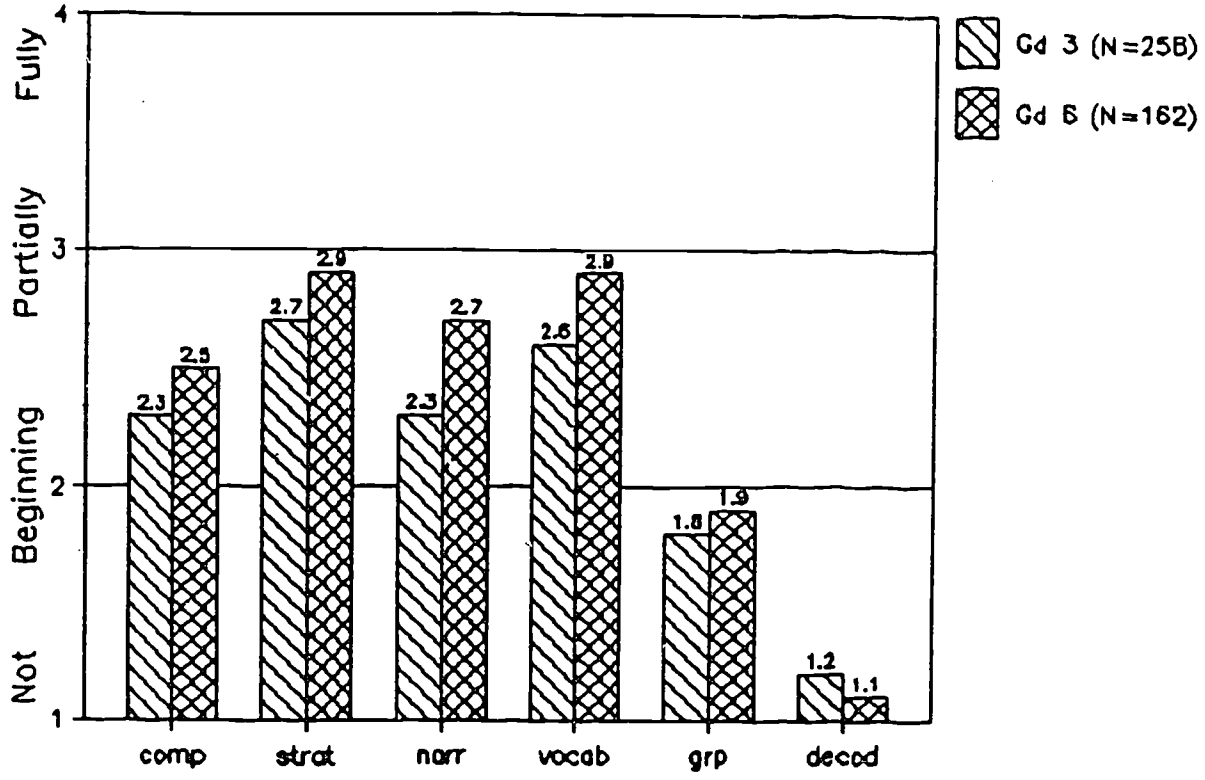


Figure 3.2 presents third- and sixth-grade reading group average implementation scores for these six components, laid out from left to right in order of decreasing importance. Details regarding the implementation status of each of these six components are presented in Appendix B.

FIGURE 3.2
Average Implementation Level of Each Curriculum Component
for Third and Sixth Grade in 1985



FACTORS AFFECTING CURRICULAR IMPLEMENTATION

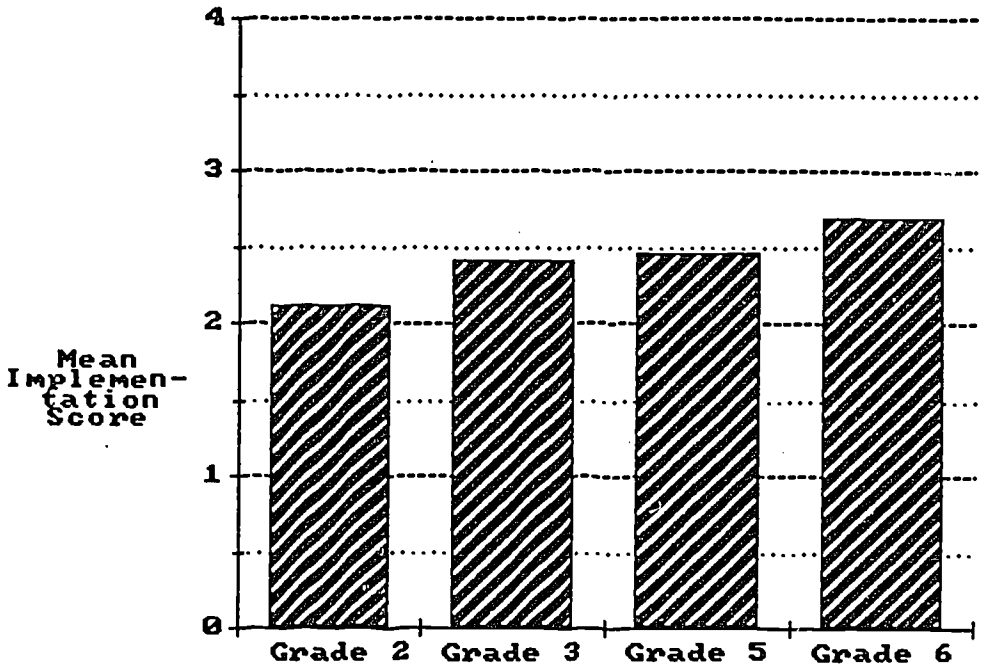
The study also looked at a number of factors which have previously been found to affect curriculum implementation. Roughly speaking, these factors fall into three categories: student differences, school differences, and teacher differences. The Reading Study looked at the extent to which each of these affects the implementation of IPR/LA.

Student Differences

Earlier examinations of the IPR/LA suggested that the curriculum was easier to implement or more suitable with older and higher-achieving students. Analyses of the data confirm and extend these findings.

Figure 3.3 shows that each successive grade level averages somewhat higher overall implementation scores than the last. This analysis also shows (see details in Volume II) that the magnitude of the differences across grades is greater than the average magnitude of the differences between schools. In other words, the differences in implementation across grade levels within a school tend to be greater than the differences between schools.

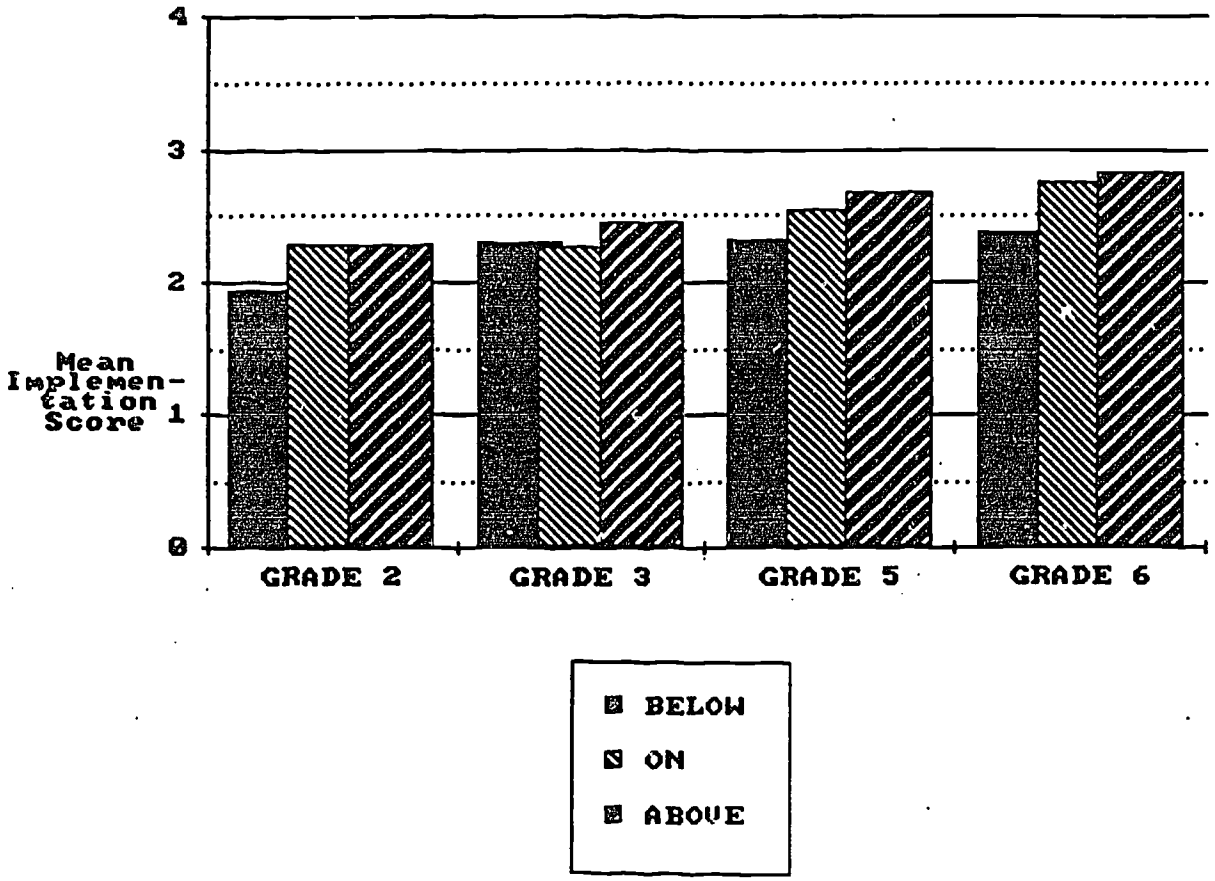
FIGURE 3.3
Grade Level Differences in Curriculum Implementation



Teachers commonly subdivide their pupils into several reading groups of different reading proficiency levels. The analysis shows that the curriculum is not implemented to the same extent across these groups. Figure 3.4 below shows that within classrooms at all four grade levels, the curriculum is better implemented for higher- than for lower-achieving students.

The average implementation levels for the below-, on-, and above-grade-level reading groups are displayed in Figure 3.4. The analysis (detailed in Volume II) indicates that the below-grade-level reading groups have a significantly lower curriculum implementation average than the on-grade-level groups. The above-grade versus on-grade contrast was not statistically significant. Across all grades, the below-grade-level groups averaged less than the above-grade-level groups.

FIGURE 3.4
Implementation Levels for Within-class Reading Groups Which Are Below, On, or Above Grade Level in Reading Performance



Teacher and School Differences

The Reading Study also examined whether implementation differs among schools and, within these schools, among teachers. The analyses show that both of these factors influence the level of implementation. (More detailed analyses of teacher and school effects are presented in Volume II.)

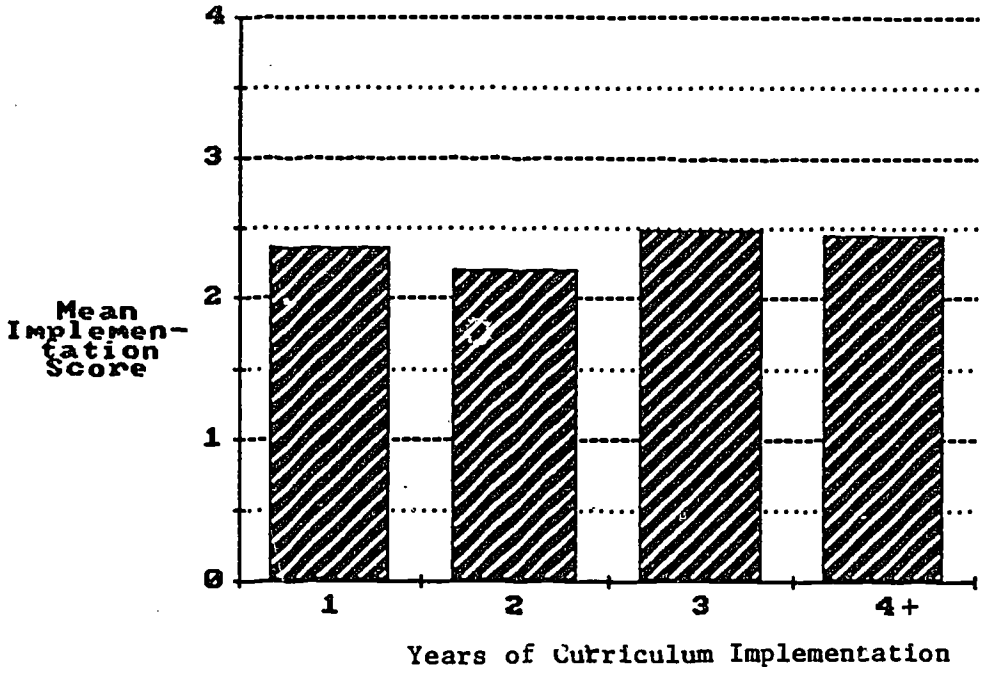
Specifically, teachers account for a significant portion of the implementation differences across their reading groups; and schools, in turn, account for a significant portion of the variation of their teachers' implementation averages. These findings suggest that curriculum implementation is at least a two-stage process involving both overall school and individual teacher influences: 1) teachers deliver the curriculum to their reading groups, and all influences ultimately are channeled through the teacher-classroom combination; and 2) schools and school-related features influence the teacher by way of preparation, support, staff differences, school climate, and other school-related factors such as school achievement level.

