1987

An Assessement of Factors Related to Reading Achievement, Classroom Behavior, Self-Concept and Reading Attitude in First Grade Children

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AN ASSESSEMENT OF FACTORS RELATED TO READING ACHIEVEMENT, CLASSROOM BEHAVIOR, SELF-CONCEPT, AND READING ATTITUDE IN FIRST GRADE CHILDREN

by

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A Dissertation Submitted to the Faculty of the School of Education of Loyola University of Chicago in Partial Fulfillment of the Requirements for the Degree of Doctor of Education

May

1987

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AN ASSESSMENT OF FACTORS RELATED TO READING ACHIEVEMENT, CLASSROOM BEHAVIOR, SELF-CONCEPT, AND READING ATTITUDE IN FIRST GRADE CHILDREN

The relationships of the primary variables of the frequency of preschool attendance, type of reading program, and gender, to reading achievement, classroom behavior, self-concept, and reading attitude in two samples of first-graders were assessed. The relationships of the auxiliary variables of socioeconomic status and level of intelligence to these same dependent variables were also investigated.

The three frequencies of preschool attendance used were full-time, part-time, and no attendance. Children of both genders were included in the samples. The two types of reading program used were the intensive-direct-synthetic Open Court-Headway and the gradual-indirect-analytic Bookmark. The three levels of socioeconomic status were low, middle, and high. The three levels of intelligence were average, above average, and superior.

While there were no significant gender differences for any of the dependent variables, there were several significant relationships involving other variables. The frequency of preschool attendance was positively yet inversely related to reading attitude. In addition, the type of reading program was related to self-concept, classroom behavior, and

auditory discrimination, an aspect of reading achievement. Additionally, the level of intelligence was related to classroom behavior and the aspects of reading achievement of auditory discrimination, auditory vocabulary, phonetic analysis, word reading, reading comprehension, and total comprehension. Finally, the level of socioeconomic status was related to classroom behavior and those reading achievement aspects of auditory vocabulary, phonetic analysis, and word reading. However, the results concerning socioeconomic status can be considered as tentative. More than 35 percent of the parents failed to report their occupations or reported their occupation as "housewife". This category was not included by Duncan (1977) in his Index for all Occupations. Therefore, this data was considered as missing for the statistical analysis.

ACKNOWLEDGMENTS

The author would like to express her sincere gratitude to the dissertation director, Dr. Joy Rogers, for her efforts and guidance in the writing and formulation of this dissertation. The author would also like to convey her appreciation for the invaluable assistance and support of the other committee members, Dr. Todd Hoover, Dr. Carol Harding, Dr. Anne Juhasz, and Dr. Judith Irwin. Unfortunately, Dr. Irwin had to resign from the committee for health reasons.

In addition, the author wishes to acknowledge the cooperation extended to her by Dr. Kenneth Kaufman and Dr. Lawrence Stoneburner, assistant superintendents, and their staffs, in the two school districts involved in this dissertation research. Finally, the author expresses her indebtedness to the students and parents who participated in this study.

VITA

The author, Gail Darlene Waxman, is the daughter of David Smaller and Alice (Dorfman) Smaller. She is the wife of Joel Waxman, and the mother of Eric and Lawrence. She was born January 14, 1950, in Chicago, Illinois.

Her elementary education was obtained in the public schools of Skokie, Illinois. Her secondary education was primarily obtained in the Niles Township High Schools in Skokie, Illinois, and completed in 1966 at the Central YMCA High School in Chicago, Illinois.

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programs or school districts in Cook County, Illinois.

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CHAPTER I

INTRODUCTION

Educators have long been interested in the investigation and assessment of reading achievement, classroom behaviors, self-concept, and attitude toward reading. Learning to read, using appropriate behaviors in the classroom, developing a positive self-concept, and enjoying reading have been regarded generally by educators and educational psychologists as major tasks to be accomplished in the first grade. Evidence has accumulated to suggest that the extent to which these have been achieved have been influenced by a child's prior experiences, especially in a preschool setting, level of intelligence, socioeconomic status, gender, and type of reading program used in the first grade.

The overall problem of this study is to determine the effects of the independent variables of frequency of attendance in a center-based educational program, reading program used in the first grade, and gender on the dependent variables of reading achievement and student behavior in the classroom, self-concept, and attitude toward reading as measured near the end of first grade. The effects of the auxiliary independent variables of socioeconomic status and intelligence on these same dependent variables are also assessed. These are auxiliary variables because they are not of primary interest in this study, but are important aspects of a child's prior experience.

Differing frequencies of preschool attendance may result in different levels of experiences prior to first grade. In this study, three frequencies are compared, to determine the effects of each, on each of the four dependent variables. These three frequencies are full-time attendance (at least four half days per week), part-time attendance (2-3 half days per week), and no attendance (0-1 half days per week).

In addition, the particular reading program used in first grade may result in differing levels of reading achievement, classroom behaviors, self-concept, and attitude toward reading at the end of that year in school. In this study, two reading programs are compared to determine their effects on each of the four dependent variables. The interaction effect of reading program used and preschool attendance on the same four dependent variables is also assessed.

Also, gender differences may result in the attachment of dissimilar levels of these same four dependent variables. Both genders are used in this study to determine if differences exist.

Additionally, a child's levels of intelligence and socioeconomic status may also be related to the levels of prior experiences and therefore, also reading achievement, classroom behavior, self-concept, and attitude toward reading in the first grade. In this study, three levels of intelligence and socioeconomic status are compared, to determine the effects of each level on these four dependent variables.

In this study, seven primary research questions will be asked. These will cover the areas of frequency of preschool attendance, reading program, and gender as they are related to reading achievement, classroom behavior, self-concept, and attitude towards reading. In addition,

twenty-four auxiliary questions will be asked. These questions will involve the main and interaction effects of intelligence and socioeconomic status on these same four dependent variables.

CHAPTER II

REVIEW OF RELATED LITERATURE

Introduction

On the basis of the literature, a historical overview of the significance of preschool attendance will be presented. In addition, the variables of preschool attendance, gender, socioeconomic status, and intelligence will be discussed in relation to each of the dependent variables of reading achievement, classroom behavior, self-concept, and attitude toward reading. The independent variable of reading program will be discussed in relation to reading achievement only since no relevant research in relation to the other dependent variables was located. Finally, potential interactions among the independent variables, and among the dependent variables, will be discussed.

Historical Overview of the Significance of Preschool Attendance

The theoretical justification for early childhood or preschool education may be traced back to the works of Hebb (1949) and Piaget (1926). Piaget (1926) believed that intelligence developed through an unvarying progression of stages, and depended on both heredity and environment. Heredity was responsible for the tendency to adapt to one's environment, as well as the tendency to organize one's processes into compatible systems. Environment and learning history determined the ways in which these processes were adapted and organized. Consistent with Piaget's

beliefs were those of Hebb (1947), who believed that early learning was different from later learning and formed the foundation for this later learning. Hunt (1961) integrated the theories of Piaget (1926) and Hebb (1947), and believed that intelligence was determined both by heredity and environment or learning history. The environment or learning history was believed by Hunt (1961) to be a critical factor in a child's development. The importance of environment was also included in Bloom's (1964) work. His research results showed that growth in intelligence occurred most rapidly during the first four or five years of age. During these early years, the effects of the environment were greatest. This view that environmental changes made early in life were more effective than those same changes made later in life gave momentum to the developing interest in children's environments.

One of the ways in which environmental changes could be made was through preschool programs. During the early 1960's many preschool education programs were initiated. Some, such as those of Beller (1974), Deutsch, Taleporos, and Victor (1974), Gray, Ramsey, and Klaus (1982) and Weikart (1974), served as models for Project Head Start. Begun in 1965, this federal compensatory preschool project aimed at serving disadvantaged children. According to Stipek, Valentine, and Zigler (1979), these preschool programs attempted to provide children with key experiences of which their own environment deprived them. The lack of these key experiences were believed to put these children at a disadvantage in competition with their middle-class counterparts, especially in school and on school-related tasks.

Since the preschool programs in Project Head Start differed from

site to site, a comprehensive national assessment of the effects of Head Start was needed. The Westinghouse Learning Corporation, in cooperation with Ohio State University, performed this assessment from June, 1968 until June, 1969. A large number of children who had attended either full-year or summer-only programs, and matched controls were used. Comparisons were made concerning cognitive and affective functioning, as well as background variables. However, only the instruments assessing cognitive functioning had been widely-used and well-established.

The findings did not detect any statistically significant and positive effects of summer-only programs. However, reliable and substantial differences on the Metropolitan Readiness Test and Illinois Test of Psycholinguistic Abilities were found favoring the children who had recently completed a full-year program. For children who had completed one year in a Head Start program and an intervening year of public school kindergarten, the differences in these same test results were reliable but not substantial. No significant differences in these test results were found for children who had completed one-year programs two or three years prior to the assessment. The affective measures did not detect significant differences between the two groups of subjects in the full-year programs, regardless of grade level at the time of assessment (Westinghouse Learning Corp., 1969).

At about the time that this report was released, Jensen (1969) reported his assessment of Head Start programs. He believed that "compensatory education has been tried and it apparently has failed" (p. 2). This was basically due to the inability of Head Start programs to raise the graduates' IQ scores, which was believed to be one of the goals

of Head Start, since heredity was the major determinant of intelligence. According to Jensen (1969), "since intelligence was much more heritable than scholastic achievement, there was potentially much more which would be done through environmental means to improve school performance than intelligence per se" (p. 59). Jensen (1973) later revised this statement to limit it to the intelligence and school performance of "low achieving children relative to the majority of children" (p. 56).

Others agreed with Jensen's (1969) view of Head Start. Lucco (1972) believed that "early educational intervention programs cannot prevent later school failure that is partially or entirely due to a lack of environmental support for advanced stages of cognitive development" (p. 853). Bronfenbrenner (1974) also believed there were no significant long-term effects from a one-year Head Start experience. Only the ecological dimensions of a child's environment, such as the family and community, could have lasting influences on a child.

Jencks, Smith, Acland, Bane, Cohen, Gintis, Heyns, and Michelson (1972) also believed in the importance of the environment in determining intelligence. They believed that 45% of the variance was due to heredity, 35% to environment, and 20% to the interaction of the two. Nichols (1978) also believed in this interaction, but saw heredity as contributing between 40 and 80%.

Caldwell (1970) was also interested in intelligence test scores. She reviewed the results of several Head Start programs, and found that intelligence test scores generally spurted following program attendance. However, these test scores generally declined when the children entered school. She believed gains resulting from attendance in a preschool pro-

gram could not continue unless subsequent educational endeavors are as carefully planned and executed (p. 726).

Caldwell (1973) later concluded that Head Start was advantageous for many reasons. She believed that its' screening procedures would allow for the identification and remediation of the problems of an enormous number of children. Every need, deficiency, or problem was to receive remedial procedures, and programs were supposed to be devised to fit those needs and procedures (p. 5). According to Karnes (1973), poverty affected such important aspects of development as intellectual functioning, language, self-concept, motivation, health, physical being, and the social and emotional domains. These effects could best be remediated through intervention during the preschool years (p. 48). She also believed that preschool education could enable the handicapped to function at a higher level than was possible without this early intervention (p. 49).

Others also concluded that Head Start and other preschool programs were successful in meeting their goals. Smith and Bissell (1970) re-analyzed the data in the Westinghouse study (Westinghouse Learning Corp., 1969), and found that the low-income children were the ones who needed the programs the most and were the ones who benefited from the programs the most. These findings were later confirmed by Datta (1979).

One of these goals originally was a significant increase in IQ scores. According to White (1970), educators have agreed to treat changes in test performance as being significant when the magnitude was one-half as large as the test's standard deviation. This would mean a change in IQ of approximately eight points would be of practical signifi-

cance, depending on the actual intelligence test used. A program leading to this change in IQ score would be considered to be worthwhile. According to Zigler's (1979) meta-analysis of the pertinent research, most of the research involving compensatory preschool education reported a 10-point increase in IQ scores. Therefore, "this means that even if one adopted the narrowest and most stringent assessment criteria, one would have to conclude that compensatory preschool education was an impressive success" (Zigler, 1979, p. 368).

Among those supporters of preschool programs were White (1970) and the Bernard Van Leer Foundation (1972). According to the Foundation, these programs "improved the quality of life for the child and the family at the time of preschooling and better equip him to make the entry into primary school" (p. 4). Zigler (1979) agreed concerning the value of preschool education. He concluded that those children who experienced Head Start manifested greater gains on cognitive and personality measures than comparison children who had not attended Head Start programs. He rejected the notion that these gains faded out after two or three years in elementary school, since he believed there was "a relatively large and consistent body of evidence which indicates that the benefits of participating in a preschool intervention program have much staying power" (p. 372). He advocated waiting for the collection and analyses of more data before making a decision about this notion of the fade-out of positive effects. Calhoun and Collins (1981) agreed with these assessments, and viewed early childhood programs as successes, rather than failures.

More data was collected by 1979 and later analyzed and reported by Lazar, Darlington, Murray, Royce, and Snipper (1982). They found posi-

tive effects of preschool education in their meta-analysis of fourteen preschool programs. These programs were found to significantly reduce placement in special education classes, retention in a grade, and the failure to meet the school's requirements for satisfactory performance. In addition, program graduates were found to perform significantly better than did controls in math achievement through the fifth grade.

Another meta-analysis of twelve of these preschool programs was done in 1980, by Royce, Darlington, & Murray (1983). This meta-analysis included detailed year-by-year school information across projects from kindergarten through seventh grade, as well as information at the end of twelfth grade. At the end of each grade through seventh, as well as twelfth, increasingly significant differences between program graduates and controls were found for placement in special education, retention in grade, and the failure to meet school requirements. Therefore, the effects of preschool programs were seen as long-lasting. This would be in contrast to the findings of the fade-out of the effects of preschool education (Caldwell, 1970).

Research Related to Preschool Attendance and Reading Achievement

Many studies have been done concerning the long and short-term gains in reading achievement as a result of attendance in preschool programs. The results have been contradictory, both in term of gains and duration of effects.

The American Institutes for Research in the Behavioral Sciences (1970) compiled a series of reports on various preschool projects. These reports included detailed descriptions and evaluations of The Perry Preschool Project and the Bereiter-Engelmann or Academic Preschool. In

the Perry Preschool Project, the reading achievement of children with whom the Cognitively Oriented Curriculum (Weikart, Rogers, Adcock, & McClelland, 1971) was used, was compared to that of children who did not attend a preschool program. This comparison was done at the end of the first, second, and third grades. It was reported that the preschoolers had significantly higher reading achievement in the first and third grades, as compared to children who had not attended preschool. These findings were also reported by Weikart, Deloria, Lawser, and Weigerink (1970).

The Institutes' report on the Bereiter-Engelmann or Academic preschool also showed positive results. Here, the reading achievement of children with whom the Bereiter-Engelmann (Bereiter & Engelmann, 1966) program was used, was compared to that of the national norms of the instrument used to measure reading achievement. This comparison was done prior to entrance into the first grade. The preschoolers were found to have significantly higher reading achievement than was expected, on the basis of their actual grade placement.