The Reading Study was designed to provide detailed data on program implementation, but unfortunately does not provide details on the multitude of teacher and school factors which potentially make a difference in the curriculum delivery process. Thus, while it is possible to specify here how important teacher factors and school factors are, the specific characteristics which matter the most cannot be identified. However, one factor can be noted which does not make a difference--the number of years that the program has been implemented at a given school.

The results in Figure 3.5 indicate no significant differences between the teachers in schools using the curriculum for different numbers of years. Teachers in schools with a three-year experience with the curriculum average slightly, but not significantly, higher than others, and those in schools new to the curriculum are somewhat lower. Yet, those with two years of experience average lower than the schools new to the curriculum. In general, however, the groups with three or more years appear slightly, but not significantly, higher in implementation levels than the others.

This finding appears at first glance to violate the dictum, "Practice makes perfect." However, early signals from the Year 1 Report suggested that many teachers were dissatisfied with their in-service training on the curriculum, having received only five hours or less of training. And, data reported below from the teacher interviews indicate that most teachers would like further training, be it more in-service, classroom demonstrations of the curriculum or visits to model classrooms. Thus, the mere availability and use of the curriculum in schools does not suffice for successfully implementing the curriculum.

FIGURE 3.5
Mean Curriculum Implementation Levels Grouped by
Length of Time Schools Had Been Implementing the Curriculum



ADMINISTRATIVE SUPPORTS FOR CURRICULUM

In order for schools and teachers to implement any curriculum, they need the following administrative supports:

- o In-service training for staff
- o Other types of assistance for staff
- o Curriculum materials which are available, received in a timely manner, and appropriate
- o Consistent monitoring of curriculum implementation

The study assessed the extent to which these supports are present and adequate.

In-service Training

Overall, about 90 percent of the staff say that they had received in-service training on IPR/LA during the school year and that this training was helpful in implementing the new reading curriculum. However, there are some indications that the training is too superficial. For example, about one-third of the staff feel that this in-service training was not sufficient for implementation of IPR/LA because the content of the in-service training tended to be general and introductory rather than specific in nature. Staff report that the training they received more often included such general topics as program overview, objectives, and organization of the instructional guide rather than more specific topics like selection of instructional materials, interpretation and use of CRT results, or use of illustrative units. Thus, while in-service training is generally available and helpful, it is not sufficiently specific for helping some staff to implement fully the new curriculum.

Other Types of Assistance Needed by Teaching Staff

Virtually all teaching staff (98 percent) express a need for some type of additional assistance in implementing the curriculum. Many of the respondents list the following needs:

- o Time to read materials, plan, and learn more about IPR/LA (83%)
- o Materials for teacher use (e.g., lesson plans, miniunits) (73%)
- o Demonstration lessons using IPR/LA objectives, strategies, and materials (67%)
- o Opportunities to visit classrooms where IPR/LA is successfully implemented (55%)
- o In-service workshops (47%)
- o Individual sessions with specialists to plan/discuss IPR/LA (44%)
- o MCPS in-service courses (35%)

As with their responses regarding the content of in-service training, staff appear to be more interested in specific, concrete assistance than general in-service courses or workshops that give only an overview of the curriculum. Requests for additional assistance appear more frequently with lower grade level and special education teachers, lending credence to the findings above concerning implementation differences across reading performance levels.

Curriculum Materials: Availability and Other Concerns

Teachers generally report that curriculum materials were available and were received in a timely manner. Of the materials surveyed (overview manuals, instructional guides, core book lists, basal correlation sheets, scope and sequence charts, CRT-N and novel tests), basal correlation sheets are least available; but only 20 percent of the staff report a problem with availability of these materials. Thus, the availability of materials does not seem to be a significant barrier to implementing the curriculum.

Ninety percent of the staff using these materials find them to be helpful. On the other hand, when asked about any difficulties they are having, at least half of the respondents also report some problems with the instructional guides, the core book lists, and the CRT-N. Half of the reading specialists and principals report problems with the instructional guides, primarily regarding their lack of organization. Seventy percent of staff (primarily those involved in direct instruction) report some problems using the core book list; roughly half of those reporting problems listed the following concerns:

- Books were out of print or otherwise unavailable.
- Not enough books were listed at different levels within grade.
- Not enough books were listed for some forms of discourse.

About half the staff report problems using the CRT-N. The most common complaints are that the test scores are not received in a timely manner (27%) and that the difficulty level of the test is not appropriate for students (33%), in most cases because the grade-level test is too difficult for students, especially in the lower grades. (Recent changes in 1986 for returning CRT data to teachers earlier and for assigning pupils to their appropriate test levels were implemented to overcome these difficulties.)

In summary, although curriculum materials are generally available, staff have some specific concerns about these materials which require remedy: the lack of organization of the instructional guides and the unavailability of appropriate core books.

Monitoring Curriculum Implementation

Roughly two-thirds of the principals report that guidelines are available for monitoring implementation of the curriculum; these guidelines are primarily provided by the area office. Generally, monitoring is the responsibility of the school's reading specialist (82%) and/or principal (61%). Principals and reading specialists most often note a lack of time (56%) and teacher resistance (39%) as difficulties they face in monitoring

implementation.

It is likely that principals and reading specialists face difficulties in monitoring similar to the problems which teachers report in following the curriculum, namely a lack of specificity in the training materials. The availability of a standardized and simplified monitoring form together with the training necessary to use it would likely assist principals and specialists in producing higher and more even implementation levels within their schools.

SUMMARY OF IMPLEMENTATION FINDINGS

Analysis of the latest data show that the curriculum is only modestly implemented in the elementary schools. Implementation is beyond the beginning level in only about half of the the reading groups studied. Since the schools' years of practice with the curriculum bear little relationship to implementation levels, these 1985 data most likely apply to the current school year. While there are no hard and fast standards for how long it should take for a new program to be fully implemented, it seems reasonable to suggest that the progress shown in implementing IPR/LA is far from impressive. In fact, given the pace of new findings emerging in the field of reading research, it may be tempting to modify the present curriculum before many schools have fully adopted it.

One finding that has consistently emerged from studies of IPR/LA is that the program is less well implemented with lower level readers and pupils in the lower grade levels. The reasons for this are not clear. However, the data do show that the same teacher may use the curriculum to varying extents with groups of different reading levels. This suggests that at least some teachers who know how to implement the curriculum for able readers either find the same material unsuitable for their less able readers, or are not sufficiently trained in applying the new curriculum to their lower level readers. Despite this finding, the data do not allow us to decide definitively whether the problem lies in the design of the program, the unwillingness of teachers to use it with less able students, both of these factors, or some as yet undiscovered condition. Suffice it to say that there appear to be systematic differences in program implementation which result in lower-achieving students and students in the lower elementary grades getting a smaller "dose" of the program. This is not consistent with the program as designed.

The analyses also show that both teachers and schools make a difference in program implementation. Although it is not possible to say conclusively what it is about these factors that make a difference, it is known that the school's length of time using the program does not provide a satisfactory answer.

The data on administrative supports at least offer some suggestions on ways to improve the IPR/LA implementation. Teachers' reports indicate that more in-service training is needed; further, what is needed is not general training, but training addressing specific problems or components of the curriculum. The present study suggests that two topics requiring immediate attention are implementing the curriculum with young and lower-achieving students and using comprehension activities. Other topics will no doubt assume increased importance for individual schools and teachers.

Chapter 4

IPR/LA CURRICULUM Effects ON PUPILS

The second goal of the Reading Study is to assess its effect on student achievement and attitudes toward reading. Specifically, the study was designed to address the following questions regarding program effects:

> Does the curriculum boost the reading scores for elementary school pupils? Does it do so equally for different types of pupils (reading level differences, race differences, grade level differences)? Does it enhance pupil attitudes toward reading?

To answer these questions, analyses were conducted of the correlations between the curriculum implementation measures discussed in the previous chapter and student achievement and attitudes.[1] These correlations were adjusted statistically, where necessary, in order to get at the direct connection between the variables and screen out their overlap with other measures. (Details of the statistical procedures used are presented in Volume II.) It should be noted that this "screening-out" process, together with some inevitable measurement error, produce more conservative estimates of the curriculum's effects. This means that where effects are discovered, such as those reported below, they represent important connections between the variables in question which may be stronger than the correlations alone indicate.

CURRICULUM EFFECTS ON READING OUTCOMES

Research has shown that the most important influence on a pupil's reading performance is the pupil's reading ability at an earlier point in time. The analysis presented here takes this fact into account and then identifies how much more the curriculum adds to pupil performance apart from the pupil's previous reading level. Specifically, the analyses of the effects of curriculum implementation on reading achievement examine the linkages between several variables: initial reading level at the beginning of the second or fifth grade (pretest), race, curriculum implementation level, and final reading scores at the end of the third or sixth grade (posttest). In doing these analyses, the primary measure of achievement is pupil performance on the CRT-N. The major findings are as follows:

> **Higher levels of curriculum implementation lead to higher pupil reading gains.**
>
> Level of curriculum implementation (averaged over a two-year period) correlates .08 with reading gains for lower elementary and .11 for upper elementary pupils. These correlations, though small, are statistically significant. The curriculum effect is slightly stronger in the upper grades where implementation levels are somewhat higher. The

---

1. Correlations between measures range on a scale from 0.0 (no association at all) to 1.0 (a perfect correspondence between the two measures).

basic correlations between implementation level and subsequent reading performance, unadjusted for other relationships, are as high as .36 in in the upper elementary group. But this figure needs to be adjusted statistically for the correlation of .31 between implementation and prior reading performance. This analysis was conducted on a sample of 555 lower elementary and 459 upper elementary pupils who had implementation and achievement data from the last two years of the Reading Study.

There are no race differences in the curriculum's effect on reading gains. Majority and minority pupils benefit essentially the same.

There are no significant race differences in the curriculum's effect on gains. The correlation in question here is less than .01. Any observed race differences in outcome scores are due to race differences in pretest, not to race differences per se in the curriculum exposure.

The curriculum's direct effect on reading gains is about the same for pupils at all reading levels.

Regardless of initial reading group level (top, middle or bottom third of the class) the direct effect of implementation level on achievement was approximately the same. This indicates that slower learners profit as much from a given level of IPR/LA implementation as their more rapid learning classmates.

The program has what might be called a "snowball effect." That is, higher-achieving students may in the end benefit somewhat more from the program than others, especially in the upper grades.

This snowball effect comes about through the cumulative operation of two factors: the direct effect of the curriculum on gains as noted above, and the indirect effect of reading ability on how much implementation a pupil receives. First, there is the direct effect of the curriculum on reading gains described above in the first finding--pupils who get a better curriculum dosage get higher reading gains. Second, there is the finding from Chapter 3 (reconfirmed in the analysis here) that higher achievers get a better dosage of the curriculum than lower-achieving students. Taken together, the result is that those who get more of the curriculum--the higher achieving students in the upper grades--profit more from it. This higher benefit is not because the curriculum works better for them (as noted in the just previous finding), but because they get a fuller dose of a good thing. The outcome is similar to piling interest income on top of principle. Even though all pupils have the same "interest rate" (the coefficient linking curriculum to gains), those with more "money" at the outset accrue money faster than those who started with less. This is the "snowball effect," i.e., "the rich get richer." Thus, unless implementation is strengthened at the lower achievement levels, the new curriculum implemented in its current fashion will have the effect, as time goes by, of expanding the differences in reading performance between lower-level and upper-level readers.

PUPIL ATTITUDES TOWARD READING

Pupil attitudes toward reading were assessed as a supplement to the study of reading performance. Reading for leisure and enjoyment is a valuable by-product of school learning and thus deserves study as a potential outcome of the IPR/LA curriculum. Also, the assumption was that pupils who enjoy reading would read more and that any curricular effects on attitudes would thereby provide more leverage on reading improvements in the future.

Four reading attitude scores were measured with a brief questionnaire asking pupils about their liking for reading and activities related to reading. These scores and their meanings are as follows (technical details of the scoring process are included in Volume II):

LIKES TO READ
The pupil likes to read, chooses to read often, reads much in school, and says reading is a favorite subject.

PERFORMER
The pupil likes to act out what is read and likes to read aloud, talk about books, and tell stories.

GOOD READER
The pupil claims to be a good reader; reads difficult books and newspapers.

WRITER
The pupil enjoys writing, answering questions about what is read, and making rhymes.

Using an analysis similar to that for the academic outcomes, the study found the following:

There is no systematic evidence linking curriculum implementation levels to improved attitudes toward reading.

There is no evidence that the reading curriculum has any consistent or sustained effect on pupil attitudes toward reading. The few relationships between curriculum implementation and reading attitudes found in the analysis were very small and did not replicate across grade levels or years.

SUMMARY OF FINDINGS REGARDING PUPIL OUTCOMES

The analyses show that the IPR/LA does boost pupils' reading scores as measured by the CRT-N but does not change students' attitudes. Higher levels of implementation lead to higher reading performance. In addition, this effect on achievement is found for all students, regardless of race or initial reading level. This latter finding is especially important because it indicates that lower achieving students do profit from the program and could in all likelihood profit more if they received a more fully implemented program. If lower level readers do not get a fuller implementation of the curriculum, then achievement differences between the able and less able groups may well expand as they progress through elementary school.

It is important to note that the effects of the curriculum reported here are not large. As indicated above, the correlations are modest. However, given the overall level of implementation and the conservative analysis technique, the fact that an effect was found is important. One might well expect larger gains to emerge with a more fully implemented program.

Chapter 5

CONCLUSIONS AND RECOMMENDATIONS

The three-year study of the implementation of the IPR/LA in MCPS elementary schools has documented both program strengths and program weaknesses. On the positive side, the study shows that the program does have an effect on comprehension test performance as measured by the CRT-N. For both higher- and lower-achieving students, the curriculum appears to be delivering on its promise to provide more effective instruction for students.

However, on the negative side, the study also shows that, judging from the latest data, the program is only modestly implemented in the elementary schools; implementation is beyond the beginning level in only about half the groups studied. Further, the program remains less well implemented for lower-level readers and pupils in the lower grade levels. That is, the lower-achieving and lower-grade-level students get less of a "dose" of the curriculum than their older, higher achieving peers. Also, since the school's years of implementation show little relationship to its implementation level, the 1985 findings very likely represent the current status.

Finally, and most significantly, the data show that there is a "snowball effect" of implementation on test performance--higher achievers get fuller implementation and fuller implementation leads to better test performance. The cumulative effect of this process over the elementary years is to widen the gap between lower- and higher-achieving groups of students. Such a phenomenon comes as no surprise when, for example, one reviews the math gains of pupils who, over the years, have taken more and higher-level courses because of their higher standing in math during the earlier years. However, if the link between initial achievement and implementation could be turned around (certainly a strenuous challenge for any school system), then since higher implementation leads to higher achievement, this study's findings show that stronger curriculum implementation for younger and lower-achieving groups could provide a useful path for reducing group disparities in school achievement.

Based on these findings the following recommendations are made:

RECOMMENDATION 1

Ways for accelerating the implementation of the IPR/LA are needed. Teacher reports dating back several years suggest the need for more detailed, hands-on training in specific classroom procedures rather than overall orientation to the general IPR/LA curriculum model.

RECOMMENDATION 2

Increased efforts need to be made to provide fuller implementation of the curriculum for <u>all</u> students. The IPR/LA was not designed as a program for able students alone. Ways need to be found for more adequately implementing the program with lower-achieving, early-grade students.

RECOMMENDATION 3

To echo the final recommendation from the Year I Report, MCPS needs to take a more systematic approach to program implementation than has thus far been seen, and to provide the resources to support such a plan. There appears to be no formal and consistently implemented long range plan for curriculum installation. And after the first stages of program initiation and implementation, there needs to be a more formal and explicit plan for program support and evaluation, including training and material resources. The findings of this report, combined with those from earlier studies, indicate that if a curriculum is merely delivered to the school house door, it either will not take hold or will take hold only slowly and unevenly.

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APPENDIX A
Definition of Types of Discourse

Types of Discourse

1. Narration. An account of an event or series of events that form a plot and involve characters in a setting over a period of time. Characteristic forms include short stories, novels, folk tales, fables, myths, legends, biographies, autobiographies, diaries, journals, ballads, and story poems.

2. Exposition. A structured set of ideas and information about a topic, often with generalizations and supporting details. Characteristic forms include reference articles, news articles, feature articles, textbooks, and expository tradebooks.

3. Persuasion. A set of statements expressing opinion about a topic or product, often with supporting information intended to convince or persuade the reader/listener. Characteristic forms include advertisement, editorials, reviews, and critiques.

4. Procedure. A set of directions that indicate the proper sequence of steps in making or doing something. Characteristic forms include recipes, game directions, signs, and warnings. Also included are directions for travel, first aid, information forms, science investigations, tests, and assignments.

5. Drama. An event or series of events expressed through the dialogue and movement of characters portrayed by actors. Characteristic forms include plays, skits, and musicals.

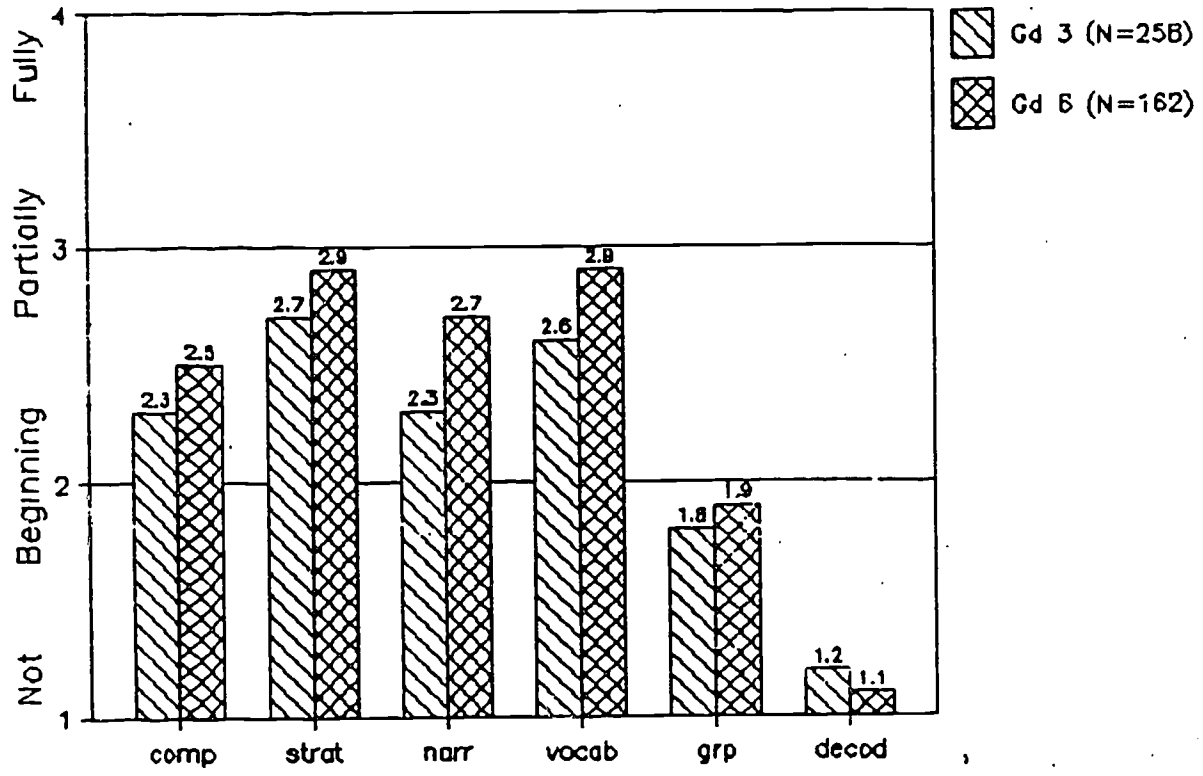
6. Lyric. An expression of an author's feelings or perceptions about the nature of things, often using figurative language and imagery for effect. Characteristic forms include lyric poems and songs.

APPENDIX B

IMPLEMENTATION OF SPECIFIC CURRICULAR COMPONENTS

Implementation scores for six major curricular components are portrayed below. Reading from left to right, the categories are laid out in their order of importance to the IPR/LA curriculum model. Implementation findings are discussed below for each area, presented in order of importance. (The weighting factor for each component is indicated in parentheses.)

FIGURE B.1
Average Implementation Level of Each Curriculum Component
for Third and Sixth Grade in 1985



Comprehension Activities (35%)

Instructional practices which promote comprehension are most central to the IPR/LA curriculum. These include the following:

- o Developing understanding of the gist of the discourse
- o Developing understanding of the overall structure of the discourse
- o Using enrichment/extension activities

Implementation status in this area averaged between the "beginning" and "partial" levels. Teachers were observed developing an understanding of the gist and the overall structure of the discourse with roughly half of the groups observed. Enrichment or extension activities were observed in 25 percent of the groups. However, these comprehension activities were significantly better implemented at the upper grade levels and among higher-achieving students.

Teachers' estimates that they spent about two-thirds of their total reading instructional time on teaching comprehension skills were confirmed in our observations. However, only about half of the teachers reported increasing the amount of instructional time they spent on teaching comprehension skills as a result of implementing IPR/LA. It appears that teachers were spending adequate time on comprehension skills in general but may need to focus on specific IPR/LA recommended activities.

Teaching Strategies (25%)

IPR/LA emphasizes teaching strategies such as:

- o Encouraging student discussion
- o Encouraging students to predict while reading a selection
- o Using open-ended questions
- o Webbing and brainstorming
- o Establishing the purpose for reading
- o Relating the reading to student's background knowledge and experience

Teachers have implemented this aspect of the curriculum more completely than the other aspects but still only "partially" as defined by the developers' standards. While teachers were observed using open-ended questions, establishing the purpose for reading, and relating the reading to the student's experience in over half of the groups observed, other IPR/LA strategies were observed less frequently. Again, this aspect of the curriculum was better implemented at the upper grades and among higher-achieving students.

Teacher reports confirm only partial implementation; for example, while 45 percent of the teaching staff placed more emphasis on open-ended questions, 41 percent emphasized literal questions in teaching reading comprehension.

Use of Narrative Materials (20%)

The curriculum encourages the use of the best in children's literature, specifically tradebooks for narrative discourse with less emphasis on the

use of basals and workbooks. The implementation levels in Figure B.1 suggest only beginning to partial implementation of this aspect of the curriculum. The "Narrative Materials" area was significantly better implemented at the upper grade levels and among higher achieving students. For example, teachers were observed using tradebooks more frequently with sixth grade groups than with third graders (49 vs. 25 percent). On the other hand, sixth grade reading groups were observed using basal readers less frequently (25 vs. 54 percent).

Staff reports also suggested only partial implementation of materials usage. While over 90 percent of the staff were using tradebooks, a similar percentage also was still using basal readers. Overall, about two-thirds of staff reported using workbooks, but more so at the lower grade levels. Thus, these "old" and "new" approaches still overlap in classroom practices.