McAfee (1972) compared the subsequent reading achievement of children who attended the Responsive Education's Nursery School (Nimnicht, 1972), and who did not attend any preschool. Those children who had attended this program were found to have significantly higher reading achievement in the primary grades.

The United States Office of Education (1976) measured the effects of preprimary education on first grade reading achievement, and reported that "children who went from daycare/nursery school or preschool into kindergarten did significantly better in reading upon entering first

grade than did children who had only one of these preprimary experiences" (p. 167). Those children who had attended Head Start programs achieved as well as the children who had both types of preprimary experiences, even if they had not attended kindergarten. Gray et al. (1982) also compared the subsequent reading achievement of children who attended the Early Training Project, and those children who did not attend preschool. At the end of first grade, those children who had attended the program had significantly higher word knowledge, word discrimination, and reading scores, as compared to the other children. In second grade, the only significant differences were in word knowledge and reading, again in favor of the children who attended the program. However, differences were not significant at the end of fourth grade. Deutsch et al. (1974) compared the reading achievement of children who had attended Head Start preschools and those who had not. They found that the program graduates had significantly higher reading achievement in third grade than those who had not attended any preschool.

Some studies have explored the longer-term effects of preschool attendance on reading achievement. Schweinhart and Weikart (1980) found that those children who had attended the Perry Preschool Project scored significantly higher on the reading achievement subtest of the California Achievement Test, as compared to children in a control group when these children were 7, 8, 9, 10, 11, 14, and 15 years old. When these children were 19 years old, the most recent comparisons were made. While reading achievement was not specifically addressed, "scores on tests of functional competence" (p. 552) were included in the comparisons between program graduates and those children who had not attended a preschool pro-

gram. The graduates had significantly better scores on measures of functional competence in school than did those who had not attended a preschool (Schweinhart, Berrueta-Clement, Barness, Epstein, & Weikart, 1985).

Guinagh and Gordon (1976) also investigated these longer-term effects on reading achievement. They found that preschool program graduates had significantly higher reading achievement in the third grade than did controls. Similar results were found when these children were in the fifth through seventh grades (Gordon & Jester, 1980).

Palmer and Siegel (1977) did a longitudinal study of the effect of preschool attendance on reading achievement, and found that statistically significant differences in reading achievement between the program and non-participating control groups appeared in the seventh grade. However, nonsignificant differences in reading achievement scores between program participants and participating control group children had appeared from the third grade on. Karnes, Shwedel, and Williams (1983) found that program graduates had significantly higher reading achievement than did children who had not attended preschool, in comparisons done when the children were in first through fourth grade.

Several studies compared the effects of various preschool programs on reading achievement in elementary school. Karnes et al. (1970) reported on the comparisons of the Bereiter-Engelmann or Academic (Bereiter et al., 1966), Ameliorative (Karnes et al., 1972) and Traditional (Karnes et al., 1970) programs, in a study commonly referred to as the Illinois study. Miller and Miller and Bizzell (1983a, 1983b, 1984) compared the Bereiter-Engelmann (Bereiter et al., 1966), Montessori (Banta, 1972),

Darcee (Gray et al., 1966; Miller & Camp, 1972) and Traditional (Karnes et al., 1970) programs, in a study commonly referred to as the Louisville study. DiLorenzo, Salter, and Brady (1969) compared the Bereiter-Engelmann (Bereiter et al., 1966), New York State Montessori, Traditional, and Yonkers (DiLorenzo et al., 1969) programs. The Yonkers program was a structured-cognitive one (Bissell, 1973), similar to the Ameliorative (Karnes et al., 1973) program. This study was commonly called the New York study. Weikart (1973) compared the Bereiter-Engelmann (Bereiter et al., 1966), Traditional or Child-Centered, and Cognitively Oriented (Weikart, 1973) programs, in a study commonly referred to as the Ypsilanti study.

Four of the studies (DeLorenzo et al., 1969; Karnes et al., 1970; Miller & Dyer, 1975; Weikart, 1973) showed that the programs with a strong instructional emphasis, such as the Bereiter-Engelmann or Ameliorative, generally resulted in significantly higher reading achievement in the primary grades, as compared to the traditional child-centered approach. It was also shown that a pre-academic preschool program followed by a similar kindergarten program resulted in higher reading achievement in the primary grades as compared to the Traditional or Child-centered preschool program followed by a similar kindergarten program.

The results concerning the Montessori program were inconsistent from grade to grade. DiLorenzo et al. (1969) found that the children who had attended a Montessori preschool program had significantly lower reading achievement in the first grade than did children who had attended the cognitive preschool programs. However, Miller and Dyer (1975) found that those children who had the highest reading achievement in the second

grade had attended a Montessori preschool program. Miller and Bizzell (1983b) compared the reading achievement of children in the sixth, seventh, and eighth grades, who had not attended any preschool or who had attended one of four preschool programs for one year. They found that those children who had attended a Montessori program had significantly higher reading achievement at all three grade levels than did those children who had no preschool or who had attended either the Bereiter-Engelmann, Traditional, or DARCEE programs. They (Miller & Bizzell, 1984) again did a follow-up study involving these same children in the ninth and tenth grades. They found that the Montessori graduates had continued to have significantly higher reading achievement than did the graduates of the other three programs or the children who had not attended preschool.

Karnes (1973) also reported the findings of a study which compared the reading achievement in the primary grades of children who had attended the Ameliorative or Bereiter-Engelmann preschool programs. She found there were not significant differences in the reading achievement scores of children in the second grade. However, the children who had attended the Ameliorative program had significantly higher reading scores in the first and third grades, as compared to those children who had attended the Bereiter-Engelmann programs.

Several meta-analyses were done involving the effects of preschool attendance on reading achievement. Lazar and Darlington (1978) reported the results of the first meta-analysis done for the Consortium for Longitudinal Studies, a group of investigators concerned with preschool education. They found that children who attended a preschool program main-

tained reading achievement superiority at least through the third grade, as compared to children who had no preschool experience. Lazar et al. (1982) reported the results of the meta-analysis done on the data collected through 1978. They found no significant differences between the groups on reading achievement. Consistent findings were reported for the data collected through 1981 (Royce et al., 19
83).

Some studies investigated the relationship between the age at which children began a preschool program and subsequent reading achievement. Palmer (1976) and Palmer and Siegel (1977) longitudinally studied the effects of the initiation of attendance at the age of two years. They found the experimental group had significantly higher reading achievement in the seventh grade than did the control group. Palmer and Siegel (1977) also found that those children who began a preschool program at three years of age also had significantly higher reading achievement than a control group in the seventh grade. Schweinhart and Weikart (1977) also studied the effects of beginning a preschool program at the age of three years. When compared with a control group, these children had significantly higher reading achievement in the third and eighth grades. Durkin (1974-1975) did a longitudinal study of children who began preschool attendance at the age of four years, and found these children had significantly higher reading achievement in the first and second grades than did a control group. Beller (1974) also longitudinally studied the effects of children beginning preschool attendance at the age of four years, and found that girls who began preschool at four years of age had significantly higher reading achievement in the fourth grade than did

boys or children who did not attend preschool or kindergarten. Deutsch et al. (1974) found that children who began preschool at the age of four years had significantly higher reading achievement in the third grade than did children who did not attend preschool or kindergarten.

Two of these studies also investigated the effects of the duration of preschool attendance on subsequent reading achievement. Beller (1974) contrasted the effects of two, one, and no years of pre-first grade attendance on reading achievement, and found stronger effects with longer attendance. However, Gray and Klaus (1970) compared the reading achievement in the fourth grade of those who attended preschool three and two years overlapping with kindergarten, and found differences which were not significant.

These studies differed in the type of location of the preschool program. A center-based program was located in a commercial setting, whereas a home-based program was located in a home or residential setting. Deutsch et al. (1974) compared the subsequent reading achievement of children who had attended a center-based program with that of children who had not attended any preschool program. They found the reading achievement of the experimental children to be significantly higher than that of the control children. Palmer and Siegel (1977) also did a center-based study, and found that these children had significantly higher reading achievement in the seventh grade than did the control group. Schweinhart and Weikart (1977) conducted the Perry Preschool Project, in which comparisons were made between a combined home-based and center-based program, and no program. They showed that the experimental group had higher reading achievement than did children who had no preschool ex-

perience. Levenstein (1977) studied a home-based program and found that these children had significantly higher reading achievement in the third grade than did the children who had no preschool experience.

Research Related to Type of Phonics in the Basal Reading Program and Reading Achievement

According to Aukerman (1981), a basal reading program consisted of a series of 15 or 16 books and supplementary materials used to teach reading up through the sixth grade. A basal reading program could be typed according to its code-emphasis, meaning-emphasis, or combined eclectic approach to beginning reading. Code-emphasis programs were further typed according to the approach taken in word-attack skills, such as meaning analysis, phonic analysis, structural analysis, or a combination (Bostian, 1979; Chall, 1983).

The type of approach used for phonic analysis could be further broken down into intensive-direct-synthetic or gradual-indirect-analytic. In the intensive-direct-synthetic approach, the sounds of all of the main vowels and consonants were taught from the beginning of first grade reading instruction. The sounds were repeatedly reviewed and practiced, and blended where appropriate. To read unknown words, beginner readers were taught to pronounce all of the sounds in the word, and then to use the context to know if the word was correct. In the gradual-indirect-analytic approach to phonics, the sounds of some of the vowels and consonants were taught in the second grade. The review and practice of the sounds was less frequent. To read unknown words, beginner readers were taught to pronounce the sounds of some parts of the word, and then to use the context to guess the remainder of the word (Bostian, 1979; Chall,

1983; Gurren & Hughes, 1965).

Several studies compared the effects of intensive-direct-synthetic and gradual-indirect-analytic phonics on the transfer of training in decoding nonsense words. Jeffrey and Samuels (1967) found that training in intensive-direct-synthetic phonics resulted in significantly better transfer of training. Carnine (1977) found consistent results with four and five year old children. Vandever and Neville (1976) also found consistent results with six and seven year old children, as well as educable mentally retarded 10 through 12 year old children, on transfer of training.

Other studies have compared the effects of types of phonics in basal reading programs on reading achievement. Potts and Savino (1968) found that those children who were taught with an intensive-direct-synthetic approach had significantly better total reading at the end of first grade than did first graders taught with the gradual-indirect-analytic approach. Dykstra (1968) found consistent results with second grade children who had continued to use the same basal reading series they had used in the first grade. These significantly different results were on measures of word recognition and spelling. Talmage and Walberg (1978) also found an advantage for the intensive-direct-synthetic approach. They compared the relationship between reading achievement in the first through sixth grades and type of phonics program used. They found that while neither the two gradual-indirect-analytic nor one meaning-emphasis programs was significantly related to reading achievement, the one intensive-direct-synthetic phonics program was. Further evidence was provided by Kean, Summers, Raivetz, and Farber (1979), in their study

of fourth grade reading achievement. They found that the high and average achievers who were in an intensive-direct-synthetic reading program had significantly higher reading achievement, on a standardized measure, than did low achievers or all three groups in other types of reading programs. In addition, Fulwiler and Groff (1980) measured first grade reading achievement after the children had been taught with an intensive phonics program or a gradual, less intensive phonics program. They found that those children who had been taught with the intensive phonics program had significantly higher levels of vocabulary, word analysis, and comprehension. Flesch (1981) firmly believed that children's reading problems were the results of not being taught intensive-synthetic phonics.

Other studies used exceptional children as subjects. Richardson, Winsberg, and Bialer (1973) used a sample of 8 to 17 year old neurologically impaired children, and found that those who had been taught with an intensive-direct-synthetic phonics program had significantly better performances on letter-sound and nonsense syllables tests, as compared to those neurologically impaired children taught with either a gradual-indirect-analytic or programmed linguistic approach. Biggins and Uhler (1979) also found that the intensive-direct-synthetic approach was significantly superior on a measure of comprehension, with a sample of second graders in residential schools. In addition, Williams (1980) also found similar results on a decoding measure, with a sample of learning disabled students.

Consistent results were also found by several meta-analyses. Guren and Hughes (1965) reviewed relevant studies which compared an inten-

sive phonics program with at least one gradual or conventional program. They found that rigorous research studies definitely favored programs of intensive phonics, since these programs led to significantly higher performances in reading comprehension, vocabulary, and spelling, as compared to gradual and conventional methods of phonics instruction. Another comprehensive meta-analysis was done by Bond and Dykstra (1967) during 1965-1966, comparing the results of 27 separate research studies concerning approaches to beginning reading. They found that an intensive phonics program resulted in higher reading achievement in first grade than did other types of programs. Chall (1967) also meta-analyzed research comparing methods of teaching beginning reading, and found that programs which stressed phonics resulted in significantly higher reading achievement through the third grade than did programs which did not stress phonics. Dietrich (1973) later interpreted the findings of an ERIC survey of the materials and methods of teaching beginning reading. It was concluded "that earlier and more systematic instruction in phonics is essential" (p. 7). More recently, Pflaum, Walberg, Karegianes, and Rasher, (1980) also analyzed the research done over the course of thirteen years, comparing the effects of different teaching methods on reading achievement. They found that the only method which was clearly superior over the others was the sound-symbol blending one (p. 17). Finally, Chall (1983) updated her earlier meta-analysis (Chall, 1967) of the relevant research and continued to believe in the superiority of the code-emphasis, intensive-direct-synthetic type of phonics for beginning reading.

Research Related to Socioeconomic Status and Reading Achievement

Several large-scale studies were carried out to investigate the re-

lationship between socioeconomic status and reading achievement. Goodman (1959) executed the Quality Measurement Project for the New York State Education Department. Its purpose was to investigate the relationship among pupil achievement, socioeconomic status, and various school factors. He found that socioeconomic status was significantly associated with composite pupil achievement including reading.

Coleman, Campbell, Hobson, McPartland, Mood, Weinfeld, and York (1966) also investigated the relationship of socioeconomic status and reading achievement. Their massive survey included approximately 5% of the children attending various grades in schools in the United States. These children came from a multitude of racial, socioeconomic, and ethnic backgrounds. They used standardized reading and mathematics achievement and verbal ability test scores for children in the third and sixth grades. For children in the ninth and twelfth grades, they also included general information test scores. They found that socioeconomic status was the best predictor of students' scores on these tests.

The Coleman report, as the survey by Coleman et al. (1966) was commonly referred to, was widely criticized on several fronts. Bowles and Levin (1968) pointed out that there was poor sample response, and the measurement of school resources and characteristics was inadequate. In addition, the order of the variables entered in the linear regression model was incorrect since at least two of the variables, socioeconomic status and school characteristics, were highly correlated with each other. This resulted in socioeconomic status being overvalued and school characteristics being undervalued in the regression analysis and therefore in the report (Bowles, 1968). Finally, Coleman et al. (1966) ne-

glected to include information concerning family income or occupation, which were important dimensions of socioeconomic status.