Equally revealing as the frequency of usage is the style of using narrative materials. For example, the following data suggest that most teachers still rely on basal readers, and only augment the "old" practices with the IPR/LA approach. About one-third of staff reported that they found the "best" materials from various sources to teach the objectives and fit student needs. Twenty percent selected appropriate basal stories and supplemented these with other materials. Another one-third used a basal reader in sequence and supplemented it where needed with other materials to teach IPR/LA objectives. Finally, 10 percent of staff used a combination of the above approaches depending on the ability level of the students. These figures suggest that approximately one-third to one-half of teachers were still relying on basals as their primary reading material, despite the fact that over 90 percent reported using tradebooks to some extent. Thus, these teachers were not implementing the full concept of the Narrative Materials component.

The usage of basals varied considerably by grade level. The most popular approach among upper grade level teachers was to select the "best" materials from various sources. In contrast, lower grade level teachers most often used a basal reader in sequence and supplemented it where needed with other materials.

Vocabulary Development (12%)

The IPR/LA curriculum suggests that vocabulary words be taught in a meaningful context and that teachers encourage students to use the words. This aspect of the curriculum is relatively well implemented, reaching the "partial" implementation level on our 4-point scale. Teachers were observed using at least one of these approaches to vocabulary development in more than half the reading groups observed. These vocabulary activities were better implemented at the upper elementary grade levels.

Grouping Practices (6%)

The IPR/LA curriculum encourages teachers to use multiple and varied grouping patterns. This includes instruction in homogeneous and heterogeneous groups, as well as whole-class and individualized instruction. Observed implementation of this aspect of the curriculum was low, not quite reaching the "beginning" level, with most teachers observed working with reading groups of homogeneous reading levels. Virtually all teachers

reported grouping students according to reading level for reading instruction and also reported using more than one grouping procedure (e.g., whole class, individuals, small groups). However, use of more than one grouping procedure was generally not observed during reading group instruction.

Decoding Activities (2%)

The IPR/LA curriculum puts less emphasis on decoding activities in primary grades than traditional programs, emphasizing the use of context clues in decoding instruction. Observed implementation status was very low on this aspect of the curriculum, largely because decoding activities refer to skill development found more often below the third grade level. Teachers were observed conducting decoding activities with only 19 percent of the third grade reading groups and only 10 percent of the sixth grade reading groups.

Teacher reports suggest better implementation in this area. Fifty-nine percent of staff reported placing more emphasis on teaching decoding skills in context while another 34 percent put an equal emphasis on teaching decoding skills in context and in isolation. Still grade differences were striking; upper grade level teachers put more emphasis on decoding in context than did lower grade level teachers (76% vs. 44%).

SUMMARY OF IMPLEMENTATION LEVELS FOR SPECIFIC COMPONENTS

While almost 90 percent of the reading groups we studied were exposed to at least the beginning levels of the IPR/LA curriculum, the usage of the curriculum is not so advanced as might be expected, given the number of years the school have been working with it. Three central features of the curriculum were moderately implemented--teaching strategies, materials usage, and comprehension activities. Among these, fuller implementation of the curriculum could be attained most readily by reinforcing the comprehension activities.

MONTGOMERY COUNTY
PUBLIC SCHOOLS
ROCKVILLE, MARYLAND

Reading Study
Volume 2
Technical Appendix for Final Report

November 1986

Wilmer S. Cody
Superintendent of Schools

Prepared by the Department of Educational Accountability

MONTGOMERY COUNTY PUBLIC SCHOOLS
Rockville, Maryland

READING STUDY

VOLUME 2

TECHNICAL APPENDIX FOR FINAL REPORT

November 1986

Wilmer S. Cody
Superintendent of Schools

MONTGOMERY COUNTY PUBLIC SCHOOLS
Rockville, Maryland

READING STUDY

VOLUME 2

TECHNICAL APPENDIX FOR FINAL REPORT

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Chapter A1

EVALUATION METHODS

INTRODUCTION

Volume 2 contains the background data and statistical analysis tables which support the findings reported in Volume 1 of the Reading Study. The sequence of the material here generally parallels that of the presentation in Volume 1, and page references to Volume 1 are cited underneath each topic discussed here. A brief explanatory discussion accompanies the statistical results. However, the reader is assumed to have familiarity with descriptive statistics, correlation coefficients, and analysis of variance techniques.

CLASSROOM OBSERVATION PROCEDURES AND INSTRUMENT
(Ref. p. 6)

Chapter 2, Volume I describes briefly the data collection procedures and the items on the classroom observation instrument. A more detailed accounting is presented here.

Using a direct classroom observation measure modeled after the specifications of the IPR/LA curriculum, reading instruction was observed during three time periods (fall, winter, and spring) in the study classrooms. Within these three broad time periods, actual observation visits were unannounced. The observer remained in the classroom for the entire reading period, observing all reading groups that the teacher instructed during that period or observing whole class instruction. The actual time spent in each classroom varied depending on the length of time individual teachers allocated for reading instruction.

Observations were limited to students receiving regular reading instruction in the classroom; pullout instruction for whatever purpose (remedial, gifted and talented, ESOL, etc.) was not observed, and the observation data, therefore, cannot be used to characterize such instruction.

Over the three-year course of the study, 14 observers were employed to conduct the observations for the Reading Study. All had extensive classroom experience and either a master's degree in reading or special training and experience as a classroom observer. In addition, the observers participated in a training session in October of each year to prepare for the observations.

The observation instruments were intended to describe instruction and minimize the extent to which observer judgment was needed. Nevertheless, some judgment was obviously necessary. To assure quality control for the study, frequent contact was maintained with the observers; and special procedures were used to ensure that interrater reliability remained high. In order to check interrater reliability, the Reading Study observation supervisor joined each observer during each observation time period (fall, winter, spring). These joint observations were conducted in all 20 schools in the study. Both the supervisor and the observer coded simultaneously, and then

percent agreement was calculated using the supervisor's coding as the standard. The reliability averaged 89 percent across all observers in each of the three years of data collection.

The observation instrument was designed for either small group or whole class observations and was used to code teaching behaviors for an entire reading period while instruction was taking place under teacher direction. The instrument listed different teaching behaviors/strategies divided into six areas:

- Comprehension activities
- Teaching strategies
- Narrative materials usage
- Vocabulary development
- Grouping practices
- Decoding activities

These areas were selected to reflect aspects of instruction likely to be affected by implementation of the new curriculum. The observer coded whether or not each behavior had occurred separately for each of the reading groups in the class. After the first year of data collection, the observation instrument was modified slightly to eliminate weaker items and include additional instructional strategies and materials. The classroom observation items from Year 2 and 3 and their definitions or examples are shown in Table A1.1.

DERIVING IMPLEMENTATION SCORES FROM CLASSROOM OBSERVATIONS
(Ref. pp. 8-9)

As shown in Table A1.1, the classroom observation instrument provided many items covering the six major curricular areas. Table A1.2 provides a listing by grade level of the average frequencies with which these items were observed in the reading groups across the three time points in Year 2 and Year 3.

Classroom Observation Items for Six Major Curricular Categories

Curricular Category	Classroom Observation Items Teacher Activities	Definitions/Examples
COMPREHENSION ACTIVITIES	Develop understanding of gist of discourse	Gist is what the story is mostly about, the main idea, theme, best title, conclusions.
	Develop understanding of overall structure of discourse	The overall structure of narrative discourse includes characterization, plot, and setting.
	Use enrichment/extending activities	Some enrichment/extending activities are: dramatize story, make poster of favorite character's adventure, rewrite story with new ending, construct mural/model.
TEACHING STRATEGIES	Encourage student discussion	Student discussion occurs among students and teacher rather than in teacher-directed question/answer format.
	Encourage students to predict while reading a selection	Prediction questions include: What will happen next? What will the unit be about?
	Use open-ended questions to promote critical thinking and discussion	Open-ended questions are, for example, "how" and "why" questions rather than literal questions.
	Use varied strategies	Varied strategies include webbing, brainstorming, active listening, paired talking, discussion plays, and language experience.
	Clearly establish purpose for reading	Examples of establishing purpose are: Read this selection to find out..., listen for rhyming words in the passage.
	Relate text to student's background knowledge and experience	Experience questions include: Did you ever...?, How would you feel if it happened to you?, Have you ever been to...?
	Avoid round robin oral reading	Round robin oral reading is students reading passages aloud in turn.
NARRATIVE MATERIALS USAGE	Emphasize tradebooks	Tradebooks are library books.
	Use experience stories	Experience stories are student-authored accounts of an individual or group experience.
	Rely less on basal readers and the accompanying workbooks and dittos	Basals are a series of readers developed by publishers.
VOCABULARY DEVELOPMENT	Present and develop selected words/concepts in meaningful context	Meaningful contexts include presenting words in phrases, sentences, or passages rather than lists.
	Encourage word use	Examples of word use are: Students use words, teacher asks questions relating to words.
GROUPING PRACTICES	Use multiple grouping patterns	Grouping patterns include student interest groups, heterogeneous groups, whole-class grouping, homogeneous groups, and individualized groups.
DECODING ACTIVITIES	Use context clues to help students decode unfamiliar words	Context clues are semantic, syntactic clues (e.g., pictures, surrounding words/sentences).
	Discourage student use of isolated phonemes to sound out words	Isolated phonemes are individual letters.
	Avoid isolated phonic elements in helping students decode unfamiliar words	Isolated phonic elements are letter/sound relationships (e.g., blends, diphthongs).

TABLE A1.2
Percentage of Reading Groups Engaged in IPR/LA Activities by Grade Level

IPR/LA ACTIVITIES	PERCENTAGE OBSERVED Grade 2 (N=349)	Grade 3 (N=258)	Grade 5 (N=208)	Grade 6 (N=162)
COMPREHENSION ACTIVITIES				
Gist	32	49	41	56
Overall structure	41	55	51	63
Enrichment/extending	17	24	29	26
TEACHING STRATEGIES				
Student discussion	10	3	22	14
Prediction	42	47	28	45
Open-ended questions	69	75	73	81
Webbing	3	9	5	3
Brainstorming	1	2	7	5
Establishing purpose	56	65	47	71
Relating to experience	51	54	45	56
Round robin oral reading	7	8	6	6
NARRATIVE MATERIALS USAGE				
Tradebooks	17	28	53	50
Experience stories	3	0	2	1
Basals	56	46	31	20
Workbooks	21	15	8	8
Dittos	31	26	38	31
VOCABULARY DEVELOPMENT				
Meaningful context	38	44	35	48
Word use	45	38	49	48
GROUPING PRACTICES				
Student interest groups	0	2	1	5
Whole-class grouping	32	26	34	32
Homogeneous groups	88	88	80	77
Heterogeneous groups	7	7	3	9
Individualized instruction	23	22	21	28
DECODING ACTIVITIES				
Context clues	16	5	4	4
Isolated phonemes	17	2	1	1
Isolated phonic elements	25	9	3	1

Note: N is number of reading group observations.

The listing of the data for the 26 items in Table A1.2 provides a very detailed picture of the curriculum's workings but for this very reason does not yield an overall answer to the question of curriculum implementation. Just as pupils are given a total score across many items on, for example, a math test, so also the reading groups need an implementation total score in order to study how well, on the average, the curriculum was implemented across grade levels, across teachers and schools, and other such analytic issues. The observation instrument was "scored" for overall implementation according to the procedures described below.

The curriculum authors in the Department of Academic Skills (DAS) specified that not all the observation items were equally essential for the curriculum to be well implemented. Rather, certain activities were mandatory for curriculum implementation, while other activities were supplementary, and still other activities only optional in order for the curriculum to be considered well implemented. Thus, the adequacy of curriculum implementation for each reading group observation can be judged from the pattern of activities specified by DAS. The following series of tables (Tables A1.3 - A1.8) identifies the different patterns of observation activities which yield different implementation scores for each of the six curriculum areas.

The implementation score for each area ranges on a scale from 0 (no implementation) to 7 (best implementation). The observation items contributing to a curriculum area appear across the columns in the tables, and each row specifies the scale value derived from the presence (indicated by "yes"), the absence ("no"), or the optional presence ("?") of the various observational items. For example, in Comprehension Activities (Table A1.3), if a reading group was observed using all three activities (Gist, Overall Structure, and Enrichment), then it scored a perfect "7" on implementation in that area. If none of these three activities were observed for a reading group, it scored a "0" for implementation. Different patterns of these three activities yielded different scores on the "comprehension" scale between 0 and 7.