The data used by Coleman et al. (1966) were also analyzed by Mayeske, Wisler, Beaton, Weinfeld, Cohen, Okada, Proshek, and Tabler (1969). They also investigated the relationship between socioeconomic status and reading achievement. They divided the entire data into two socioeconomic status levels, and analyzed the relationships between achievement and school resources, such as volumes of books in the school library and supply expenditures per student, for each level. They found that the correlation between socioeconomic status and mean student achievement was .82, and statistically significant. This relationship was stronger among students from high socioeconomic status backgrounds than for students from lower socioeconomic status backgrounds. They also found that the combined effects of school resources and socioeconomic status were much higher among children from lower socioeconomic status backgrounds than for children from higher socioeconomic status backgrounds.

While Bowles and Levin (1968) disagreed with Coleman et al. (1966) as to the degree of the relationship between socioeconomic status and academic achievement, they did believe that socioeconomic status reinforced student achievement. The children of higher socioeconomic status backgrounds had parents who provided material advantages and strong interests in education. This served to stimulate academic achievement and motivation.

Dyer (1968) also reanalyzed the data reported by Coleman et al. (1966). He inspected the zero-order correlations for forty-five school

characteristics. He dichotomized them according to whether or not they correlated with pupil achievement in reading, mathematics, or general information in the sixth and ninth grades. In order for a characteristic to correlate with achievement, that statistical correlation had to be at least 0.2. Of the forty-five characteristics, he found nineteen which reached or exceeded the criterion. Most of these nineteen characteristics, such as teacher's salary or the proportion of students wanting to attend college, involved people in the schools, and "tended to be linked to the socioeconomic level of the pupils' parents and classmates" (p.52).

The findings of Hanushek (1970) were consistent with those of Coleman et al. (1966). He investigated the relationship among children's socioeconomic status, teacher characteristics, and reading achievement. He analyzed the individual reading achievement gains of a large sample of third grade children, according to their socioeconomic status and certain characteristics of their second and third grade teachers. He found the strongest positive relationship was between low socioeconomic status and reading achievement. There was also a positive but weaker relationship between higher socioeconomic status and reading achievement. He also found that while formal teacher credentials did not significantly relate to reading achievement gains in either socioeconomic status groups, the most recent educational experience of the teachers did relate to reading achievement in both socioeconomic status groups.

Callaway (1972) also researched the relationship between the variables of socioeconomic status and reading achievement scores. The children from higher incomes did not have the highest reading achievement. Meade (1981) also investigated this relationship, in his study of first

grade urban and suburban children. He found that reading achievement was related to socioeconomic status for the lower class children only. However, Jones (1983) found contradictory results, using a different measure of reading with third graders. She found this relationship to be significant only for the higher groups. Usova (1978) believed the economically disadvantaged child began school so poorly prepared to meet the demands school made, that failure in school was almost inevitable.

The socioeconomic status of schools was also investigated in terms of the reading achievement of the students. Wilson (1959) found that children in the middle-class schools tended to receive higher academic grades in all areas, including reading, than did children in working-class schools. He (Wilson, 1967) later investigated this relationship for the United States Commission of Civil Rights, using a sample of sixth grade children in the San Francisco Bay area. He measured socioeconomic status in terms of the occupation of the family head. He found, again, that reading achievement was significantly related to the socioeconomic context of the schools. In schools where more than 90% of the students were middle class, the mean reading achievement score was 7.4. In schools having a majority of low socioeconomic status children, the mean reading achievement score was 4.9. This difference was greater than that produced by individual family socioeconomic status. He also found that the socioeconomic status composition of the elementary school was second only to mental maturity in explaining the variance in reading achievement scores. Coleman (1966) agreed with these findings in an interview with Glabman (1979). He reiterated the finding that "the children in the schools that are predominantly middle class perform somewhat better than

students in schools that are predominantly lower class" (p.8).

Other studies found positive but weak associations between socioeconomic status and reading achievement. A correlation of .263 was reported by Fetters (1975), using data from the National Longitudinal Study of the high school class of 1972. Haller and Davis (1980) also found a relatively small relationship, using a large sample of fourth, fifth, and sixth grade students from four school districts in central New York. Gottesman, Croen, and Rotkin (1982) found similar results, using a sample of second graders from one urban school district. Oakland (1983) found that socioeconomic status contributed only 7% of the variance in reading achievement scores, using a large sample of children from 7 to 14 years old in one school district.

Many other researchers have found a positive relationship between socioeconomic status and reading achievement. Abelson, Zigler, and Deblasi (1974), Coleman (1972), and Armor (1972) found that children from low socioeconomic status background performed more poorly on measures of reading achievement than did children from higher socioeconomic status homes. Eisenberg and Earls (1975) also found consistent results. Entwisle (1976) and Barton and Wilder (1979) agreed with Seitz (1977) who believed that "economically disadvantaged children, however they have been defined, performed as a group markedly more poorly in reading, however one measures such performance, than do more advantaged children" (p.3). Satz, Taylor, Friel, and Fletcher (1978) also reported consistent results in their study of precursors of reading disabilities, and found that socioeconomic status "played an important role in forecasting reading achievement," (p. 338). Low and Clement (1982) also agreed in their

findings of a significant relationship between socioeconomic status and reading achievement with a sample of fourth grade children.

This finding of a positive relationship was also reported in studies done in other countries. Kellaghan (1977) studied this relationship in Ireland, using a sample of eight and nine year old children, and found that home status variables accounted for 40% of the variance in English reading scores. Archer and Edwards (1982) also found a significant relationship between socioeconomic status and reading achievement in Ireland, using a large sample of children in seven schools. This relationship was also found to exist in England (Berger, Yule, & Rutter, 1975; Glossop, Appleyard, & Roberts, 1979) and in Australia (Marjoribanks, 1982).

In addition to these primary studies, several meta-analyses had been done. Bloom (1980) reviewed the research in this area, and concluded that the socioeconomic status of the parent was a determining factor in a child's school achievement. Iverson and Walberg (1982) analyzed the results of 18 studies over a 19 year period, and found that socioeconomic status was significantly related to reading achievement. However, achievement was found to be more closely linked to the home environment than to the socioeconomic status of the student. These findings were consistent with the results of White's (1982) meta-analysis, which included almost 200 studies. This also showed that socioeconomic status as it was normally defined and used, was only weakly correlated with reading achievement. Again, this correlation increased when reading achievement was related to the home atmosphere.

Research Related to Gender Differences in Reading Achievement

Many researchers have found gender differences in reading achieve-

ment. Bloom (1970) investigated these differences, and found girls tended to have higher reading achievement than did boys. Herman (1975) also found that girls were superior to boys in reading, in this large scale study funded by the United States Government.

These differences have been demonstrated at various grade levels. McNeil (1964) found that first grade girls had significantly better scores on word recognition tests than did first grade boys, after a four month programmed learning course in reading. Balow (1963) found that girls in first grade had significantly higher reading achievement scores than did boys in first grade, on the Gates Primary Reading Tests. Samuels and Turnure (1974) also found consistent results, using the Dolch basic sight words list with a sample of first graders. Sexton and Treloar (1979) found similar results for first grade children, using the Science Research Associates Achievement test. Semlear (1977) also found that girls tended to have higher reading achievement on standardized tests than did boys in grades four through six. Wozencraft (1963) compared the performance of boys and girls in the third and sixth grades on the Stanford Achievement Test. Third-grade girls were found to have significantly higher subscores on word meaning and reading average, than did third-grade boys. The subscores received by the girls in the sixth grade also favored the girls, but not significantly so. Using a sample of 10 and 11 year old children, Hare (1979) found that girls had significantly better reading achievement than did boys. Hughes (1953) also found that girls in the third and fourth grades had significantly higher scores on the Chicago Reading Test than did boys in the same grades. Ackerman, Dykman, and Oglesby (1983) found that boys had significantly lower read-

ing achievement than did girls and suggested that there were more causes for boys' reading disabilities than for girls (p. 414). Girls' reading disabilities usually resulted from a combination of limited verbal ability, short-term memory, and attention span. Some boys' reading disabilities were also due to this combination. However, other boys' reading disabilities were due to a combination of slower verbal retrieval and higher spatial ability.

Gender differences in reading achievement as a result of attendance in a preschool program were also investigated. Miller and Dyer (1975) found that second grade boys who had attended a Montessori preschool program had significantly higher reading achievement than did other boys or girls. Girls who had not attended preschool had significantly higher reading achievement than did boys in this same group or girls in other groups. Two follow-ups were done when these children were in the sixth through eighth grades, and again when they were in ninth and tenth grades. Miller and Bizzell (1983) continued to find consistent results, even eight years later (Miller and Bizzell, 1984).

Other members of this Consortium for Longitudinal Studies investigated these gender differences. Gray et al. (1982) found that there were no gender differences in reading achievement as a result of the Early Training Project. Seitz, Apfel, Rosenbaum, and Zigler (1983) found consistent results, in their study of the effects of Project Head Start and Follow Through. Beller (1983) also reported no gender differences in reading achievement, in his study of the impact of preschool attendance on intellectual and socioemotional development.

Other researchers agreed in their findings of no gender differences

in reading achievement. According to Thompson (1975), gender differences in reading achievement generally were not significant after students were ten years old. Yarborough and Johnson (1980) traced the reading achievement of a sample of children over the course of first through sixth grades, and likewise found no significant gender differences.

Gender differences in the reading achievement of learning disabled children were also investigated. Ryckman (1981) did not find any significant gender differences in reading achievement, in a large sample of learning disabled elementary school students. Phipps (1982) found consistent results, even though special education classes contained almost three times as many boys as girls.

This gender proportion in learning disabilities classrooms was somewhat different. Naiden (1976) found the ratio of boys to girls was 3:2. Restak (1979) did not report a ratio, but found a higher percentage of boys than girls. Norman and Zigmond (1980) also reported similar findings.

According to the Education Commission of the States (1975), girls up to the age of 18 years old tended to have higher reading achievement test scores than did boys of the same age, in the United States. The gap in the reading achievement scores of females and males appeared to be narrowing between 1971 and 1980, but as of 1980, there was still a 5% difference (Education Commission of the States, 1981).

This situation was different in other countries. Gross (1978) investigated these differences in an Israeli kibbutz, and also found that boys generally had higher reading achievement than did girls. Preston (1962) investigated sex differences in reading achievement of children in

Germany, and also found that boys generally had higher test scores in reading achievement than did girls. However, Orlow (1976) reviewed the research of the German literature, and found that boys were reported to have more reading problems than did girls. But, there were no gender differences in the actual number of children who had not yet learned to read by the end of the second grade.

There was also a lack of consensus about gender differences in reading achievement in England. Johnson (1976) found that fourth and sixth-grade boys had significantly better reading achievement than did fourth and sixth-grade girls. However, others found differences favoring girls. Grant (1982) found that eleven year old girls had significantly better reading comprehension than did boys of the same age. Earlier, Thorndike (1973) had found that thirteen year old girls had significantly higher reading achievement than did thirteen year old boys.

There were several theories to explain the lack of consistency in sex differences in reading achievement from nation to nation. Dwyer (1974) believed that boys in the United States tended to categorize reading as a feminine activity, which resulted in a decrease in boys' motivation to read. He (Dwyer, 1974) believed this decrease was due possibly to social and cultural taboos against boys participating in girls' activities. Downing (1978) believed that when boys in the United States began to read, they originally saw reading as a masculine activity, but quickly changed their viewpoint and saw it as a feminine activity. According to Downing (1978), boys in other countries continued to see reading as a masculine activity. Gross (1978) believed the inconsistency from nation to nation was due to differences in sex-role expectations, while Johnson

(1976) believed it was due to cultural influences.

Research Related to Intelligence and Reading Achievement

Many researchers have investigated the relationship between IQ and reading achievement. Alexander and Eckland (1975), Haller and Portes (1972), Marjoribanks (1974), and Walberg and Marjoribanks (1976) all found IQ to be significantly related to reading achievement. Link and Ratledge (1979) found the IQ was a factor in the reading achievement of fourth grade students. Kirby and Das (1977) also found that IQ was significantly related to reading achievement, for a large sample of fourth grade students. Kerckhoff and Campbell (1977) found the effect of intelligence test scores was approximately the same for a sample of black and white children in the ninth grade.

In addition to these individual studies, several meta-analyses had been done. Hammill and McNutt (1981) analyzed the results of 34 studies involving the relationship between intelligence and reading achievement, and found the median correlation was .44 when the Wechsler Intelligence Scale for Children (WISC) was used. When the Stanford-Binet Intelligence Scale, Form L-M was used, the median correlation rose to .46. Stanovich, Cunningham, and Feeman (1984) also analyzed the results of many more studies involving the same variables, and reported the significant results according to the age levels of the subjects involved. The median correlation reported for six and seven year olds was .45. For ages seven and eight years old, it was .46, while it was .45 for ages eight and nine years. For ages 9 through 13 years, the median correlation was .66.

This relationship between IQ and reading achievement was also investigated in other countries. Pollack (1974) found that intelligence

was significantly related to reading achievement for a sample of children in Scotland. In England, Marjoribanks (1979) found that intelligence was related to reading comprehension for a sample of 11 and 12 year old boys and girls.

Other researchers have shown that there were poor readers who had average or high IQ's, and superior readers who had average IQ's. Yule, Rutter, Berger, and Thompson (1974) found a statistically significant number of children in the general population whose reading achievement was significantly below the level approximately predicted for their IQ score. They also found a statistically significant number of children whose reading was significantly above the predicted level on the basis of the IQ score. Sinks and Powell (1965) also found both underachievers and overachievers, in their study of intelligence as a factor in reading achievement. They (Sinks and Powell, 1965) considered underachievers as those children whose reading achievement was more than six months below the mean grade for their IQ. Gordon (1976) also found both underachievement and overachievement in reading in relation to IQ scores, in an investigation using a sample of fifth and sixth grade children in Chicago.

Other studies investigated the relationship between intelligence and reading achievement in exceptional populations. Bloom, Wagner, Bergman, Altshuler, and Raskin (1981) investigated the relationship between these variables with learning disabled children who were six to ten years old. They found that intelligence, as measured by the WISC-R, was significantly related to reading achievement. In addition, the more abstract skills such as comprehension were more highly related to the Full Scale IQ than were the more concrete skills of word identification.

Miller and McKenna (1981) used the Slosson Intelligence Test (SIT) with two different age groups of reading disabled children, in their study of the relationship between intelligence and reading achievement. They found that intelligence accounted for a significant amount of the variance in reading achievement test scores for both the eight year old and eleven year old groups of children.

Still other researchers studied the relationship between intelligence and reading comprehension with reading disabled children. Roberts and Anderson (1983) found a statistically significant relationship between reading comprehension, as measured by the Test of Reading Comprehension (TORC), and intelligence, as measured by the Slosson Intelligence Test (SIT). Roberts (1983) also used samples of reading disabled and average readers, and found that intelligence, as measured by the WISC-R was significantly related to reading comprehension, as measured by the TORC, for both sets of third, fourth, and fifth grade students.

Gajar (1980) attempted to distinguish among categories of exceptional children, on the basis of intelligence and achievement in school. She found significant differences in intelligence test scores, as measured by the WISC, received by learning disabled and educable mentally retarded children. She also was able to distinguish differences in expected versus actual reading achievement, the former based on the WISC test scores and the latter on the test scores received on the reading achievement portion of the Wide Range Achievement Test (WRAT). The learning disabled children had significantly greater discrepancies in actual versus expected reading achievement than did the educable mentally retarded children.

Other studies evaluated the use of the WISC-R as a predictor of school achievement. Only the Verbal IQ was found to be a significant predictor of reading achievement, as opposed to the Performance or Full Scale IQ (Dean, 1979; Hale, 1978; Schwarting & Schwarting, 1977; Wikoff, 1978). Hale, Raymond, and Gajar (1982) investigated the relationship between the Verbal IQ of the WISC and the reading portion of the WRAT, with a sample of exceptional children. The Verbal IQ was found to be a significant predictor of reading achievement.

The relationship between reading achievement and intelligence was implicit in the definition of learning disability. This stated that its determination depended on a "sevère discrepancy between achievement and intellectual ability" (p. 65082) in at least one area which included reading (Department of Health, Education, & Welfare, 1977). However, the technique to assess this discrepancy was not specified, giving rise to various formulas and models. According to Reynolds (1984-1985) there were 21 formulas and four models for determining the discrepancy, but none was entirely acceptable.

An alternative to these formulas and models was suggested by Woodcock (1978), by the use of the Woodcock-Johnson Psycho-Educational Battery. Through the analysis of discrepancies in subtest scores, areas of deficit or disability could be identified. Algozzine, Ysseldyke, and Shinn (1982) compared the achievement and ability scores received on the WISC-R, PIAT, and Woodcock-Johnson scales using samples of school-identified learning disabled and average six to twelve year old children. They found that there were no significant differences in the scores received on the ability scales. However, the school-identified learning disabled

children had significantly lower reading recognition and reading achievement scores than did average children. Therefore, the relationship between intelligence and reading achievement appeared to be stronger for average than for reading disabled children.

Research Related to Preschool Attendance and Classroom Behavior

Few studies have specifically addressed the effects of preschool attendance on subsequent classroom behavior. Some of the research in this area have involved the relationship between preschool attendance and student behavior toward tasks, peers, and adults. Harper (1978) concluded that preschools provided resources and experiences which contributed to the child's social development, when he compared the social adjustment of a large sample of children who had attended preschool and those who had not attended. Lougee (1979) concluded that children in preschools spent at least one-third of their time in active interaction with their peers. Children not in preschool were found to spend less time in active interaction with their peers. Raph, Thomas, Chess, and Korn (1968) compared the social adjustment of a group of children who attended preschool and those who did not attend. They found that those children who attended preschool had significantly larger numbers of social contacts and made better school adjustment in the first grade. They (Raph et al., 1968) believed a preschool would provide good opportunities for children to socialize with other children, if two conditions were present. Children must be present who are at the same developmental level, and guidance in social situations must be readily available. In this environment, they believed children will want to interact with others.

Durkin (1974-1975) observed and compared the behaviors of two groups of children for at least four years, both of whom began preschool at the age of four years. She found that certain behaviors or behavioral tendencies were quite persistent. Those children who had higher reading achievement in the second and fourth grades had remained highly interested in completing tasks, attentive to teachers' directions, and actively involved in classroom activities, since they began preschool. Those children who had lower reading achievement in the second grade still showed signs of restlessness, inattentiveness, and distractibility, as they did when they were in a preschool program.

Several research studies compared the classroom behavior of children who had attended a preschool program, and those who did not attend. Abelson et al. (1974) used a teacher rating scale, and found that Head Start children were rated as being higher in leadership, self-confidence, and emotional maturity. At the end of first grade, Head Start graduates were rated as being more creative in problem-solving and less likely to imitate others. Beller (1974) followed preschool children through the fourth grade. He found these children to be more academically motivated and to have more trust in teachers than children who did not attend a Head Start program.

Walden and Ramey (1983) studied the relationship of preschool attendance and classroom behavior near the end of first grade. They found that those children who had attended preschool had engaged significantly more often in "classroom behaviors indicative of a desire to learn, interest in learning, and good task orientation" (p. 356). They compared a group of preschool graduates both to a group of children who had not at-

tended preschool, and to a group of children who were randomly selected from the same classrooms.

Schweinhart and Weikart (1980) reported on longitudinal data received on the graduates of their Perry Preschool Program versus comparison children between the ages of three and 15 years. They found that the graduates received significantly higher teacher ratings on classroom conduct and personal behavior, when they were six to nine years old. These ratings involved "not blaming others for trouble", "not resistant to teacher", "does not attempt to manipulate adults", "lack of absences or truancies", "appropriate personal appearance", and "lack of lying or cheating" (Schweinhart & Weikart, 1983, p. 90).

Deutsch, Deutsch, Jordan, and Grallo (1983) also found gender differences in the relationship between preschool attendance and subsequent classroom behavior. Females who had attended the Institute for Developmental Studies preschool program were found by their teachers to be excessively verbal, curious, and independent in the third grade, as compared to male program graduates or those children who had not attended preschool.

Beller (1983) also found positive effects of preschool attendance on subsequent classroom behavior, in his comparative study of the effects of different amounts of preschool attendance. When the students were in the fourth grade, he found no significant differences in the subsequent classroom conduct among children who had attended no preschool and those who had attended for one or two years. However, a sleeper effect was evidenced when these children were in the tenth grade. Here he found the effects of having attended preschool varied by length of attendance and

gender. Females who had attended two years of preschool had significantly better classroom conduct than did males or children who had one or no years of preschool attendance.

These findings were inconsistent with those of Schweinhart and Weikart (1980), when the preschool graduates were 15 years old. These graduates rated themselves as being kept after school significantly less often than did the children who had not attended the program. However, there were no significant differences in school conduct, also based on self-ratings.

Other researchers investigated the relationship of type of preschool attended to subsequent classroom behavior. Karnes et al. (1983) compared the social development of children who had attended an Ameliorative preschool program with that of children who had attended a Traditional program. At the end of kindergarten, they found that children who had attended the Ameliorative program were rated by their teachers as having significantly more confidence in approaching new tasks. Domagala (1976) found similar results, for a group of second grade children. The children who had attended the Ameliorative preschool program had significantly better peer and teacher acceptance than did children who had attended the Traditional preschool program. However, Karnes et al. (1983) found a fade-out of any significant differences in classroom behavior in the fourth grade.

According to the American Institutes for Research in the Behavioral Sciences (1970), the Ypsilanti Perry Preschool Project included a comparison of the classroom conduct of children who had attended a Cognitively Oriented (Weikart et al., 1970) program, and those children who had not

attended preschool. This comparison was done toward the end of the first, second, and third grades. It was found that those children who had attended this preschool program had higher teacher ratings of classroom and personal behavior, as well as independence of the teacher, at all three grade levels.

The Ypsilanti Preschool Curriculum Demonstration Project (Weikart, 1973), commonly referred to as the Ypsilanti study, compared the classroom and free play behaviors of children who had attended a Cognitively Oriented (Weikart et al., 1970), Language Training (Bereiter & Engelmann, 1966), or Unit-Based (Weikart, 1973) programs. He found that significantly higher ratings of both types of behaviors were given for those children who had attended the Cognitively Oriented and Language Training programs, as compared to those children who had attended the Unit-Based program.

The Early Training Project (Gray et al., 1982) also included a comparison of classroom behavior in first grade. The children who attended this preschool were found to be significantly more reflective in answering questions, and the children who did not attend a preschool program were found to be significantly more impulsive.

Another study which investigated classroom behavior in first grade was reported by Miezitis (1973). The behavior ratings, by first grade teachers, of children who attended the Bereiter-Engelmann, Montessori, Darcee, or Traditional programs were compared. They found that those children who had attended the Darcee program were found to have the highest ratings of achievement motivation, curiosity, teacher-independence, task persistence, and resistance to distractibility.

Still another study which investigated classroom behavior in the first grade was that by Erickson, McMillan, Bennell, Hoffman, and Callahan (1969). This study, known as the Kalamazoo study, also compared teacher ratings of first grade children who had attended the Bereiter-Engelmann or Traditional preschool programs, and no program. Here, those children who attended the more instructional program had significantly higher ratings of task persistence, social participation, and resistance to distraction than did the other two groups. In addition, the classroom behavior of children who had attended the Traditional program was significantly better than those children who had not attended any preschool program.

Of the researchers who included an assessment of subsequent classroom behavior, some found that preschool attendance made no significant difference. Jester and Guinagh (1983) found no significant differences in classroom behavior when the graduates of the Parent Education Project were eight years old, as compared to the children in the control group. Levenstein, O'Hara, and Madden (1983) agreed in their findings of a home-based preschool program.

Research Related to Socioeconomic Status and Classroom Behavior

Many studies have investigated the relationship between socioeconomic status and classroom behavior. However, the results of these studies were inconsistent.

Socioeconomic status has been postulated to be an influence on children's classroom behavior. Meade (1981) compared the impulse control of groups of lower- and middle-SES nursery school and first grade children. He found that while both socioeconomic status groups in nursery

school were equally as impulsive, this was not true when these children were in the first grade. At that time, the lower-class first graders were found to be significantly more impulsive than were the middle-class children. These findings were consistent with earlier research. Brenner (1973) had found that lower socioeconomic status children tended to be more impulsive, especially in answering questions in class. Middle class children, however, tended to be more reflective and slightly slower in answering questions. Lorion, Cowen, and Caldwell (1974) also found consistent results with children in the primary grades. Here, significantly more lower-class children were found to show behaviors which were over-reacting, aggressive, or acting-out, as compared to the middle-class children.

Lindgren (1967) reported many ways in which the behaviors of the lower socioeconomic status children were different from those of the middle class child. Since the low socioeconomic status child was not familiar with the ways in which a classroom was governed, he or she appeared to be impulsive, interruptive, and inattentive in class. This type of child also tended to distrust teachers and other school personnel. According to Haywood (1982), lower-SES children were characterized by higher levels of anxiety, lower levels of curiosity and exploratory behavior, and an orientation of avoiding failure instead of one of striving toward success (p. 275).

Other researchers investigated the feelings of low socioeconomic status children. The low status child tended to expect failure, to think in absolute rather than relative terms, and to believe he or she was worthless. Krugman (1956) also reported findings of distrust in lower

class school children, as well as low feelings of guilt and shame. Lewis (1966) agreed, and believed a low socioeconomic status child had strong feelings of being inferior, especially in school. This type of child was believed to be dependent on others, feel unable to help one's self, and unable to change important aspects of the environment.

Other researchers have investigated the relationship between socioeconomic status and classroom peer group acceptance. Ames and Sakuma (1969) found that high socioeconomic status children tended to be well-accepted by their classroom peer groups. However, children of low socioeconomic status tended to be neglected or rejected by their classroom peer group. In order for the low socioeconomic status children to be highly accepted by their classroom peer group, he or she had to assume the values and behaviors of their higher socioeconomic status peers. Trotter (1971) however, found different results. Here, it was found that lower class children were more comfortable with their peers than were middle-class children. These findings were explained in terms of middle-class children being more ambitious and competitive with their peers, while the lower class children had a lower level of ambition and competitiveness.

Love, Kaswan, and Bugental (1974) also investigated this relationship between socioeconomic status and classroom behavior, using a sample of families whose children ranged in age from 8 to 12 years. These children were either perceived by school authorities as exhibiting social or emotional difficulties or behaving normally. This investigation involved a comparison of student behaviors in terms of the socioeconomic contexts of schools and the primary behaviors which resulted in the children com-

ing to the attention of the school authorities, across three socioeconomic levels. They found that teachers in high and low socioeconomic status schools reported significantly more problems with students' aggressive and hyperactive behaviors in terms of incidence and severity. Teachers in middle class schools reported significantly more problems with students' social withdrawal, also in terms of incidence and severity. This social withdrawal involved dependency on the teacher, since peers were viewed by the students as unavailable or unwanted.

These students' interpersonal adaptiveness was also investigated in terms of socioeconomic context of the schools, by Love et al. (1974). It was found that the children with behavioral problems in the higher socioeconomic status schools were significantly more unhappy, unresponsive to rewards, immature, oversensitive, and more insecure, than were the children with behavioral problems in lower socioeconomic status schools. The opposite was found for the average children in higher socioeconomic status schools. They were rated as significantly higher in these behaviors, than were the average children in lower socioeconomic status schools.

The authors (Love et al., 1974) also compared the primary behaviors which led to the children coming to the attention of school authorities, for each social class group. They found both the high and low socioeconomic level children displayed the problem behaviors of "aggression, hyperactivity, attention control, and social withdrawal" (p. 144), in the order of decreasing frequency. This order was different for children in the middle socioeconomic level. They displayed problems of "attention control, social withdrawal, hyperactivity, and aggression" (p. 144),

also in the order of decreasing frequency.

Other researchers investigated the effects of age and socioeconomic status on classroom behavior. Touliatos and Lindholm (1975) found that older lower class children had significantly more yet different classroom behavior problems than did middle-class or younger lower-class children. Lindholm, Touliatos, and Rich (1977) found consistent results with a large sample of children in the first through sixth grades. These four types of classroom behavior problems were personality, inadequacy-immaturity, socialized delinquency, and prepsychotic. Personality behavior problems involved being anxious or withdrawn. Passive behaviors and those showing a short attention span were grouped into the inadequacy-immaturity type. Socialized delinquency involved belonging to a gang or having inappropriate companions. Pre-psychotic behaviors included bizarreness or repetitive or incoherent speech (p. 100).

Inconsistent results were found in other studies. Jones (1983) investigated the effects of children's age, gender, and socioeconomic status on ratings of classroom behavior. She found that third grade girls of higher socioeconomic status were significantly more likely to display behavior problems in the classroom, such as lack of attention, impatience, and achievement anxiety. This was not true for boys or lower socioeconomic status children.

Low and Clement (1982) also found inconsistent results, in their study of the same variables with fourth grade children. They found that socioeconomic status was not related to maladaptive or neutral behavior in the classroom. Only the adaptive type of "seek help" behavior distinguished among the lower, middle, and upper socioeconomic status children,

with the behavior being shown significantly more often by the middle-class children.

Other studies found no significant relationship between socioeconomic status and classroom behavior. Sandberg, Wieselberg, and Shaffer (1980) compared the medical histories and socioeconomic statuses of samples of hyperactive and conduct disordered boys. They found no significant differences in the socioeconomic status of these boys. August and Stewart (1982) also did not find any significant differences in the social classes of two samples of boys with these same behaviors. Finally, McGee, Williams, and Silva (1984) found that socioeconomic status failed to differentiate among groups of boys in New Zealand who were rated by their teachers as being hyperactive or aggressive. The hyperactive behaviors included restlessness, squirminess, and poor concentration. Aggressiveness included the behaviors of destructiveness, fighting, bullying, disobedience, and irritability (p. 281).

Research Related to Gender Differences in Classroom Behavior

Many studies have shown that there were gender differences in the ways children behaved school. These research studies concentrated on aggressive and hostile behaviors, anxiety, impulsivity, hyperactivity, social confidence, and peer relations.