TABLE A1.3
Pattern of Comprehension Activity Items Specified for Different Scale Values

	Comprehension Activities		
Scale Score	Gist	Overall Structure	Enrichment
0	No	No	No
1	No	No	Yes
2	No	Yes	No
3	No	Yes	Yes
4	Yes	No	No
5	Yes	No	Yes
6	Yes	Yes	No
7	Yes	Yes	Yes

Although each curriculum area was scored "0" for no implementation or "7" for best implementation, all the scale points in between were not necessarily defined. Where the curriculum authors in DAS did not specify important distinctions between various patterns of items, the scale does not provide different numerical values. Just the 0-to-7 range was maintained across all curriculum areas. For example, the scale for narrative materials usage shown in Table A1.4 below includes only the scale values 0, 1, 3, 5, and 7.

TABLE A1.4
Pattern of Narrative Materials Usage Items
Specified for Different Scale Values

	Narrative Materials Usage			
Scale Score	Tradebooks	Experience Stories	Basals	Workbooks/ Dittos
0	No	No	No	No
1	No	No	No	Yes
3	No	No	Yes	?
5	No	Yes	?	?
7	Yes	?	?	?

The scale for narrative materials usage was constructed based on the rank order of the different types of materials according to their importance in the curriculum. IPR/LA emphasizes the use of tradebooks and experience stories rather than basal readers, workbooks, or dittos. Consequently, to obtain a score of 7, tradebooks must be used during a reading group observation (noted by "yes"), whether or not the other materials were also used (noted by "?"). Reading group observations during which none of these narrative materials were used (noted by "no") received a score of 0. If workbooks or dittos were used in the absence of the other materials, the reading group observation received a score of 1. And so forth.

This same scoring procedure was used for the other five curriculum categories as illustrated in the following tables.

TABLE A1.5
Pattern of Teaching Strategy Items Specified for Different Scale Values

	Teaching Strategies											
Scale Score	Student Discussion		Prediction		Open-ended Questions	Other[1] Strategies		Establish Purpose		Relate to Experience		Round Robin
0	No		No		No	No		No		No		No
1	No		No		No	Yes	OR	Yes	OR	Yes	OR	Yes
3	No		Yes	OR[2]	Yes	?		?		?		?
5	No		Yes		Yes	?		?		?		?
7	Yes		?		?	?		?		?		?

Notes: 1. Other strategies included the following: webbing, brainstorming, active listening, paired talking, discussion plays, and language experience.

2. OR indicates that one of two or more activities must be observed to receive that scale score. For example, a reading group observation during which the teacher either encouraged students to predict what would happen while reading a selection or used open-ended questions received an implementation scale score of 3.

TABLE A1.6
Pattern of Vocabulary Development Items Specified for Different Scale Values

	Vocabulary Development		
Scale Score	Meaningful context		Word Use
0	No		No
7	Yes	OR	Yes

TABLE A1.7
Pattern of Grouping Practice Items Specified for Different Scale Values

Scale Score	Grouping Practices: Student Interest Groups		Heterogeneous Groups	Whole-class Grouping		Homogeneous Groups		Individual Instruction
0	No		No	Yes	OR	Yes	OR	Yes
3	No		No	Yes		Yes		Yes
7	Yes	OR	Yes	?		?		?

TABLE A1.8
Pattern of Decoding Activity Items Specified for Different Scale Values

Scale Score	Decoding Activities: Context Clues	Isolated Phonemes	Isolated Phonic Elements
0	No	?	?
7	Yes	?	?

The 0-to-7 scales accomplish one important function--for each of the six areas they collapse many items into single scores indicating low-to-high curriculum implementation. However, these scores cannot be directly compared to each other to determine which areas are better implemented. For example, a "3" in comprehension activities does not necessarily mean the same implementation level as a "3" in teaching strategies. Also, the meaning of a "3" is not directly defined in terms of curriculum implementation. To overcome these shortcomings, the curriculum authors in DAS were once again asked to specify for each of the six scores what scores represented "full" curriculum implementation, what scores indicated "no" curriculum implementation, and which score values reflected "beginning" or "partial" implementation. The 0-to-7 scales were thus converted into 1-to-4 scales. Each of the scale points represents the "same" level of implementation across the six areas; thus, the implementation levels can be compared across areas on the 1-to-4 scale. Table A1.9 specifies how the 0-to-7 scales were converted into the 1-to-4 scales for the reading groups, and it indicates the percentage of reading group observations (combined across Years 2 and 3) which obtained those score values. Note that these percentages are expressed as cumulative percentages within each area.

TABLE A1.9
Implementation Scoring and Equipercentile Cut Scores
for Reading Group, Teacher, and Student Levels of Data

Curricular Category	Final 4-point Scale		Reading Group Level 7-point Scale	Reading Group Level Cum[1] %	Teacher Level 7-point Scale	Teacher Level Cum %	Student Level 7-point Scale	Student Level Cum %
COMPREHENSION ACTIVITIES	1	Not	0	32	0-2.25	32	0-2.50	29
	2	Beginning	1 - 3	58	2.26-3.50	56	2.51-4.33	59
	3	Partially	4 - 6	90	3.51-5.40	90	4.34-6.50	88
	4	Fully	7	100	5.41-7	100	6.51-7	100
TEACHING STRATEGIES	1	Not	0	15	0-2.20	15	0-2.33	15
	2	Beginning	1	23	2.21-2.60	22	2.[illegible]	19
	3	Partially	3,5	89	2.61-5.00	83	2.[illegible]	94
	4	Fully	7	100	5.01-7	100	5.01-7	100
NARRATIVE MATERIALS USAGE	1	Not	0,1	26	0-2.40	26	0-2.33	26
	2	Beginning	3	66	2.41-4.49	65	2.34-4.67	63
	3	Partially	5	67	4.50	67	4.68-5.00	68
	4	Fully	7	100	4.51-7	100	5.01-7	100
VOCABULARY DEVELOPMENT	1	Not	0	46	0-4.00	46	0-3.50	45
	2	Beginning						
	3	Partially						
	4	Fully	7	100	4.01-7	100	3.51-7	100
GROUPING PRACTICES	1	Not	0	61	0-1.50	63	0-1.50	62
	2	Beginning						
	3	Partially	3	93	1.51-4.00	92	1.51-4.33	93
	4	Fully	7	100	4.01-7	100	4.34-7	100
DECODING ACTIVITIES	1	Not	0	92	0-2.00	88	0-2.33	90
	2	Beginning						
	3	Partially						
	4	Fully	7	100	2.01-7	100	2.34-7	100

Note: 1. Cum % is the cumulative percentage of reading groups, teachers, or students who received a given score or lower score. For example, 32 percent of the reading groups were scored as not implementing comprehension activities, while 58 percent were scored at the beginning level of implementation or lower.

Table A1.9 also specifies the cumulative percentages or cumulative frequency distribution of teachers who scored at each point on the 1-to-4 scale. Some of the analyses were conducted on teacher averages (that is, the average scores of all the teacher's reading groups during the year). But such average scores have a distribution quite different from the basic reading group distribution. For example, a number of individual reading groups may score a perfect "7" on implementation, but it would be very unusual for all of a teacher's groups across the year to have perfect "7's." It would be fair to label a teacher with consistently high though not perfectly high scores as "fully" implemented. Such a teacher might, for example, have an average of 6.0 on the 0-to-7 scale. Conversely, a teacher with a very low, but not "0," average may be considered as "not implementing" the curriculum. Thus, when examining the teachers' average distribution on the 0-to-7 scale, the problem is where to draw the lines demarking the four-point scale.

The solution adopted for this study is similar to the "norm tables" produced by test publishers. From the basic raw score distributions, a test publisher derives standard scores, grade-equivalent scores, or percentile scores. Similarly, the basic observation data on the 0-to-7 scales are converted into 1-to-4 standard scores for the reading group distribution, the teacher averages distribution, and the pupil averages distribution (where pupils carry the average scores from all the reading groups of which they were members over a two-year period.) The a priori judgments of the curriculum authors were used to convert from the 7-point to the 4-point scale, and this conversion produced the percentages of reading groups at each of the four scale points. The same percentages (from the reading group distribution) were applied to the teachers' average distribution on the 7-point scale to identify the cut-points for the 4-point scale. Similarly, the same percentages were also applied to the pupil score distribution to identify the cut-points for the 4-point scale. In this manner the scores for the six curricular areas were all reduced to 4-point scales, each point of which had the same meaning across all areas for the reading group's distribution, the teacher distribution, and the pupil distribution.

There was one final step in the scoring process. Just as the subtests on an academic achievement test (reading, math, language) are combined into a total score, so also were the six scores for curriculum areas combined into an overall implementation total score. Again, as the DAS curriculum authors specified the items comprising the six scores, they also specified the relative importance of the six scores comprising the total score. The six areas are not equally important to the IPR/LA curriculum concept. The more important areas are given more weight in the total score. DAS provided the following weights for combining the six 4-point scores into a single implementation total score. This implementation total score was the dependent variable used in the analyses of Chapters 3 and 4 of Volume I.

Curricular Area	Weighting Factor
Comprehension activities	35%
Teaching strategies	25%
Narrative materials usage	20%
Vocabulary development	12%
Grouping practices	6%
Decoding activities	2%
	100%

PUPIL ATTITUDE SURVEY
(Ref. pp. 8 and 22)

Student attitudes toward reading were measured during the fall of each year (except in first grade where the inventory was not considered appropriate) with a 16-item inventory administered by the classroom teacher to all of the students in the study. The 16 questions from the inventory are listed below in Table A1.10 along with the results from the Year 2 and Year 3 surveys. Each year these results were summarized for the Reading Study total sample and by individual school and returned to the schools for their staff information.

The 16 questions are related to each other by similar content but reflect different aspects of students' attitudes toward reading and activities related to reading. To gain a better understanding of the student's reading attitudes and to simplify the analysis of student attitudes as they were affected by curriculum exposure (ref. p. 22), the 16 items were subjected to a principal components analysis. This procedure clusters similar items together and identifies several distinct clusters or factors. Four factor scores which capture most of the meaning in the questionnaire were derived from this procedure. The items comprising each factor are indicated in Table A1.11 and are interpreted as follows:

FACTOR I - "Likes to read." The pupil likes to read all kinds of books and before going to bed chooses to read over other activities and says reading is a favorite subject.

FACTOR II - "Performer." The pupil likes to act out what is read and likes to read aloud, talk about books, and tell stories.

FACTOR III - "Good Reader." The pupil claims to be a good reader and reads difficult books and magazines.

FACTOR IV - "Writer." The pupil enjoys writing, answering questions about what is read, and making rhymes.

TABLE A1.10
Inventory Items and Response Rates for Student Survey of Reading Attitudes

INVENTORY ITEMS	PERCENTAGE YES			
	Grade 2 N=863	Grade 3 N=1007	Grade 5 N=971	Grade 6 N=898
Do you like to read before you go to bed?	80	82	78	79
Is reading your favorite subject at school?	61	44	24	27
If you could do anything you wanted to do, would reading be one of the things you would choose to do?	65	64	49	45
Do you think that you are a good reader for your age?	89	89	83	82
Do you think that most things are more fun than reading?	55	54	57	54
Do you like to read aloud for other children at school?	63	53	50	53
Do you like to tell stories?	74	[illegible]	63	69
Do you like to read the newspaper?	48	48	58	60
Do you like to read all kinds of books at school?	78	68	49	47
Do you like to answer questions about things you have read?	68	59	42	43
Do you think it is a waste of time to make rhymes with words?	37	31	38	34
Do you like to talk about books you have read?	72	70	72	74
Do you find it hard to write about what you have read?	45	37	38	32
Would you like to have more books to read?	69	70	64	67
Do you like to read hard books?	60	69	61	63
Do you like to act out stories that you have read in books?	73	72	61	65

TABLE A1.11

Factor Loadings of Student Attitude Survey Items by Grade

F VARIANCE ACCOUNTED FOR:	Factors															
	LIKES TO READ (19-21%)				PERFORMER (8-10%)				GOOD READER (7-8%)				WRITER (7%)			
MS	Grades 2	3	5	6	Grades 2	3	5	6	Grades 2	3	5	6	Grades 2	3	5	6
ld choose reading to o	.62	.61	.56	.67											-.2[illegible]	
t things are more fun an reading	-.69	-.66	-.39	-.57											-.44	
ld like more books to ead	.34	.60	.[illegible]	.68						.33						
s to read all kinds of ooks at school		.42	.54	.56												
rite subject is eading	.56	.36		.50											-.48	
s to read before going o bed		.46	.65	.42						.30		.31				
s to act out stories ead in books					.70	.77	.73	.76								
s to tell stories						.67	.64	.61								
s to read aloud for ther children					.42	.37	.34	.64	.33							
s to talk about ooks read				.36	.54	.47	.35	.49						.44		
l reader for age									.60	.64	.61	.80				
s to read hard books		.31		.30					.71	.61	.37	.63				
s to read the news- per					.34				.32	.48	.35					
l to write about st was read									-.37		-.57			-.76	-.42	-.76
s to answer questions out what was read					.57	.32	.36							.59	-.30	.62
e of time to make ymes with words	-.45	-.36			-.36			-.38						-.36	-.64	

: Only factor loadings greater than .30 are tabled here.