Several of the studies involved the use of teachers' perceptions and ratings of behavior. Meade (1981) found that significantly more four year old boys than girls were rated by their nursery school teachers as being impulsive. These findings were consistent with the results of some earlier studies. Sanford, Adkins, Miller, and Cobb (1943) used teachers' ratings, with a sample of children 5 to 14 year olds. They found that

boys were rated as significantly more aggressive than girls. Feshback (1956) also used teachers' ratings, and found that boys five to eight years old were rated as significantly more aggressive than girls of the same age. Digman (1963) also compared children's classroom behavior of first and second grade children, using teachers' ratings. Boys were found to be rated as significantly more negativistic, aggressive, and noisy than were girls of the same age.

Teachers' perceptions and ratings of students' behaviors were also used in studies of older children. Phipps (1982) investigated the differences in the major reasons for 8 to 16 year old children being referred to special education programs. She found that 83% of these boys were referred to the programs because of their behavior problems, while 45% of the girls were referred for the same reason. Ludwig and Cullinan (1984) found that boys showed significantly more aggressive and disruptive behaviors than did girls, according to ratings by their teacher. Kelly, Bullock, and Dykes (1977) also used the perceptions of teachers, to categorize the behavior of their students in terms of the degree, or absence of a behavioral disorder of each student. They found that significantly more males than females were seen as having behavioral problems.

Classroom teachers as the source of information concerning classroom behavior were also used in studies done in other countries. In New Zealand, McGee et al. (1984) investigated the identification of aggressive, hyperactive, and aggressive-hyperactive behaviors in seven year old boys on the basis of teachers ratings. They found that significantly more males than females showed hyperactive or aggressive behaviors. In

Canada, Davis (1978) found that teachers referred significantly more males than females for special education services due to behavioral problems in the classroom. These results were consistent with the later ones found by Phipps (1982) in the United States. Another study done in Canada was by McDermott (1982), who investigated teachers' ratings of classroom behavior by gender, using the Bristol Social Adjustment Guides. He found that significantly more 5 to 15 year old males than females showed classroom behaviors of social withdrawal, refusing or being unable to respond to people or situations in the environment, impulsivity, intrusive or aggressive behaviors toward peers, and antagonism toward people in authority. Significantly more females than males were found to show shy, fearful, and socially unproductive behaviors (p. 282). In England, Glossop, Appleyard, and Roberts (1979) also investigated gender differences in classroom behavior based on teachers' ratings. They found consistent results, in that 15 to 16 year old females were rated as having significantly better classroom behavior than were males of the same age.

Still other studies involved the use of observers of behaviors in the classroom. At the start of the second grade, McKinney, Mason, Perkerson, and Clifford (1975) found that there were no gender differences in classroom behavior. In the spring, classroom behavior was again observed, and gender differences were found. Girls were observed to engage in constructive independent classwork significantly more often than did boys. Boys engaged in constructive independent play significantly more often than did girls. A comparison of the changes in behaviors between the fall and spring was also assessed, in terms of significance and gen-

der. Girls were shown to have significantly decreased their constructive independent play, and active responding in a group situation. Both girls and boys had significantly decreased their off-task behavior and distractibility.

Veldman and Worsham (1983) also used classroom observation, in their study of gender differences in junior high school students. They found that there were no gender differences in outgoing or withdrawn behaviors. However, the rebellious students were predominantly boys. Significantly more girls than boys showed "good student" (p. 206) behaviors, such as persistence, confidence, and good work habits. Arnold, Barneby, and Smeltzer (1981) had also found that significantly more girls were shy in the classroom, while significantly more boys than girls showed classroom behaviors which were classified as inept. Yarborough and Johnson (1980) also studied gender differences in the classroom behavior of junior high school students. They found that girls were significantly more well-adjusted.

Other studies relied on information provided by mothers. MacFarlane, Allen, and Honzik (1954) did a longitudinal study of behavior problems of children. This study began when children were 21 months old, and followed these children until they were 14 years old. They found that boys generally had significantly more problems with overactivity, lying, and control of tempers than did girls generally. In contrast, girls generally had significantly more problems with shyness, specific fears, and oversensitivity. Boys who were six to seven years old had significantly more problems with stealing and overactivity than did girls of the same age. Again in contrast, six to seven year old girls had significantly

more problems with sensitivity, somberness, and jealousy than did boys of the same age. Lapouse and Monk (1964) reanalyzed their data from an earlier study (LaPouse & Monk, 1958), in which they interviewed the mothers of a large sample of normal six to twelve year old children. They found that six to eight year old children had more behavioral problems than did the older children. They also found that boys had significantly more problems with overactivity, both in and out of the classroom, than did girls.

Several studies investigated sex differences in anxiety in classroom behavior. Reid, King, and Wickwire (1959) studied anxiety in a sample of creative children. They found that highly anxious creative boys were less secure in their relationship with the teacher, as compared to boys who were less anxious. In contrast, highly anxious creative girls were found to show less distractibility in the classroom than did less anxious girls. Sarason, Davidson, Lighthass, Waite, and Ruebush (1960) compared sex differences on a general scale of anxiety and a test of anxiety in school. They found that girls scored consistently higher on both scales, and therefore believed that girls were significantly more anxious than were boys. Loughlin, O'Connor, Powell, and Parsley (1965) found similar results with fourth through eighth grade children. They administered the same two measures of anxiety, plus an additional one, and reported that girls had significantly higher anxiety scores on all three measures.

However, different results were found by other investigators. Davidson and Sarason (1961) found that second-grade boys were significantly more anxious than girls of the same age. In addition, they were

also cautious, ambitious, submissive, and not comfortable in communicating, especially emotions. The second-grade girls who were found to be highly anxious were also found to be comfortable in communicating and sensitive, but immature.

Davidson and Sarason (1961) also found that anxiety was correlated with dependency. In this study, second-grade girls who were found to be highly anxious were also found to be dependent. Ruebush and Waite (1961) compared sex differences in anxiety, direct and indirect dependency, and defensiveness. They found that highly anxious fourth-grade boys were also highly directly dependent, but highly anxious fourth grade girls were significantly higher in indirect dependency. Low-anxious boys who were highly defensive were also found to be highly indirectly dependent. In contrast, girls who were both low-anxious and highly defensive were found to be highly directly dependent. Ruebush (1963) also addressed the issue of sex differences in anxiety and dependency. It was reported that highly anxious children were generally more dependent than less anxious children. Highly anxious boys were also reported to be more dependent than highly anxious girls of the same age.

Sex differences in the reaction to, and relations with, peers was also investigated in several studies. Hill (1963) studied the relationship among anxiety, defensiveness, and peer preference, using a sample of third grade children. Boys were found to prefer girls who had low anxiety and low defensiveness. In contrast, girls were found to prefer boys who were highly anxious. Schemer (1970) compared sex differences in attitudes of children in same-sex and mixed-sex classes. Boys in all-boy classes were found to be more positive toward their peers, as well as to-

ward teachers and learning in general than were children in all-girl or mixed classes. Yarborough and Johnson (1980) found that seventh and eighth grade girls identified with friends significantly better than did boys of the same age.

Restak (1979) believed the sex differences in children's behavior was due to cultural expectations. According to Restak (1979), "boys are expected to be more aggressive and play rough games, while girls are presumably encouraged to be gentle, non-assertive, and passive" (p. 232). Hartley (1978) concluded that girls' behaviors were considered to be more appropriate than that of boys, by both teachers and peers.

Research Related to Intelligence and Classroom Behavior

Research has shown that children whose IQs were exceptional tended to behave in ways which were different from children whose IQs were in the normal range, according to Bailey and Richmond (1979), Griggs and Price (1980), and Krupski (1979). Among these exceptional children were the mentally retarded and gifted, whose IQs were either significantly below or above those of average children.

Many researchers have investigated the classroom behavior of children whose IQs were significantly below average. Their IQs ranged from 50 to 69. These studies tended to concentrate on the behaviors and attitudes concerning school, teachers, and peers.

According to the United States Department of Health, Education, and Welfare (1972), there were several behavioral cues associated with mental retardation. Those children whose IQs were significantly below average tended to have difficulty in choosing their own activities. They also tended to imitate others, rather than to create their own activities or

act independently of others. Finally, they tended to have difficulty sustaining concentration, especially in the classroom. Goodenough (1956) had also reported a strong tendency for these children to have emotional outbursts. According to Forness, Guthrie, and MacMillan (1982), their attending behaviors were significantly related to the amounts of structure and support in the classroom.

The behaviors of children whose level of intelligence was below average were compared to children of average intelligence. Magnifico (1958) reported that retarded children generally had an extremely short attention span, as compared to average children. McKinney and Clifford (1975) found that these children, whose IQs were significantly below average, were less task-oriented than were average children. Weisz (1979) investigated perceived helplessness, and found that average children showed significantly less helplessness due to a history of successes instead of failure. Kuveke (1983) compared several classroom behaviors on the basis of teachers' ratings. She found the retarded child was rated as being significantly more afraid of making mistakes, disrespectful of the belongings of other people, slow in making friends, pessimistic, and unwilling or unable to speak when angry or excited. Sherry (1981-1982) compared the non-task oriented behaviors of educable mentally retarded and average children in a regular classroom and found these behaviors, such as orienting responses and talking, to be significantly less in the average child. Werry and Quay (1969) observed the classroom behavior of these children, as well as children with IQs in the average range. They found that these children spent significantly less time on-task, and less time attending to school tasks generally than did the average children.

Crosby (1972) investigated distractibility in retarded children, and found that retarded children were significantly more distractible than were average children. Krupski (1979) also compared the classroom behavior of these types of children during a period of independent work time. She found statistically significant differences on five categories of behavior, on the basis of both multivariate and univariate analyses of variance. Average children were found to be on-task significantly more than retarded children. These average children made significantly fewer glances toward task-related objects around their desks, or manipulations of these objects, than did the retarded children. Furthermore, these average children spent significantly less time out of their seats, and interacted with the teacher significantly less than did the retarded children. Finally, average children were found to make significantly more glances toward people in the classroom, such as the teacher or peers, as compared to the retarded children.

The classroom behaviors of educable mentally retarded children were compared to those of other exceptional children. Childs (1982) found that adaptive classroom behavior was significantly related to IQ score, based on scores received on a parent interview and an intelligence test. Kuveke (1983) also compared the classroom behaviors of educationally handicapped children, whose IQs were between 70 and 83, with that of educable mentally retarded children, whose IQs were between 50 and 69. The educable mentally retarded children were rated by their teachers as displaying significantly more extraverted behaviors than did the educationally handicapped children. Forness, Guthrie, and MacMillan (1981) observed and compared the classroom behaviors of three types of exceptional children,

one of which was in two different settings. Significant differences in on-task behaviors were found between groups of institutional trainable mentally retarded children and those who were in special schools, educable mentally retarded in regular schools, or educationally handicapped in regular schools. In addition, significant differences were found in communication attempts, attending, and non-attending behaviors, with the educationally handicapped having the highest levels followed by the educably mentally retarded in regular schools, then the trainable mentally retarded in the community, and finally the institutional trainable mentally retarded. Children in educable mentally retarded classrooms tended to have the lowest frequency of positive verbal interactions, and significantly lower in teacher's responding to their behavior (p. 507). Gajar (1979) also compared the classroom behavior of various groups of exceptional children, and found that educable mentally retarded children were rated as significantly less mature than were the learning disabled or emotionally disturbed children. She (Gajar, 1980) later found that educable mentally retarded children's conduct was rated as significantly better than that of emotionally disturbed children, but worse than that of learning disabled children. The behavior of these same types of groups of children was also investigated by McKinney and Forman (1982). Educable mentally retarded children were rated as significantly less intelligent, creative, independent, and task-oriented than were learning disabled children. They were also rated as significantly less hostile and more considerate than were emotionally handicapped children. These findings were consistent with Schaefer's (1980) models of adaptive behavior with which to distinguish these groups of children.

Other researchers have investigated the attitudes and feelings of mentally retarded children in school. Rothstein (1971) reported that these children have met frustration, rejection, and failure in the regular classes. As a result, they tended to exhibit behavioral problems in school. Mercer (1971) agreed, and reported that these children have met frustration, rejection, and failure in the regular classes. As a result, they tended to exhibit behavioral problems in school. Mercer (1971) agreed, and reported that these children had been referred for special education services as much or more for their behavior problems as for their academic problems. MacMillan (1971) found that retarded children tended to be dependent on others, especially teachers, to solve problems for them. Their history of failure had resulted in their distrust of their own solutions. Gottlieb and Budoff (1972) investigated the changes in school-related attitudes of a group of mentally retarded children, after they were placed in a new ungraded school. When these former special class members were returned to a regular school program, they showed significantly better attitudes toward themselves and school.

The behavior of mentally retarded children toward their peers was also investigated by other researchers. In their study of mentally retarded children who were returned to a regular school program, Gottlieb and Budoff (1972) found these children believed that other children in the school saw them as being closer to normal than the mentally retarded children still in special classes. Goodman, Gottlieb, and Harrison (1972) studied the social acceptance of mentally retarded children who were mainstreamed into regular classes. They found that these children believed they were more rejected by their regular class peers than were

mentally retarded children who were not mainstreamed. In addition, both mainstreamed and self-contained class members believed they were more rejected than their peers of average IQs. These studies had substantiated both the earlier findings of Dentler and Mackler (1962), who reported that social status was positively correlated with levels of IQ, and the subsequent findings of Bruininks (1978) and Gottlieb, Semmel, and Veldman (1978).

The identification of the behaviors of this type of child has become increasingly more important. According to Huberty, Koller, and Ten Brink (1980), the designation of mental retardation in many states in this country included both a measure of adaptive behavior and an IQ score. This measure of adaptive behavior referred to how effective an individual was in meeting age-appropriate personal and social responsibilities in his or her culture. The American Association on Mental Deficiency (AAMD) included adaptive behavior in its definition of mental retardation. The equal importance of both an IQ score and adaptive behavior in classifying a person as being mentally retarded was stressed by this organization (Grossman, 1973).

In addition to the behavior of the children whose IQs were significantly below the average range, those of the children whose IQs were significantly above the average range were also of interest in the present study. Many researchers have investigated the classroom behavior of gifted children, in terms of their general emotional adjustment and relationships with peers.

Terman, Baldwin, and Bronson (1925) investigated the personal and social adjustment of a large sample of gifted children. They compared

the results of several tests and rating scales, for gifted and average children. They found that the gifted children generally had superior emotional adjustment, as compared to the average children. These gifted children were found to be more emotionally stable, trustworthy in stressful situations, and less likely to cheat. Johnson (1923) compared teachers' ratings of gifted and average children, and found that the gifted children were above average in courtesy, cooperation, and their sense of humor. Gallagher and Crowder (1957) compared the frequency of emotional problems in average and gifted children in the regular classroom. They found that gifted children had fewer emotional problems than did average children on both projective tests and teacher rating scales. These findings were consistent with the results of later studies by Haier and Denham (1976) and Milgram and Milgram (1976), who also found that gifted children were more self-sufficient, original, and dominant than were average children. Lehman and Erdwins (1981) also investigated the social and emotional adjustment of gifted third graders, by comparing them to two groups of average third and sixth grade children. They found that the average sixth-graders and gifted third-graders had significantly higher social skills and valued democratic forms of peer group interaction. These gifted children had significantly higher sense of personal freedom and cooperation than did the other two groups. The third grade gifted children were significantly less aggressive, destructive, and displayed fewer acting out behaviors, but greater school relations than did the average third grade children. However, these gifted children were significantly less willing to compromise and felt significantly less positive about working in a group situation as compared to the average sixth

grade children (p. 136). Ludwig and Cullinan (1984) also compared the classroom behaviors of gifted and nongifted peers. Here, gifted children were found to have fewer behavioral problems than did average students, in the first through the fifth grades, according to ratings by teachers.