The items in the four major rows of Table A1.11 comprise the four factors. A score for each factor was derived by computing the percentage of the items for which the student responded "yes." (Where the item has a negative loading, this procedure was reversed.) The coefficients in the table are the item loadings on each factor for each of the four grade levels. The meaning of a factor is defined largely by the items with the highest loadings. An inspection of the item loadings indicates that the factor analyses for each grade level produced essentially similar results, particularly above grade 2. Note also that the percentage of variance accounted for, shown under each factor name, indicates the relative importance of the factors in representing the information contained in the student attitude data. The major factor was "Likes To Read" since it accounted for about 20 percent of the variance in the student attitude items. The other three factors were significant but played a minor role in expressing the meaning of the attitude items.

Chapter A2

ANALYSES OF CURRICULUM IMPLEMENTATION DIFFERENCES

GRADE LEVEL AND SCHOOL DIFFERENCES IN IMPLEMENTATION (Ref. Figure 3.3)

The analysis of grade level and school differences was based on the average implementation scores for 156 teachers from 17 schools which had all four grades in the school and at least one teacher per grade level. (A parallel analysis based on 857 reading groups revealed similar findings.) The dependent variable was the teacher's average on the four-point implementation total score from all reading groups in the class. Analysis of Variance results are as follows:

TABLE A2.1
Analysis of Variance Summary for Grade and School Differences on Teacher's Implementation Total Score

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F	$p \leq$
GRADE	9.41	3	3.14	9.45	.000
SCHOOL	13.07	16	.81	2.45	.003
ERROR	45.13	136	.33		
TOTAL	67.51	155			

TABLE A2.2
Descriptive Data on Curriculum Implementation Scores Across Grade Levels

	GRADE 2	GRADE 3	GRADE 5	GRADE 6	TOTAL
Mean =	2.05	2.30	2.48	2.69	2.37
n =	42	37	39	38	156

IMPLEMENTATION DIFFERENCES BY READING GROUP PERFORMANCE LEVELS
(Ref. Figure 3.4)

Each teacher was given three scores representing the implementation total scores for the below-, on-, or above-grade reading groups in the classroom. The three scores were the averages for the reading groups within-category measured at the fall, winter, and spring data points. A single comprehensive analysis could not be conducted, since not all teachers had reading groups at all three reading performance levels. Thus, two analyses were conducted: one contrasting the below-versus-on groups and one contrasting the above-versus-on reading group averages. Each analysis was a Multivariate Analysis of Variance (MANOVA) using a within-teacher factor, "LEVELS," representing the reading group contrast and a between-teachers factor, "GRADE," representing four grade levels (second, third, fifth, and sixth.) Only the schools which had all four grade levels were used in the analysis.

The MANOVA results for the below-versus-on contrast are summarized below.

TABLE A2.3
MANOVA F-statistics for Below- Versus On-Grade Level
Reading Group Performance Levels Within Classroom
(n = 80 teachers)

BETWEEN-TEACHERS FACTOR	WITHIN TEACHER READING LEVEL FACTOR	
	Class Average Implementation	Below- Versus On-Grade Reading Levels
GRADE LEVEL	2.21	1.18
SAMPLE TOTAL	N.A.	8.39*

* F is significant at the .005 level

The significant F-statistic for the total sample on the below-versus-on contrast indicates that across all grade levels the below-grade reading groups tended to get lower implementation scores than the on-grade reading groups (as seen in the descriptive data below in Table A2.4.) Since this is a within-teacher contrast, the finding cannot be attributed to between-teacher differences such as training or materials.

The nonsignificant F for the GRADE factor on the below-on contrast means that there were no significant differences between grades in the average size of the below-on gap in implementation scores. The nonsignificant F for the GRADE factor on the class average implementation scores means that when below- and on-grade groups are pooled within class, their averages do not differ significantly across grade levels. This finding does not necessarily conflict with the data above in Table A2.1, since the significant grade level differences reported there were based on all reading groups within the class, not just the subsample identified for the analysis reported here.

TABLE A2.4
Implementation Total Score for Below-, On- and Above-Grade Reading Groups at Four Grade Levels

GRADE LEVEL	Below-grade Reading Level	On-grade Reading Level	Above-grade Reading Level
SECOND GRADE			
Mean =	1.7791	2.2302	2.2293
S.D. =	.6274	.7002	.6029
N =	35	44	29
THIRD GRADE			
Mean =	2.2054	2.2758	2.5669
S.D. =	.7512	.7303	.7377
N =	28	36	26
FIFTH GRADE			
Mean =	2.2340	2.5482	2.6208
S.D. =	.5785	.6574	.7046
N =	20	33	24
SIXTH GRADE			
Mean =	2.4211	2.8555	2.8955
S.D. =	.6232	.5935	.6265
N =	19	22	11

The MANOVA results for the on-versus-above contrast are summarized as follows:

TABLE A2.5
MANOVA F-statistics for On- Versus Above-Grade Level Reading Group Performance Levels Within Classroom
(n = 72 teachers)

BETWEEN-TEACHERS FACTOR	WITHIN TEACHER READING LEVEL FACTOR	
	Class Average Implementation	Above- Versus On-Grade Reading Levels
GRADE LEVEL	2.05	1.39
SAMPLE TOTAL	N.A.	3.19

Note: All F-statistics are nonsignificant at the .05 level.

Although the above-grade reading groups tend to have higher implementation scores than the on-grade groups (as seen above in Table A2.4), this difference was not great enough to reach statistical significance. Combining the results of the two MANOVA analyses, the broadest generalization appears to be that the below-grade reading groups tend to receive a somewhat lower level of curriculum implementation than their classmates of average or higher levels of reading ability.

TEACHER AND SCHOOL DIFFERENCES IN IMPLEMENTATION
(Ref. p. 15)

Teachers produce a direct effect on the curriculum implementation levels of their reading groups, and school level influences on the reading groups' instructional processes are largely transmitted through the teacher and various conditions of the teacher's classroom as a whole. This two-stage process means that the magnitudes of teacher level and school level effects on implementation cannot be directly compared because a study of teacher effects on reading groups already contains within it the school effects. The two-stage process can, however, be studied by an analysis of teacher effects on reading groups and school effects on teachers' averages across their reading groups.

A "nested" design was used to analyze reading group implementation scores in this two-stage process whereby the TEACHER factor was nested within GRADE levels of a school, and GRADE levels were crossed with a SCHOOL factor. The analysis required that there be the same number of teachers (2) nested within each grade level and the same number of grade levels (4) for each school (12 schools had sufficient data for this analysis). A total of 558 reading groups across the four grade levels were included in the analysis. The Analysis of Variance results are summarized below in Table A2.6.

TABLE A2.6
Analysis of Variance Summary for Reading Group Implementation Scores for School, Grade, and Teacher Nested Within Grade

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F	p ≤
SCHOOL	17.73	11	1.25	2.07	.041
GRADE	13.71	3	4.57	7.59	.000
SCH by GRADE	22.36	33	.67	1.13	.349
TEACHER within SCH by GRADE	28.91	48	.60	1.87	.001
WITHIN CELLS (Error term)	148.51	462	.32		

The statistically significant F for the TEACHER-within factor means that teacher and classroom conditions make a difference in the levels of curriculum implementation found across reading groups. This study was not designed to measure teacher effectiveness variables, but the analysis here suggests that such a study would likely uncover a set of meaningful variables.

The statistically significant F for the SCHOOL factor means that various conditions associated with schools make a difference in the average implementation levels found in their teachers. Again, this study was not intended to examine the variety of school effectiveness factors, but the findings here indicate that such a study would likely yield meaningful indicators of school conditions affecting instructional processes.

As with the other analyses above, the significant GRADE level factor indicates that teacher implementation averages differ across grade levels (see Table A2.2). Also, a comparison of the F statistics for GRADE and SCHOOL indicates that, on the average, the curriculum implementation differences found across grade levels within a school are greater than the average differences across schools.

IMPLEMENTATION DIFFERENCES DUE TO NUMBER OF YEARS DURING WHICH THE CURRICULUM WAS IMPLEMENTED IN THE SCHOOL
(Ref. Figure 3.5)

Each reading group was assigned a number to represent how many years the curriculum had been implemented in that group's school. To obtain the widest range of implementation years for this analysis, the data from Year 2 and Year 3 were combined across grades 2, 3, 5, and 6. The 178 reading groups included in this analysis produced the distribution of implementation years and average implementation scores reported in Table A2.7.

TABLE A2.7
Mean Implementation Scores Across Years
of Curriculum Implementation

Years of Implementation In The School	Number of Reading Groups	Implementation Mean
1 Year	12	2.37
2 Years	37	2.20
3 Years	51	2.49
4 or More Years	78	2.46

A two-factor Analysis of Variance was conducted using the YEARS and GRADE factors. The GRADE factor was included since earlier analyses indicated significant grade level differences. The ANOVA results are summarized in Table A2.8. An earlier analysis indicated no significant interaction between YEARS and GRADE; thus the interaction term was dropped from this analysis.

TABLE A2.8
Analysis of Variance Summary for Grade and Years of Implementation on Reading Group Implementation Score

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F	$p \leq$
YEARS	1.19	3	.395	0.97	.41
GRADE	6.24	3	2.080	5.11	.002
ERROR	69.63	171	.407		
TOTAL	78.03	177			

The lack of a significant F for the YEARS factor indicates that levels of curriculum were essentially similar regardless of how long the curriculum had been implemented in the school. The GRADE factor indicated significant grade level differences as reported above in Table A2.2.

ADMINISTRATIVE SUPPORTS FOR CURRICULUM IMPLEMENTATION
(Ref. pp. 17-19)

The data on the adequacy of administrative supports for curriculum implementation are summarized in Chapter 3. Table A2.9 details the Year 2 and 3 staff responses to questionnaire and interview items about administrative supports for the curriculum. The table lists the questionnaire and interview items relating to in-service training, other types of staff assistance, curriculum materials availability and concerns, and monitoring curriculum implementation. The type and number of staff responding (RESPONDENTS, N) and the percentage of respondents who answered yes (% YES) are given for each item. The type of staff responding to each item and the data collection method (questionnaire or interview) are abbreviated as follows:

TQ - Classroom Teacher (Questionnaire)
MQ - Media Specialist (Questionnaire)
RQ - School-based Special Education Resource Room Teacher (Questionnaire)
SQ - Special Education Teacher (Questionnaire)
TI - Classroom Teacher (Interview)
RI - School-based Reading Teacher (Interview)
PI - Principal (Interview)

Note that the number of respondents for each item varies because some items were asked only of certain staff types or were included only in the interviews.

TABLE A2.9
Staff Responses to Questionnaire and Interview Items
About Administrative Supports for Curriculum

QUESTIONS	RESPONDENTS	N	% YES
In-service Training			
Have you received any in-service training on IPR/LA this year?	TQ,MQ,RQ,SQ TI,RI	647	86
Was the content helpful to you in implementing the new curriculum?	TQ,MQ,RQ,SQ TI,RI	545	91
Is the in-service training sufficient for implementation of IPR/LA?	TQ,MQ,RQ,SQ TI,RI,PI	602	64
Did the in-service training include?			
Program overview	TI,RI	108	70
Objectives (narration, exposition)	TI,RI	184	90
Selection of instructional materials/ core books, basals	TI,RI	108	43
Use of instructional strategies	TI,RI	184	65
Interpretation/use of CRT results	TI,RI	184	45
Organization of instructional guide	TI,RI	108	58
Use of illustrated units (i.e. lesson plan, miniunit, etc.)	TI,RI	108	46
Other Types of Assistance Needed by Teaching Staff			
What additional assistance do you need in implementing IPR/LA?			
In-service workshops	TQ,SQ,TI	542	47
Materials for teacher use	TQ,SQ,TI,RI	563	73
Opportunities to visit IPR/LA classrooms	TQ,SQ,TI	539	55
Individual sessions with specialists	TQ,SQ,TI	539	44
Time to read materials,etc.	TQ,SQ,TI,RI	563	83

TABLE A2.9 (cont.)

QUESTIONS	RESPONDENTS	N	% YES
What additional assistance do you need in implementing IPR/LA? (continued)			
Demonstration lessons	TQ,SQ,TI	540	67
MCPS in-service courses	TQ,SQ,TI	538	35
Curriculum Materials: Availability and Other Concerns			
Are the following materials available?			
Instructional Guides	TQ,MQ,RQ,SQ TI	624	99
Core Book Lists	TQ,MQ,RQ,TI	568	95
Basal Correlation Sheets	TQ,MQ,RQ,SQ TI	500	80
CRTs in narration	TQ,RQ,SQ,TI	477	92
Novel tests (grades 4-6 only)	TQ,RQ,SQ,TI	247	89
Scope and Sequence Charts	MQ,RQ,SQ,TI	278	96
Overview Manual	TI	174	93
Are the following materials helpful?			
Instructional Guides	TQ,MQ,RQ,SQ TI	571	97
Core Book Lists	TQ,MQ,RQ,TI	478	98
Basal Correlation Sheets	TQ,MQ,RQ,SQ TI	311	97
CRTs in narration	TQ,RQ,SQ,TI	350	88
Novel tests (grades 4-6 only)	TQ,RQ,SQ,TI	183	98
Scope and Sequence Charts	MQ,RQ,SQ,TI	221	98
Overview Manual	TI	144	97
Have you experienced any problems with the following materials?			
Instructional Guides	RI,PI	37	51
Core Book Lists	RI,PI	496	70
Basal Correlation Sheets	RI,PI	32	22

TABLE A2.9 (cont.)

QUESTIONS	RESPONDENTS	N	% YES
Have you experienced any problems with the following materials? (continued)			
CRTs in Narration	TI,RI,PI	372	48
Novel Tests (grades 4-6 only)	RI	17	18
Scope and Sequence Charts	RI	21	19
Overview Manual	RI	15	7
Monitoring Curriculum Implementation			
Have you developed any guidelines for use in monitoring implementation?	PI	16	63
Who is responsible for monitoring implementation of the IPR/LA?			
No one	TI	177	2
Principal	TI	177	61
School Reading Teacher	TI,RI	216	82
Media Specialist	TI	177	10
Area Reading Specialist	TI	97	28
What difficulties do you face in monitoring implementation?			
Lack of time	RI,PI	18	56
Teacher resistance	RI,PI	18	39
Lack of guidelines	PI	9	11
Lack of area supports	PI	9	22

IMPLEMENTATION OF SPECIFIC CURRICULAR COMPONENTS

Appendix B summarizes the data on implementation levels of six major curricular components. Table A2.10 gives the Year 2 and 3 staff responses to questionnaire and interview items on instructional practices relating to five components of the IPR/LA curriculum. The table includes the questionnaire and interview items relating to comprehension activities, teaching strategies, narrative materials usage, grouping practices, and decoding activities. As in Table A2.9, the type and number of staff responding (RESPONDENTS, N) and the percentage of respondents who answered yes (% YES) are shown for each item. The same abbreviations have been used to indicate the type of staff responding to each item and the data collection method. Again, the number of respondents for each item varies because some items only were asked of certain staff types or only were included in the interviews.

TABLE A2.10
Staff Responses to Selected Questionnaire and Interview Items
About Instructional Practices

QUESTIONS	RESPONDENTS	N	% YES
Comprehension Activities			
What percentage of your total reading instructional time do you spend on teaching comprehension skills?	TI	147	70[1]
Has the amount of instructional time you spend on comprehension skills increased as a result of implementing IPR/LA?	TQ,TI	538	55
Teaching Strategies			
How much emphasis do you place on asking literal vs. open-ended questions in teaching reading comprehension?	TQ,RQ,SQ,TI	575	
About equal emphasis			12
More emphasis on literal questions			41
More emphasis on open-ended questions			45
Emphasis varies depending on ability level			1

Note: 1. This is the average percentage of instructional time that teachers reported spending on teaching comprehension skills.

TABLE A2.10 (cont.)

QUESTIONS	RESPONDENTS	N	% YES
Use of Narrative Materials			
Are the following materials in use in your class for reading instruction?			
Tradebooks (Corebooks)	TQ,RQ,SQ,TI	580	94
Basal readers	TQ,RQ,SQ,TI	584	92
Workbooks	TQ,RQ,SQ,TI	581	66
Which of the following approaches best characterizes the way you plan to teach the objectives specified for reading?	TQ,RQ,TI,RI	589	
Use a basal reader in sequence and supplement with other materials			35
Select basal stories and supplement with other materials			19
Select IPR/LA objectives and find best materials from various sources			36
Combination based on level			10
Grouping Practices			
Do you group students according to reading achievement level for reading instruction?	TQ,TI	539	97
Do you use more than one grouping procedure (whole class, individuals, small groups) for reading instruction?	TQ,TI	523	96
Decoding Activities			
How much emphasis do you place on teaching decoding skills in context vs. teaching skills in isolation?	TQ,RQ,SQ,TI	562	
More emphasis on teaching decoding skills in context			59
More emphasis on teaching decoding skills in isolation			7
About equal emphasis			34
Emphasis varies depending on ability level of group			1

Chapter A3

ANALYSIS OF IPR/LA CURRICULUM EFFECTS ON PUPILS

CORRELATIONS BETWEEN IMPLEMENTATION, ACADEMIC, AND READING ATTITUDE SCORES

(Ref. p. 20)

The pupil measures as described in Chapter 2, Volume I include the following:

o Curriculum level	Mean of all reading groups of which pupil was a member during two years.
o Reading pretest	California Achievement Tests, reading subtest (CAT) from fall grade 2 or fall grade 5.
o Reading posttest	Criterion-Referenced Test for Reading Narrative (CRT-N) from spring grade 3 or spring grade 6.
o Attitudes toward Reading	Factor scores from pupil questionnaire in grades 2, 3, 5 and 6: LIKES TO READ -- Pupil enjoys reading and related activities; PERFORMER -- Pupil likes to discuss, act out stories, read aloud; GOOD READER -- Pupil claims to be good reader, reads difficult books; WRITER -- Pupil enjoys writing, making rhymes.

Intercorrelations of these measures are included below in Table A3.1. The pupil attitude scores in Table A3.1 are the means of the Year 2 and Year 3 scores for pupils. The "curriculum" score is the average implementation levels pupils received during Year 2 and Year 3. Intercorrelations for the grade 2-3 cohort appear below the diagonal and for the grade 5-6 cohort above the diagonal in Table A3.1.

The correlations show that curriculum implementation level is linked to the pupil reading posttest, particularly in the upper cohort. Yet, implementation level is also associated with the pretest score, suggesting that higher level readers tend to receive a higher level of curriculum implementation. The regression analysis reported below identifies more specifically the effects of the curriculum on reading gains.

The attitude scores show no significant relationship with curriculum implementation level, as will be discussed more fully below. There is, however, a tendency for pupils with higher reading scores to have more favorable attitudes toward reading and to see themselves (accurately) as better readers.

TABLE A3.1
Intercorrelations of Pupil Measures, Lower Grade Cohort Below Diagonal (n=458) and Upper Cohort Above Diagonal (n=553), decimals omitted

		MEASURES						
		1.	2.	3.	4.	5.	6.	7.
MEASURES	1. Curriculum	-	31	36	03	02	04	-06
	2. Reading Pretest	17	-	73	28	02	30	-03
	3. Reading Posttest	17	64	-	27	04	22	01
	4. Likes to Read	-06	05	06	-	27	33	20
	5. Performer	-05	00	06	44	-	28	40
	6. Good Reader	07	26	18	18	18	-	23
	7. Writer	-02	06	12	33	39	16	-

REGRESSION ANALYSIS OF ACADEMIC OUTCOMES
(Ref. pp. 20-21)

The correlations in Table A3.1 indicate that the levels of curriculum implementation are significantly associated with pupil posttest scores, .17 in the lower cohort and .36 in the upper cohort. But a large portion of this association is due to the correlation of both implementation and posttest with the pretest. In order to estimate the effect of the implementation on pupil reading gains, a regression model was developed using reading posttest as the dependent variable and pretest and curriculum as the independent variables. The model also included the implementation-by-pretest interaction term to test the equivalence of curriculum effects across the range of pretest reading abilities. Also, a variable representing the majority-minority group contrast was included. This regression model was analyzed for both the lower and upper cohorts with the results summarized in Tables A3.2 and A3.3.

TABLE A3.2
Regression Analysis Summary of Implementation, Pretest, Pretest-by-Implementation and Minority/Majority Group on Reading Gains
(Two-year effect, grades 2 to 3; n = 555)

Independent Variable	Semipartial Correlation with Reading Posttest	t-statistic	p
Pretest	.192	5.87	.000
Implementation	.079	2.41	.016
Pretest X Implt.	-.064	-1.98	.048
Maj/min Race	.052	1.60	NS

TABLE A3.3
Regression Analysis Summary of Implementation, Pretest, Pretest-by-Implementation and Minority/Majority Group on Reading Gains
(Two-year effect, grades 5 to 6; n = 459)

Independent Variable	Semipartial Correlation with Reading Posttest	t-statistic	p
Pretest	.205	6.54	.000
Implementation	.113	3.62	.016
Pretest X Implt.	-.075	-2.41	.016
Maj/min Race	.007	0.22	NS

The semipartial correlations indicate the strength of association between the dependent variable and each independent variable apart from their mutual correlations with each other and the dependent variable. Thus, the correlations of implementation with reading posttest adjusted in these equations for pretest are interpreted as the implementation-reading gains correlations. Both lower and upper cohorts indicated significant links between implementation and reading gains.

The majority/minority differences on reading gains were nonsignificant for both the lower and upper cohorts.

The pretest-by-implementation interaction terms were statistically significant in both the analyses. Thus, a more detailed analysis was conducted to examine how different the implementation effects on reading gains were for various levels of pretest score.

For both the lower and upper cohorts, the range of implementation scores was divided into low, medium, and high categories; and the pretest CAT scores were similarly categorized. Pupil gains, calculated from the residuals of the regression models described above, were examined in the three-by-three table of implementation-by-CAT categories, and the cell means are displayed below in Table A3.4.

TABLE A3.4
Pupil Reading Gains for Different Levels of Curriculum Implementation and Reading Pretest

PRETEST LEVEL		IMPLEMENTATION LEVEL Low	Medium	High
Low	Gd 2-3:	.42	.29	1.39
	Gd 5-6:	-2.07	-.89	.24
Medium	Gd 2-3:	-.19	-.30	-.05
	Gd 5-6:	-1.41	.42	2.52
High	Gd 2-3:	-.19	.42	-.32
	Gd 5-6:	-.18	.16	-.38

The pattern of reading gains is inconsistent across levels of implementation and pretest. For example, in both cohorts pupils with low or medium level reading abilities at the pretest appear to have higher reading gains associated with higher levels of implementation, but this pattern is reversed in the high-pretest group where the high-implementation group has the lowest reading gains. Or, for the lower cohort, the highest average reading gains appear in the low-pretest group (mean = .58); but in the upper cohort, this group has the lowest average reading gain of the three pretest levels (where the mean is -1.29). The presence of such inconsistencies precludes useful generalizations about the pretest-by-implementation interaction.