Also studied were the effects of specific intervention programs on the behavior of gifted children. Bent (1969) conducted an experimental study, using a large sample of third-grade gifted children. The gifted children placed in accelerated classes for half of the school day were found to be more socially aware and concerned, as well as more self-reliant, as compared to gifted children who remained in their regular classes. Steele (1970) also compared the affective behaviors of gifted children in regular and gifted classrooms. Significant differences were found in self-reliance and enthusiasm, in favor of self-contained classrooms. Haskins, Walden, and Ramey (1983) compared the behaviors of students in high- and low-ability groups in kindergarten and first grade. They found several significant differences in the behaviors. Children in the low-ability groups were significantly more disruptive and likely to impede the classwork of their peers by taking their school supplies or hitting them. The children in the high-ability groups were on-task significantly more, but less compliant with their teachers, than were the low-ability group children (p. 872).

Other investigators studied the behavior of gifted children toward peers in school. Hollingworth (1942) found that gifted children had problems in coping with authority, and tended to be rebellious and negativistic. These behaviors were apparent during social situations, and resulted in gifted children being frustrated with peers of average intel-

ligence. The combination of this frustration and these behaviors often led to feelings of social isolation, inferiority, and anxiety. However, O'Shea (1960) and Barbe (1965) found that gifted children often chose to spend their time with other gifted children, and were often successful in homogeneous situations. Mann (1957) found that gifted children who were in special classes for one-half of the day tended to choose their close friends from those who were in the same program. Passow (1958) and Martinson (1961) agreed, and reported that gifted children who were allowed to work with other gifted children in good programs generally developed improved behaviors toward others. Gallagher (1958) investigated social status in school and intelligence, and found that gifted children had higher social status and popularity than did average children in regular classes. Harrison, Rawls, and Rawls (1971) studied the differences between social leaders and nonleaders in school. They found that classroom leaders were usually socially skilled, more intelligent, academic achievers, and emotionally adjusted. In England, Freeman (1979) compared the popularity of gifted and their average peers, and found that the gifted children had significantly less friends, according to parents' reports. Recent studies in this area have investigated the relationship of IQ and social behaviors. Abroms and Gollin (1980) studied this relationship in gifted three year old children. They found that IQ, as measured by the Slosson Intelligence Test, was the best predictor of observed prosocial behaviors toward peers in the start of the preschool year, but IQ did not predict this type of behavior near the end of the school year. Freeman (1979) studied this relationship in children who were five to 16 years old, in England. She found that as the IQ increased, so did unsocial be-

havior. According to Austin and Draper's (1981) meta-analysis of other studies done in this area, some gifted children interacted better with older children and adults, than they did with age-peers.

Finally, other investigators compared the major sources of influence over the behavior of gifted and average children. Bandura (1971) believed that highly able students tended to be more selective in who they allowed to influence them, as compared to average students. In addition, these highly able students thoughtfully evaluated and weighed external versus internal values before they acted. Wolf (1976) found that gifted and talented students were more inclined to be influenced by both adults and peers, while average students tended to be more influenced by adults.

Research Related to Preschool Attendance and Self-Concept

The child's self-concept is initially acquired from the environment. School experiences at any level can influence this developing self-concept in either a positive or negative behavior, depending on the quality of these experiences (Deutsch, 1966).

Many preschool programs included the goal of instilling a positive self-concept in the children who attended. However, only a few reported positive results with their graduates who were in the primary grades. Two possible reasons for this, according to Cicirelli, Granger, Schemmel, Cooper, Helms, Helthouse, and Nehls (1971), were the lack of suitable instruments to measure self-concept, and the difficulties inherent in constructing this sort of instrument for use with groups of primary grade children.

McAfee (1972) compared the self-concepts of first grade children who had attended the Responsive Education's New Nursery School (Nimnicht,

1972), with those who had not attended any preschool program. This program intended to develop language skills, as well as an environment which was responsive to each child, and used self-instructing materials. Those children who had attended this program were found to have significantly higher self-concepts in the primary grades, as compared to children who had not attended any preschool.

Karnes et al. (1971) also investigated the self-concepts of the graduates of the Ameliorative (Karnes et al., 1970) preschool program, at the end of kindergarten. Here, the self-concepts of those children who had attended the Ameliorative program were compared to that of children who had attended Karnes' Traditional program. Using a teacher rating scale, those children who had attended the Ameliorative program were rated as having significantly higher self-concepts than were children who had attended the Traditional program. At the end of fourth grade, the children who had attended the Ameliorative program were again compared to children who had attended the Traditional program. Although the differences were not statistically significant, those who had attended the Ameliorative program had better self-concepts (Karnes et al., 1983).

According to the American Institute for Research in the Behavioral Sciences (1970), two of the Project Head Start programs investigated the self-concepts of their graduates in the first grade. Bereiter and Engelmann (1966) compared the self-concepts of children who had attended their program, the Academic Preschool, versus a traditional program. While there was no formal measurement of self-concept included, the investigators reported that "the most noticeable characteristic of these children was their confidence in their abilities to meet a challenge" (p. 21).

The other Head Start program which investigated the self-concepts of the graduates was the Learning to Learn program (Sprigle, Van De Riet, Van De Riet, & Sprigle, 1969). Here too, there was no formal measure of self-concept for use in the comparison. The basis for the comparison was the impression of the program examiners. The graduates of this program showed more confidence in their problem-solving abilities as compared to both those children who had attended a traditional program or no preschool program at all.

Beller (1983) also investigated the effects of length of preschool attendance on self-concepts in fourth and tenth grade students. He found that the effects were more significant on the older children than on the younger ones. In addition, the length of preschool attendance was found to be significant and positively related to students' self-concepts in the tenth grade.

Deutsch et al. (1983) also investigated the self-concepts of the students who had attended the preschool program at the Institute for Developmental Studies (IDS), by comparing them with children who did not attend preschool. At the end of third grade, the program graduates were found to have significantly better self-concepts. These differences were still significant when the male participants were in late adolescence or young adulthood. However, there were no significant differences for female participants.

Schweinhart and Weikart (1980) also found significant differences in the academic self-concept of their program graduates and control group children. These differences were based on the results of self-ratings of academic ability.

However, Jester and Guinagh (1983) did not find any significant differences in the general or academic self-concepts of the graduates of the Parent Education Infant and Toddler Program, or the control group children. These comparisons were made when the children were one through six years old, and again when they were ten years old. The last comparison was made in 1978-1979. In all comparisons the self-concept scale used was developed by the program developer.

The meta-analyses by Lazar et al. (1982) and Royce et al. (1983) both included an evaluation of the effects of the preschool Consortium projects on academic self-concepts. When they assessed the effects across all of the projects, they found no significant differences between program graduates and comparison groups (Royce et al., 1983). However, different results were found when the ages of the children at the time of the evaluations were considered. The pooled results of the studies involving students under 15 years old showed that the preschool program graduates rated their school performance significantly more positively than did the comparison children who had not attended preschool. However, the program graduates who were 9 to 13 years old rated their own academic performance significantly less positively than did the children in the control groups (Lazar et al., 1982).

Research Related to Socioeconomic Status and Self-Concept

Many researchers have investigated the relationship between socioeconomic status and self-concept in children. Krugman (1956) reported findings of low self-concepts in lower socioeconomic status children. Lewis (1966) believed that the lower-class children frequently had a lower self-concept, as compared to the middle-class child.

There were several studies which investigated this relationship, using samples of school-aged and kindergarten children. Samuels (1973) used two measures of generalized self-concept, and found that the middle-class group of kindergarten children had significantly higher self-concepts than did the lower-class children of the same age. Tuta and Baker (1973) found similar results with children of this age, using pictorial self-concept scales. Henderson and Long (1971) also found that middle-class first and second grade children had significantly higher self-concepts than did lower-class children of the same age. Phillips and Zigler (1980) compared samples of low- and middle-socioeconomic status children in the second and fifth grades. They found that socioeconomic status significantly affected the self-image scores of these children. In addition, low socioeconomic status children were found to have significantly lower ideal self-images than did the middle-status children. Osborne and LeGette (1982) found similar results in their study of general and academic self-concept in seventh, ninth, and eleventh graders from five socioeconomic status groups. They reported that as the socioeconomic status decreased, so did the general and academic self-concepts.

There have also been studies showing that the self-concepts of middle-class children were not necessarily higher than those of lower-class children. Rosenberg (1979) compared the self-images of two samples of children from low- and middle-socioeconomic status groups. The self-images of the children in the low socioeconomic status groups were at least equal to those of children in the higher status group. Soares and Soares (1969) measured the generalized self-concepts of middle- and lower-class children in the fourth through eighth grades. They found that the mid-

dle-class children had significantly lower generalized self-concepts than did the lower-class children. Trowbridge and Trowbridge (1972) used a sample of children in the third through eighth grades. They found that the lower socioeconomic status children had more positive self-concepts relating to the general self, social self, peers, and school. The children in the higher socioeconomic status group had higher self-concept test scores relating to home and parents. Using samples of children in the first through third grades, Cicirelli (1977) reported that lower socioeconomic status children had significantly higher self-concepts than did children of higher status. Entwisle and Hayduk (1982) investigated the relationship of socioeconomic status and self-concept in first, second, and third grade children. They found that middle-class children had more accurate academic self-concepts, but the lower-class children had higher general self-concepts. These findings were consistent with those of Rosenberg and Simmons (1971), who reported that lower-class children lowered their self-concepts only when they were surrounded by children unlike themselves, and forced to accept unfavorable feedback.

According to Samuels (1977), the generalization that every middle-class child had a high self-concept would be erroneous. Sewell (1961) compared the self-concept test scores of children from each socioeconomic status level, and found that there were both high and low scores at each of these levels. Green and Rohwer (1971) found similar results, as did Phillips (1972). Coleman et al. (1966) and Carpenter and Busse (1969) also reported findings of equivalent levels of self-concept across socioeconomic status groups.

The relationship of socioeconomic status and self-concept was also

investigated in other countries. In Israel, Eshel and Klein (1981) found that socioeconomic status was related to general academic self-concept in second through fifth grade children. In Australia, Fahey and Phillips (1981) found similar results. Lower socioeconomic status children were found to have significantly lower academic self-concepts than did higher status children, ages 6 to 11.5 years old. The higher status children were also found to be significantly less concrete, more ambitious, and more future-oriented than were the lower status.

The effects of age on the relationship of socioeconomic status to self-concept were also investigated. Phillips and Zigler (1980) found that socioeconomic status affected self-image differently for second grade children than for fifth grade children. The low socioeconomic status second grade children had significantly lower ideal self-images than did the fifth graders or middle socioeconomic status children in both groups. Real self-images were also found to be significantly lower and more negative than were the ideal self-images for all children. In Israel, Eshel and Klein (1981) also found that the differences in children's self-perception across socioeconomic status groups increased with age and years in school. These findings were consistent with the earlier ones by Bridgeman and Shipman (1978).

Research Related to Gender Differences in Self-Concept

There were contradictions among studies of gender differences in self-concept. Some studies have reported no differences, while others reported the existence of differences.

Among those studies reporting no gender differences in self-concept was the one by Henderson and Long (1971), who used samples of children in

first and second grade. Primavera, Simon, and Primavera (1974) also showed consistent results in samples of fifth and sixth grade middle-class students. Chang (1976) reported that gender differences in self-concept did not occur systematically. Samuels and Griffore (1979) used samples of five year old children, and also found no significant differences in self-concept as measured by a self-report and teacher rating scale. Wylie's (1979) meta-analysis also provided more evidence for the findings of a lack of significant gender differences. Further evidence was provided by Drummond and McIntire (1980) in their study using kindergarten and first grade children. Osborne and LeGette (1982) also reported no significant gender differences in global self-concepts, with samples of seventh, ninth, and eleventh grade students.

Other studies have reported findings of gender differences in self-concept, in favor of boys. Carpenter and Busse (1969) found that boys had higher self-concept test scores, in a sample of children whose parents were receiving government assistance. Herbert, Gelfand, and Hartman (1969) found similar results. In addition, Garai and Scheinfeld (1968) and Baumrind (1972) compared the gender differences in self-evaluations of ability, and found boys to be significantly more realistic than girls. Levy (1972) believed boys evaluated their skills more accurately because the criticism received by them tended to be more task-oriented. The criticism received by girls was believed to be much more general. Additional evidence was provided more recently by Marx and Winne (1975), who found that boys viewed themselves significantly more positively than did girls. Drummond and McIntire (1980) also reported finding first grade boys had significantly more positive self-perceptions in social situa-

tions than did girls of the same age. Osborne and LeGette (1982) found consistent results, in that boys were found to see themselves as significantly more anxious and to be significantly more satisfied with their physical appearance than did females. Carroll, Friedrich, and Hund (1984) also reported finding gender differences in the self-concepts of second and fourth grade children, in favor of the boys.

Other studies have reported gender differences in self-concept, in favor of girls. Whiteside (1976) provided evidence for this theory. Kanoy, Johnson, and Kanoy (1980) found significant gender differences in popularity, in favor of girls. Fourth grade girls were found to see themselves significantly more positively in social situations than did boys of the same age. Fahey and Phillips (1981) found the significant gender difference to be in the area of ambition, in that girls in disadvantaged schools expressed their only ambition was to be a teacher. Boys did not indicate any ambitions. Osborne and LeGette (1982) reported that girls saw themselves as significantly better behaved and more social than did boys in the same grades in schools.

Maccoby and Jacklin (1974) have reviewed many studies on gender differences in self-concept. They found that there were reports of no gender differences when studies used self-report scales. When other types of self-concept scales were used, Maccoby and Jacklin (1974) concluded that there were only qualitative differences between the sexes. When studies limited self-concept to social competence, they tended to report that girls rated themselves higher than boys. When studies limited self-concept to the areas of strength, power, or dominance, boys were found to rate themselves higher than girls. Bogo, Winget, and

Gleser (1970) found that boys tended to receive higher scores on self-concept scales which measured defensiveness. This type of scale measured the extent to which true feelings were disguised in order to present a more favorable picture.

Research Related to Intelligence and Self-Concept

A limited amount of research had been done in this area. Generally, studies reported a significant and positive relationship between levels of intelligence and self-concept.