REGRESSION ANALYSIS OF READING ATTITUDES OUTCOMES
(Ref. p. 21)

Pupil attitudes toward reading, as measured in the fall of Year 2 and Year 3 were used for these analyses of the effects of Year 2 implementation on the fall Year 3 attitude scores. In each of four regression equations, the Year 3 attitude score was regressed on the Year 2 attitude score, the Year 2 reading pretest, and the pupil Year 2 implementation score. The semipartial correlations listed below in Tables A3.5 and A3.6 indicate the strength of association between the dependent variables and the predictor variables independent of their mutual relationships with each other. Since this procedure statistically adjusts the outcome attitude score for the attitude pretest score, the remaining semipartial correlations represent the links between predictor variables and attitude change.

TABLE A3.5
Semipartial Correlations and t-statistics for Reading Pretest, Attitude Pretest, and Pupil Implementation Score with Four Reading Attitude Scores (Lower Cohort, n=599)

INDEPENDENT VARIABLES	DEPENDENT VARIABLES							
	Like to Read		Performer		Good Reader		Writer	
	r	t	r	t	r	t	r	t
Reading Pretest	.069	NS	.010	NS	.181	4.62	-.027	NS
Attitude Pretest	.361	9.49	.317	8.14	.168	4.29	.191	4.75
Implementation	-.015	NS	-.005	NS	.029	NS	-.013	NS
R^2	.137	31.44	.101	22.16	.086	18.79	.037	7.53

A review of the semipartial correlations in Tables A3.5 and A3.6 indicates that on seven of the eight reading attitude scores analyzed for the lower and upper cohorts, the curriculum implementation score was not significantly related to reading attitude change. In the upper cohort, there was a tendency for higher implementation scores to be associated with lowered Liking-To-Read scores. However, the generally nonsignificant correlations suggest no consistent links between the curriculum and reading attitudes.

It is usually difficult to assess pupil attitudes, especially with younger children. Note the low correlations are even smaller for the lower cohort. Also, due to the study's testing schedule, only one year of curriculum effect could be analyzed, that is, the Year 2 implementation on the Year 2-3 attitude change. Although two years of implementation data were available, the final pupil attitude score was collected in the fall of Year 3. A study of two or more years' cumulative exposure to the curriculum may potentially reveal effects on reading attitude change, particularly with older pupils.

TABLE A3.6
Semipartial Correlations and t-statistics for Reading Pretest, Attitude Pretest, and Pupil Implementation Score with Four Reading Attitude Scores (Upper Cohort, n=524)

INDEPENDENT VARIABLES	DEPENDENT VARIABLES							
	Like to Read		Performer		Good Reader		Writer	
	r	t	r	t	r	t	r	t
Reading Pretest	.224	6.07	.051	NS	.206	5.42	.029	NS
Attitude Pretest	.425	11.48	.480	12.55	.354	9.28	.281	6.68
Implementation	-.110	-3.10	-.072	NS	-.010	NS	-.053	NS
R^2	.292	71.62	.238	54.25	.243	55.62	.084	15.88

ANALYSIS OF PARENT OPINIONS ON PUPIL READING ATTITUDES AND ACTIVITIES

Parent opinions about their childrens' reading attitudes and activities were assessed by a telephone survey at the end of each year on a subsample of parents numbering about 300 per year for each cohort. The 21 questions from the survey are listed below in Table A3.7 along with the results from the Year 2 and Year 3 surveys. Each year these results were summarized and returned to the schools for their staff information.

Since the results of the parent opinion survey were derived from such a small sample and, as the reader will find below, were redundant in substance with the results from the pupil attitude questionnaires, these results were not summarized in the main body of the Volume I report.

TABLE A3.7
Survey Items and Responses for Parent Survey of Student Reading Attitudes

QUESTION	RESPONSE(S)	GRADE 2 N=309	GRADE 3 N=311	GRADE 5 N=318	GRADE 6 N=284
Is your child able to read?	% Yes=	98%	99%	100%	100%
At what age did your child first begin to read?	Mean age=	5.5	5.5	5.6	5.6
Was your child primarily taught to read in the Montgomery County Public Schools?	% Yes=	76%	71%	72%	68%
What is your child's reading level in school?	% Below grade=	10%	10%	9%	13%
	% On grade=	49%	49%	45%	39%
	% Above grade=	42%	41%	47%	48%
Did you and/or other family members read to your child before he/she started school?	% Yes=	94%	94%	94%	93%
Does your child participate in any "special" reading program in addition to the regular classroom instruction?	% Yes=	26%	27%	20%	26%
Is your child receiving private tutoring in reading?	% Yes=	5%	4%	1%	5%
Does your child enjoy reading/looking at books outside of school?	% Yes=	93%	95%	90%	86%
IF YES, does your child usually finish reading/looking at the books he/she reads/looks at?	% Yes=	90%	94%	93%	95%
Does your child discuss with you and/or other family members the books he/she reads/looks at?	% Yes=	87%	87%	83%	83%

TABLE A3.7 (cont.)

QUESTION	RESPONSE(S)	GRADE 2 N=309	GRADE 3 N=311	GRADE 5 N=318	GRADE 6 N=284
Does your child read/look at any section of the daily newspaper?	% Yes=	55%	69%	71%	75%
Does your child read/look at magazines?	% Yes=	81%	83%	91%	87%
Does your child express an interest in going to the public library?	% Yes=	80%	84%	78%	79%
IF YES, approximately how many times per month does he/she go to the public library?	Mean number of times=	1.9	2.0	2.2	2.6
Does your child enjoy reading to others?	% Yes=	80%	77%	56%	58%
Does your child enjoy being read to by you or someone else?	% Yes=	91%	87%	69%	74%
Does your child read, or attempt to read, printed materials on billboards, cereal boxes, etc.?	% Yes=	98%	98%	98%	98%
Does your child like to read/look at fiction books?	% Yes=	91%	94%	93%	92%
Does your child like to read/look at nonfiction books?	% Yes=	69%	77%	74%	73%
Do you think your child has confidence in his/her ability to read?	% Yes=	90%	90%	95%	92%
How would you rate your child's attitude toward his/her reading instruction in school?	% Very favorable=	57%	50%	44%	43%
	% Somewhat favorable=	38%	44%	48%	49%
	% Somewhat unfavorable=	3%	6%	6%	6%
	% Very unfavorable=	2%	0%	2%	1%

Many of the 21 items are related to each other by similar content, but at the same time the items differ regarding the types of material or the contexts of the child's reading habits. To gain a broader understanding of child reading interests and to simplify the analysis of the parent opinions, the 21 items were subjected to a principle components analysis. This procedure groups similar items together, like grapes in a cluster, and identifies several different clusters or factors.

Four factor scores which capture most of the meaning in the questionnaire were derived from this procedure. The items comprising each factor are indicated in Table A3.8, along with their factor loadings (as explained for Table A1.11), and are interpreted as follows:

FACTOR I - "Likes to Read." The child enjoys and has confidence in reading, goes to the library, and finishes books.

FACTOR II - "Serious Reader." The child likes to read magazines, newspapers and nonfiction books.

FACTOR III - "Social Reader." The child likes to be read to, to read to others and to discuss what is read.

FACTOR IV - "Other Reading." The child likes to read fiction books and other materials.

As with the pupil attitudes and academic scores, the curriculum's effect in changing the parent opinion scores can be examined if the scores can be statistically adjusted for their status before a curriculum treatment. Since the same parents were not necessarily called each year, the subset of parents for whom scores are available before and after a school year is relatively small, numbering less than 100 in each of the lower and upper grade cohorts.

In spite of the small numbers, an analysis was conducted on these subsamples in the same manner as the pupil attitude scores in order to determine if there was at least suggestive evidence linking curriculum implementation levels with parent opinion change. For the analytic subsamples in the lower and upper cohorts, parent opinion scores were available from the Spring of Year 2 and Year 3. Thus, the effect of the intervening Year 3 implementation levels was examined. As with the pupil attitudes analysis, regression equations were analyzed with each of the four Year 3 parent opinion scores as dependent variables, and the independent variable set was composed of (1) the respective Year 2 opinion score, (2) the pupil's CAT reading score measured at the beginning of Year 3, and (3) the pupil curriculum implementation score indicating the level of the curriculum to which the pupil was exposed during Year 3.

The results are summarized in Tables A3.9 and A3.10. Once again, the semi-partial correlations indicate the direct link between the dependent variable and the respective independent variables apart from any relationships shared among the other variables in the equation. This provides one way of analyzing the correlates of "change scores" or the difference between the Year 2 and Year 3 opinion score. The correlation between a Year 3 attitude score, thus adjusted for the Year 2 score, and the implementation score is interpreted as the curriculum's effect on opinion change.

TABLE A3.8

Factor Loadings of Parent Attitude Survey Items by Grade

CE ACCOUNTED FOR:	Factors															
	LIKES TO READ (13-19%)				SERIOUS READER (9-11%)				SOCIAL READER (11-17%)				OTHER READING (9-10%)			
	Grades				Grades				Grades				Grades			
	2	3	5	6	2	3	5	6	2	3	5	6	2	3	5	6
onfidence in o read	.59	.65	.69	.61												
e reading and books	.59	.49	.77	.62									.31	.45		.45
ery favorable toward reading on	.58	.55		.59											-.62	
esses interest to library		.51	.39	.69						.38			.66			
magazines					.57	.83	.58				.73		.31		.32	
to read books		.57			.72		.71	.44							-.33	-.41
part of the paper						.55	.74			.40		.66	.60			
sses books		.31							.63	.53	.76	.55				.37
being read rs	-.32	-.42							.61	.64	.51	.49				
reading to	.66							.69	.33	.66	.62					
to read oks			.52		-.60								.42	.66		.75
other printed						.32		.62	.67					.76	.65	

Factor loadings greater than .30 are tabled here.

TABLE A3.9
Semipartial Correlations and t-statistics for Reading Pretest, Attitude Pretest, and Pupil Implementation Score with Four Parent Opinion Scores (Lower Cohort, n=96)

INDEPENDENT VARIABLES	DEPENDENT VARIABLES							
	Likes to Read		Serious		Social		Other	
	r	t	r	t	r	t	r	t
Reading Pretest	.142	NS	.148	NS	-.086	NS	-.012	NS
Attitude Pretest	.401	4.55	.141	NS	.228	2.27	-.070	NS
Implementation	-.012	NS	-.096	NS	-.067	NS	-.033	NS
R^2	.270	11.33	.061	NS	.066	NS	.007	NS

Note: t-statistics listed are significant at the .05 level or beyond.

TABLE A3.10
Semipartial Correlations and t-statistics for Reading Pretest, Attitude Pretest, and Pupil Implementation Score with Four Parent Opinion Scores (Upper Cohort, n=70)

INDEPENDENT VARIABLES	DEPENDENT VARIABLES							
	Likes to Read		Serious		Social		Other	
	r	t	r	t	r	t	r	t
Reading Pretest	.234	2.07	.277	2.44	.011	NS	.022	NS
Attitude Pretest	.310	2.75	-.026	NS	.174	NS	.344	3.18
Implementation	-.167	NS	-.128	NS	-.014	NS	-.192	NS
R^2	.224	5.86	.086	NS	.031	NS	.172	4.92

Note: t-statistics listed are significant at the .05 level or beyond.

The correlations of implementation with parent opinion change are nonsignificant on all four scores for both cohorts. Thus, there is no evidence of curriculum effects on parent perceptions of their children. Once again, the sample for this analysis constituted only about 7 percent of all the pupils in the cohorts, and a fuller sample may reveal more significant findings. Also, the analysis was conducted on just the third year of implementation data, not on a two-year cumulative effect of curriculum exposure as was studied for the pupil academic scores.

In the upper cohort, the pupil's reading test at the start of the year correlates with positive changes in the parent opinion scores for "Likes to Read" and "Serious Reader." Thus, there is a tendency for pupils who read better to develop more positive reading attitudes (as reported by parents) over the course of a year. Such a process, if it operates year after year, suggests that good attitudes come from good practices regarding reading.