Coopersmith (1967) and Piers (1969) provided evidence which helped to establish the relationship between the level of intelligence and self-concept. Simon and Simon (1975) also found that intelligence and self-concept were significantly correlated, using samples of average fifth grade students. Further evidence was supplied by Joseph (1979). According to Smith (1979), this relationship was fairly well established with children in regular classes. Phillips and Zigler (1980) also found consistent results, using different instruments with samples of second and fifth graders. Entwisle and Hayduk (1982) used a sample of first, second, and third grade children and found that a child's IQ level affected his or her expectations of academic performance.

The relationship of intelligence and self-concept in exceptional children was also investigated. According to Ringness (1961), children whose IQ scores ranged from 70 to 89 had lower self-concepts as compared to children whose IQ scores were in the average or above-average range. Other comparisons involved educable mentally retarded children, whose IQs ranged from 50 to 69. Leahy, Balla, and Zigler (1982) compared the real and ideal self-images of retarded children with their chronological and

mental age mates. They found that intelligence was positively and significantly related to real self-image and ideal self-image in all three groups. Chronological age was also found to be significantly but negatively related to ideal self-image. Kuveke (1983) also found significant differences in the levels of self-concept in educable mentally retarded and average children, based on a teacher rating scale of classroom behavior. She found that the retarded children were rated as "thinks of self as worthless", "not sure of self", and "is not self-confident" (p. 136) significantly more often than were the average children. Carroll et al. (1984) compared the self-concepts of mentally retarded, learning disabled, and average children. However, they separated the mentally retarded children into two groups, according to whether their IQs were high (60-69) or low (50-59). They found statistically significant differences between the groups, in that the average students had the highest academic self-concept, followed by the learning disabled children, and then the mentally retarded children. According the the teachers, the average children had the highest self-concept, followed by the low and high mentally retarded, with the learning disabled having the lowest self-concept.

The relationship of intelligence and self-concept in gifted children was also investigated. These studies used different comparison groups, or children of varying ages. Hamachek (1961) found a positive relationship between the levels of intelligence and self-concept, using a sample of children in the third and sixth grades. Children at both grade levels, who had higher levels of intelligence were found to have significantly higher intellectual and achievement self-concepts. Butcher (1968)

found similar results with children in the same grade levels, using a scale of self-concept as student.

Some of the more recent studies compared gifted children with children who were of average intelligence, learning disabled, gifted themselves, or used in the standardization sample of a measure. Other studies compared gifted achievers with gifted underachievers, or in various types of instructional programs.

Many studies compared the self-concept of gifted children and children whose IQs were in the average range. Milgram and Milgram (1976) compared samples of fourth and eighth grade gifted and average children. They found that the gifted children had significantly higher self-concepts than did the average children. Ketcham and Snyder (1977) found similar results. Coleman and Fults (1983) also found similar results, with children in fourth, fifth, and sixth grades. Tidwell (1980) compared the scores received by a large sample of gifted adolescents with the scores received by the standardization sample of the same age, and found that the gifted adolescents had significantly higher self-concepts. Maddux, Scheiber, and Bass (1982) found consistent results with a sample of gifted sixth graders.

Other studies compared gifted children with at least two different samples of children. Lehman and Erdwins (1981) compared gifted third graders and average third graders and average sixth graders. They found that the self-concepts of the gifted third graders were equal to that of the average sixth grade children, both of which were significantly higher than that of the average third graders. O'Such, Twyla and Havertape (1979) compared the self-concepts of gifted, average, and handicapped

children, and found that the gifted children had significantly higher self-concepts than did the others. Winne, Woodlands, and Wong (1982) also compared the self-concepts of gifted children in the fourth through seventh grades with that of average and learning disabled children in the same grades. They found that the gifted children had significantly higher academic self-concepts than did the children in the other groups. However, the learning disabled children were found to have significantly higher athletic and social self-concepts than did the gifted or average children of the same age. These findings were consistent with the earlier ones by Ross and Parker (1980), who reported that gifted fifth through eighth graders had significantly more positive academic than social self-concepts.

Still other studies have compared the self-concepts of achieving and underachieving gifted children. Kanoy et al. (1980), Saurenman and Michael (1980), and Whitmore (1980) all found that gifted achievers had significantly higher self-concepts than did gifted underachievers.

Research Related to Preschool Attendance and Attitudes Toward Reading

Many researchers have pointed to the importance of developing and maintaining positive attitudes toward school in general and reading in particular. To avoid producing what Huck (1971) called "a nation of illiterate literates" (p. 37), children need to be taught both how to read and the desire to read. Estes (1971) agreed, and believed "how students feel about reading is as important as whether they are able to read" (p. 135). The Joint Committee on Reading Development emphatically advised teachers to counteract negative attitudes toward reading (Dietrich & Mathews, 1968).

The effect of preschool attendance on attitudes toward reading has been recognized by several researchers, but not assessed by many of them. Instead, some assessed attitudes toward school in general.

Dearman and Plisko (1982) believed the schooling experience influenced student attitudes toward school, but they did not measure the attitudes of those who had attended preschool. Bereiter and Engelmann (1966) had addressed the issue of the effects of their program of direct academic instruction on the attitudes toward school in general, but not toward reading in particular. They believed their program "builds up attitudes toward schoolwork that should provide a basis for better adjustment to school in later years" (Bereiter & Engelmann, 1966, p. 185), as well as "a more mature kind of motivation" (p. 185). Again, there was no formal measure of maintenance or changes of these attitudes.

Beller (1983) also investigated the impact of preschool attendance on attitudes toward school and learning during the first and second grades. Those children who had attended preschool were identified significantly more often as having the best or more positive attitudes toward school and learning by their teachers, as compared to children who had not attended preschool.

Schweinhart and Weikart (1979) also included an assessment of the effects of preschool attendance on attitudes toward learning and school in general. They found that 15 year olds who had attended their preschool program expressed more positive attitudes toward learning and school in general, as compared to adolescents of the same age who had not attended preschool.

These findings were consistent with the earlier results reported by

Bissell (1973), concerning comparisons based on the type of preschool program attended. Those children who had attended the Discovery or Cognitive Discovery types of programs were found to have more positive attitudes toward school and learning than did the children who had attended the Structured Academic type of program. The Discovery type of program focused on the child's exploring and discovering in a responsive environment. This type of program included the models of the Education Development Center, Bank Street (Bissell, 1971), and Responsive Environment (Nimnicht, 1972). The Cognitive Discovery programs focused on cognitive growth through the teaching of academic skills by directed instruction, independent discovery, and verbal interaction. It included the Cognitively Oriented Curriculum (Weikart, 1971) and Tucson Early Education Model (Bissell, 1971). The Structured Academic type of program focused on the use of programmed instructional techniques to teach specific sequences of skills and concepts in reading, math, and language. The models included here were the Behavior Analysis, Individually Prescribed Instruction (Bissell, 1971), and Academic or Bereiter-Engelmann (Bereiter et al., 1966) programs. Bissell (1973) explained these findings in terms of the emphasis of the affective components in these programs versus the Structured Academic programs.

These findings were not consistent with those of Karnes (1973). She also addressed the issue of children's attitudes toward school in general and reading in particular, and assessed them. She believed the combination of frequent positive reinforcement and success would result in more positive attitudes toward reading and school. These attitudes were assessed by means of an incomplete sentence test. The attitudes of

two groups of fourth grade students were compared, one group having attended the Ameliorative preschool program (Karnes et al., 1970). The Ameliorative program graduates were found to have "fewer conflicts in their attitudes toward school" (Karnes, 1973, p. 132), and be more likely to express positive attitudes toward reading, as compared to the Traditional program graduates.

Research Related to Socioeconomic Status and Attitudes Toward Reading

The relationship between socioeconomic status and attitudes toward reading was unclear. The results of many studies examining this relationship produced inconsistent findings.

Several studies have reported finding a significant relationship between socioeconomic status and reading attitudes. According to McCandless (1952), a low socioeconomic status child lived in an environment which provided little opportunity to learn positive attitudes. Bloom, Davis, and Hess (1965) believed the low socioeconomic status child was characterized as having negative attitudes toward school. Neal and Proshek (1967) agreed, and found that attitudes toward school were related to socioeconomic status. Cicirelli et al. (1971) also found that primary grade children from different socioeconomic backgrounds had different attitudes toward school, as measured by the Children's Attitudinal Range Indicator. Those children in first, second, and third grades from lower socioeconomic backgrounds had more negative attitudes toward school as compared to children in the same grades in school but of higher socioeconomic backgrounds.

Other researchers found that socioeconomic status was significantly and positively related to attitudes toward school and reading. Zeligs

(1966) found that sixth grade children from a higher socioeconomic background generally had positive attitudes. Swanson (1982b) studied this relationship in urban first grade children from three socioeconomic levels. She found that the children from the high socioeconomic background had significantly more positive attitudes toward reading than did children from a middle status background. Similarly, children from this middle status background had significantly more positive reading attitudes than did the first graders from a low socioeconomic status background. These findings were consistent four months later, as part of the same study. However, the third part of this same study, which involved samples of first grade rural children of different socioeconomic levels, did not reveal statistically significant differences in attitudes toward reading.

Findings of little or no relationship between socioeconomic status and reading attitudes were reported by still other studies. Swanson (1981) failed to find a statistically significant relationship, using two small samples of black first graders who were above and below the median level of socioeconomic status. Groff (1962) used a relatively large sample of fifth and sixth grade children, and found little relationship between socioeconomic status and attitudes toward reading as a school activity. Filler (1973) also used a sample of fifth grade students from different socioeconomic backgrounds in his study of reading attitudes, and reported findings which were similar to those of Groff (1962). Heimberger (1970) compared the attitudes toward reading of a large sample of second, third, and fourth grade children, from three different socioeconomic backgrounds. Again, reading attitudes were not found to vary ac-

cording to socioeconomic level. The general idea that children from higher socioeconomic levels had more positive reading attitudes as compared to those from lower socioeconomic backgrounds was not supported in this sample of children, despite its size.

Other researchers found an inverse relationship between socioeconomic status and attitudes toward reading. Dwyer and Joy (1980) compared the reading attitudes of sixth graders, college students enrolled in a reading improvement course, college freshman enrolled in English courses, people over 59 years of age, and 18 to 22 year old high school graduates who had never enrolled in college, all of whom were of varying socioeconomic levels. They found that the most positive attitudes toward reading were shown by the oldest and youngest age groups. A high number of these sixth graders came from a lower socioeconomic background.

Still another area investigated was the relative impact of both the socioeconomic status of the family and the home literacy environment on the reading attitudes of fourth grade children. The two indicators of socioeconomic status, the father's education and occupation, were not found to be significantly related to children's reading attitudes. However, the role of the parent in the child's reading activities was found to be significantly related. The more active the parent was in these reading activities, the more positive were the child's reading attitudes. A possible explanation for these findings came from Carter and McGinnis (1970), who believed that a person's attitudes originated in their environment. Ransbury (1973) investigated the sources of influence of fifth and sixth grade children's reading attitudes, and found that the parents were believed to have been of greater influence than were teachers. It

was suggested that the home was seen as providing the driving force to read, while the school was seen as the place where reading was learned.

Research Related to Gender Difference in Attitudes Toward Reading Attitudes

A limited number of researchers have investigated gender differences in attitudes toward reading. While some have reported more positive attitudes in favor of one sex, others reported no significant differences in attitudes.

Some researchers have found that girls had more positive attitudes toward reading as compared to boys. Swanson (1982b) investigated gender differences in the reading attitudes of first grade students. She found that girls had more positive attitudes, especially when they were of low socioeconomic status. In the second part of this study, she (Swanson, 1982b) found consistent results four months later. Shapiro (1980) had found similar results in an earlier study with second grade children. Askov and Fischback (1973) had also found consistent results, when they used a different assessment instrument with a sample of first and third grade children. Here, girls at both grade levels showed significantly more positive attitudes toward reading than did boys at the same levels. Hansen (1969) also found similar results with a sample of fourth grade children to compare gender differences in attitudes toward reading. The results with a self-designed instrument showed that girls had significantly more positive attitudes than did boys in this sample. In addition, Wallbrown, Levine, and Engin (1981) also found analogous results with fifth and sixth grade children. Girls were found to have significantly more positive attitudes about their reading groups and reading-

type activities. They were also found to see themselves as receiving reinforcement for their attainment in reading significantly more often than did boys. In addition, Kenneday and Halinski (1975) also found that girls had significantly more positive attitudes toward reading than did boys. Their study used yet another instrument with a large sample of high school students.

Different results were found by Greenberg, Gerver, Chall, and Davidson (1965), using still another assessment instrument. In their study of lower socioeconomic status children in the fourth grade, they found that boys had more favorable attitudes toward reading than did girls. It was possible that these results were due to the sample of children all being from an urban environment. When reported in other studies, the children in the other samples were described as being from suburban or both urban and suburban environments. More recently, Wallbrown et al. (1981) reported that boys in the fifth and sixth grades had significantly more positive attitudes about reading comics than did girls in the same grades. Boys were also found to prefer ways of learning other than reading significantly more often than did girls. In addition, the boys reported having unpleasant emotional reactions about reading to a significantly larger extent than did girls. Swanson (1982b) also found gender and social class differences in the reading attitudes of first grade children in two parts of her study. The middle socioeconomic status boys were found to have more positive attitudes than did girls of the same social class.

Other studies did not report any gender differences in attitudes toward reading. Denny and Weintraub (1966) investigated the desire to

want to learn to read, using a sample of first grade children from a rural environment. They reported no significant differences in the responses of the girls versus boys. Zeligs (1966) surveyed a large sample of higher socioeconomic suburban sixth grade children about their attitudes toward school in general. There were no reported findings of significant gender differences in attitudes directly related toward reading. Estes (1971) also did not report any significant gender differences in attitudes toward reading, in a large sample of children in the third through twelfth grades. Heathington (1975) and Heathington and Alexander (1978) concurred in not reporting any significant gender differences in either her self-report reading attitude scale or their direct observation checklist of reading attitudes assessment. Alexander and Filler (1976) again advised "not to assume that girls will necessarily have more positive attitudes toward reading than will boys" (p. 13).

Research Related to Intelligence and Attitudes Toward Reading

There appeared to be a scarcity of research studies available in this area. From those available, the results appeared to be contradictory.

According to Quandt (1972), some teachers believed there was a positive correlation between the child's level of intelligence and his or her attitudes toward reading. Epstein (1980) concurred, and found that teachers have tended to believe that those children with higher levels of intelligence had more positive attitudes toward reading.

Other researchers have also reported a relationship between intelligence and reading attitudes in intermediate grade students. Engin, Wallbrown, and Brown (1976) found that the factor of Expressed Reading

Difficulty in the first edition of their Survey of Reading Attitudes was negatively loaded by the IQ scores obtained on the Henmon-Nelson Test of Mental Ability. Wallbrown, Brown, and Engin (1978) reported consistent findings in the second edition of this survey. Using the same measure of intelligence, the configuration of loading from the IQ score was found to be -.54. Wallbrown et al. (1981) also found similar results, and reported a significant negative correlation with academic aptitude. Blaha and Chomin (1982) found that four dimensions of this same survey were significantly related to a measure of intelligence. Using a sample of fifth grade children, they found that the reading attitudinal dimensions of Expressed Reading Difficulty, Reading anxiety, and Silent versus Oral Reading were significantly and negatively related to verbal academic aptitude and intelligence, as measured by the Cognitive Abilities Test. In addition, the reading attitude dimension of Reading as Enjoyment was found to be positively and significantly related to the score on the Cognitive Abilities Test (Blaha & Chomin, 1982).

The relationship between reading attitudes and intelligence in talented and gifted children was also investigated. Zeligs (1966) surveyed a large sample of higher socioeconomic suburban sixth grade children. She found that these children generally had more positive attitudes toward reading than toward arithmetic. However, the generalizability of these findings to average children could be questioned on the basis of the extremely limited number of non-caucasian children in the sample, as well as their higher socioeconomic status. Alexander and Filler (1976) advised against assuming "that more intelligent students had more positive attitudes toward reading than did less intelligent students" (p.

13).

Some studies have reported finding no statistically significant relationship between intelligence and reading attitudes. Hansen (1969) did not find a statistically significant relationship among intelligence, reading attitudes, and reading achievement, with a sample of fourth grade children. Groff (1962) also found little relationship between intelligence and reading attitudes, using a sample of fifth and sixth grade children.

Research Related to Reading Achievement and Self-Concept

Many studies have investigated the relationship of reading achievement and self-concept. Some of these were concerned about the correlation between these variables, while others investigated the directionality of the relationship.

Furst (1983) believed that children who had difficulty in reading, whatever the cause, usually had poor self-concepts. The children tended to be convinced that they were "losers" (p. 13) regardless of the level of their efforts. Taylor and Michael (1981) and Eldredge (1981) found a statistically significant relationship between self-concept and reading achievement, with the former study using a sample of eight to twelve year olds, while the latter one used fourth grade children. Kifer (1975) also concurred and found that positive self-concepts were accompanied by success in academic tasks, in a sample of second, fourth, sixth, and eighth grade students. In addition, Simon and Simon (1975) also found a statistically significant and positive relationship between self-concept and the reading subtest of the SRA Achievement Series, using a sample of fifth grade children. Primavera et al. (1974) used the reading subtest

of the Stanford Achievement Tests with a sample of fifth and sixth graders, and found similar results. These findings were consistent with those of the earlier studies by Brookover, Thomas, and Paterson (1964), Jason and Dubnow (1973), Purkey (1970), Wattenberg and Clifford (1964), and Williams and Cole (1968), and Yauman (1980).

Several researchers also investigated the relationship of reading achievement and self-concept in exceptional children. Kanoy et al. (1980) explored this relationship, using a sample of achieving and underachieving fourth grade children. They found that achievers had higher self-concepts than did underachievers. These findings were also consistent with those of earlier studies. Shaw, Edson, and Bell (1960) found that underachieving college students had significantly lower selfconcepts than did achieving students. Shaw and Alves (1963) found similar results. Combs (1964) also found consistent results. Bailey (1971) used a sample of college students, and also found that underachievers had significantly lower self-concepts than did the achievers. Black (1974) also found a significant and positive relationship between selfconcept and underachievement, using a sample of learning disabled children.

Other researchers investigated the relationship of self-concept and reading achievement with reading disabled children. Thomson and Hartley (1980) compared the self-concepts of average and disabled readers, using a sample of eight to ten year old children. They found a statistically significant relationship, in that average readers had significantly higher self-concepts than did the reading disabled children. Winne et al. (1982) found similar results in British Columbia, using a sample of fourth through seventh grade children. Patten (1983) used a larger sam-

ple of learning disabled children who ranged in grade from kindergarten through sixth. She found a statistically significant relationship between the scores received on the Coopersmith Self-Esteem inventory and those on the Reading Recognition subtest of the Peabody Individual Achievement Test, in that higher self-esteem was associated with higher reading achievement.

The results from earlier studies were consistent with these findings. Rosenthal (1973) compared the self-esteem levels of dyslexic, asthmatic, and normal children, and found that dyslexic children had significantly lower self-esteem scores than did either the asthmatic or normal children. Larsen, Parker, and Jorjorian (1973) used a sample of third and fourth grade average and reading disabled children, and also found that the reading disabled children had significantly lower self-concepts than did the average children.

Studies done in other countries also showed consistent results. In Norway, Skaalvik (1983) found that reading achievement was significantly and positively related to self-concept, with children eight to twelve years old. In Canada, Chapman and Boersma (1979) found that reading disabled children had significantly lower self-concepts than did average third through sixth graders. In England, Cohen (1983) found similar results with children who ranged from 9 to 13 years old. In an earlier study also done in England, Nichols, Nichols, and Buren (1977) found that the relationship of self-concept and reading achievement was contingent upon the context of the school attended. Poor readers who attended a school with a high proportion of poor readers had significantly higher self-concepts than did either poor or good readers who attended a school

with a low proportion of good readers.

Investigators have also found gender differences in the relationship between reading achievement and self-concept. Bledsoe (1967) found that self-concept was significantly and positively related to reading vocabulary achievement for males, but not for females. Primavera et al. (1974) found a statistically significant relationship between self-concept and reading achievement for fifth and sixth grade males only, as measured by the Coopersmith Self-Esteem Inventory, Stanford Achievement Test, and the New York State Elementary Schools Reading test. However, Simon et al. (1975) found the correlations to be significant for both males and females, using the reading subtest of the SRA Achievement Series and Coopersmith's Self-Esteem Inventory with a sample of fifth grade students. Patten (1983) found that self-esteem and reading achievement as measured by the Peabody Individual Achievement Test, were significantly and positively related for both male and female learning disabled children from kindergarten through the sixth grade. However, the correlations were consistently higher for females than for males. Rubin (1978) also found that the correlation between self-concept and reading achievement was greater for 9 and year old females than it was for males or 15 year old females. These results were consistent with those of Skaalvik (1983) in Norway, who found that selfconcept was significantly and positively related to reading achievement in second and third grade females, and fourth, sixth, and eighth grade males.

Investigators have also attempted to determine the direction of the relationship between self-concept and reading achievement. Larsen et al. (1973) believed that achievement affected self-concept. Calsyn and Kenny

(1977) re-analyzed the data found by Brookover, LePere, Hamachek, and Erickson (in Calsyn & Kenny, 1977), using another statistical technique which allowed for causal inferences from longitudinal data while eliminating spuriousness. They (Calsyn & Kenny, 1977) found that achievement was causally predominant over later self-concept of academic ability, especially for females (p. 140). Coney (1979) also found this causal predominance, but for both females and males. Scheirer and Kraut (1979) agreed, and believed that self-concept change was likely to be an outcome of increased achievement, rather than the reverse (p. 144). Shavelson and Stuart (1981) also agreed, and argued that achievement was causally predominant over self-concept, although they acknowledged that causation was probably reciprocal.

Other researchers believed that self-concept was causally predominant over achievement. According to Bruck and Bodwin (1962), a positive self-concept was essential for success in school. Anderson and Evans (1974) and Anderson (1978) argued that self-concept was causally predominant over achievement, since it played a major role in determining achievement. McMichael (1977) found that low self-concept at the time of entry into school was significantly related to reading achievement at the end of both first and second grades. Taylor et al. (1981) found that self-concept enhanced the prediction of reading performance using a sample of eight to twelve year old children. Shavelson and Bolus (1982) concurred in their findings, using the Way I Feel About Myself Scale, the Tennessee Self-Concept Scale, Michigan State Self-Concept of Ability Scale, and semester grades with a large sample of seventh and eighth grade students.

However, other investigators found no statistically significant relationship between achievement and self-concept. Marx and Winne (1975) found that academic achievement, as measured by the subtest and composite scores on the Stanford Achievement Test, and self-concept, as measured by the Sears Self-Concept Inventory, were not statistically related for a sample of fifth and sixth grade children from a low socioeconomic status background. Husak and Magill (1979) found consistent results, using the reading achievement score of the Science Research Associates Assessment Survey and the Primary Self-Concept Inventory with a large sample of first, second, and third grade children. Synder and Michael (1983) also found results which were consistent with these earlier ones. They (Synder et al. 1983) concluded that the predictor variable of self-concept was not related to reading comprehension, as measured by the Primary Pictorial Self-Esteem Test and the reading comprehension subtest of the CIRCUS battery. In addition, other studies by Leviton and Kiraly (1975) and Houck and Houck (1976) also failed to find any significant relationship between reading achievement and self-concept.

Research Related to Reading Achievement and Classroom Behavior

Many studies have investigated the relationship of reading achievement and classroom behavior. While most of these studies were concerned about the nature of this relationship, others attempted to determine the direction of a causal relationship.

Spache (1957) studied the social adjustment of poor readers, and believed that these children had significantly poorer total adjustment to adults than did their age-peers who were better readers. Morris (1959) found that poor readers had significantly lower social adjustment than

did good readers on the Bristol Social Adjustment Guides, with a sample of nine year old children. Chazan (1964) found similar results, using the same instrument.

Several investigators attempted to classify the classroom behaviors of poor readers. Stott (1961) found that at least 45% of his sample were "unforthcoming" (p. 12), or afraid to perform any strange or difficult task, and therefore, missed opportunities to develop problem-solving skills. In addition, 20% were found to be hyperactive, while 11% were maladjusted in other ways (p. 13). Bell, Anderson, and Lewis (1972) also found that passivity, dependency, and defensiveness, as well as over-aggressiveness, were associated with reading failure. McKinney, Mason, Perkenson, and Clifford (1975) found consistent results, in that disruptive behaviors were found to be common in poor readers. Graham (1979) compared the reading achievement of two groups of children, one of which displayed antisocial behaviors, and found a significant correlation between reading achievement and aggressive behavior. Veldman and Worsham (1983) observed the classroom behavior of a large sample of first-graders, and correlated behavior type with reading achievement. They found that good students were persistent, independent, confident, and had good work habits. Outgoing students were happy, extraverted, eager to participate in class activities, and had good peer relationships. Rebellious students were disobedient, undependable, and had poor relations with teachers, and poor work habits. Withdrawn students were introverted and unhappy, and had little athletic ability, poor peer relationships, and class participation. Good students and outgoing students had significantly higher reading achievement than did the rebellious or withdrawn

students. The withdrawn students tended to have higher reading achievement than the rebellious ones (p. 206).

Still other investigators explored the nature of the relationship between reading achievement and classroom behavior. Glavin and Annesley (1971) examined a sample of boys who were exhibiting behavior problems, and found that 82% were also having problems in reading, as compared to 21% of the boys who were not having behavior problems. McKinney et al. (1975) found a statistically significant relationship between classroom behavior and reading achievement, using a sample of second grade children. Lambert and Nicoll (1977) also found similar results, including both acting-out and withdrawal types of behaviors. Harris and King (1982) compared the reading achievement and classroom behavior of four groups of fourth and fifth grade children. One of these groups was made up of children who had behavior problems, while a second group was made up of children who had learning problems. A third group was made up of children who had both learning and behavior problems, and the last group had no problems. These four groups were delineated on the basis of their teachers' opinions. Children who were thought to have learning problems were found to have significantly lower reading achievement, be less assertive and more restrained than the children in the other three groups. Children with behavioral problems were found to be significantly more assertive than were those children in the learning problem group, and less restrained than were the children in either the learning or learning and behavior problem groups. These children were also found to be significantly more self-assured than were the children in the learning and behavior problem group. The learning and behavior problem children had

significantly lower reading achievement than did children with behavior problems or with no problems. But they were also more assertive and independent than either of the other groups. In all groups, the relationship between reading achievement and classroom behavior was statistically significant, as measured by the SRA Assessment Survey and Children's Personality Questionnaire. Jones (1983) also found similar results using the Stanford Diagnostic Reading Test and the Devereux Elementary School Behavior Rating Scale, with a sample of third grade children. Both socioeconomic status and gender differences were also found by Jones (1983).

The relationship between classroom behavior and reading achievement with exceptional children was also investigated. Myklebust, Boshes, Olson, and Cole (1966) compared the classroom behavior of reading disabled and normal children on the basis of the Pupil Rating Scale, and found that normal children were more socially adept, task-oriented, verbal, organized, and responsible with schoolwork. Bryan and McGrady (1972) found similar results, with the same instruments.

Other studies concerned with this relationship involved the use of the SCAN, The Schedule for Classroom Activity Norms. Richey and McKinney (1978) attempted to distinguish the classroom behavior of a sample of third and fourth grade reading disabled and normal boys, on the basis of the SCAN. They found that distractibility was the only behavior which was significantly different for the two groups. Feagans and McKinney (1981) also used the SCAN with a large number of reading disabled and normal children in first through third grades, and found on-task behavior, distractibility, and teacher interaction were the behaviors which

differentiated the two groups. Richey, Miller, and Lessman (1981) also used the SCAN to compare the classroom behavior of reading disabled students in a resource room program versus a regular classroom program. They found that attending and dependency behaviors were significantly related to both reading achievement and type of program. McKinney, McClure, and Feagans (1982), also found consistent results with the SCAN, using a sample of pairs of reading disabled and normal boys and girls.

Still other studies used the CBI, or the Classroom Behavior Inventory, to investigate the relationship between reading achievement and classroom behavior with exceptional children. Forman and McKinney (1975) compared the results of the CBI for a sample of reading disabled and normal children. They found significant differences in task orientation, distractibility, and independence. McKinney and Forman (1982) also used the CBI to compare the classroom behavior of reading disabled, emotionally handicapped, and average children. They found that reading disabled children were perceived to be more independent, task-oriented, considerate, and less hostile and distractible than were the emotionally handicapped children.

Other studies were concerned about the causal predominance of one of these variable over the other. Dreikurs (1954) believed that reading difficulties were the result of emotional or social maladjustment. McMichael (1979) found that the maladjustment of poor readers was exhibited before the children were exposed to reading or before they exhibited reading difficulties, in her longitudinal study of a sample of children after two years of school. Stott (1981) arrived at the same conclusion, based on the finding that the behavior disturbance of the poor learners

was unchanged from the time the learners entered kindergarten until almost the end of second grade.

Other researchers believed that reading difficulties resulted in poor classroom behavior. Gates (1941) believed that as many as 75% of poor readers also had behavioral difficulties and that these difficulties were the result of, or at least accompanied, the reading problems. Fitzsimmons, Leonard, and Macunovich (1969) traced back the initial incident of failure for a large sample of high school dropouts and high school students who had performance difficulties, and found that reading failure as early as second grade was the most frequent initial incident. Glick (1972) also believed reading failure resulted in poor attitudes toward teachers and other interpersonal relationships within the classroom.

Natchez and Roswell (1964) believed that there were three conditions under which reading achievement and classroom behavior were related. Classroom misbehavior may be the cause of reading failure by blocking concentration and twisting perceptual and thought processes. Misbehavior can also emerge as a reaction to reading failure. Finally, more than one cause may be combined with at least one effect to support each other in a circle (p. 10).

Research Related to Self-Concept and Classroom Behavior

Relatively few researchers have investigated the relationship of self-concept and student behavior in the classroom. These researchers have focused on either a specific behavioral dimension, such as aggression, or the relationship of the two variables among members of a certain population of subjects.

Elliott (1982) explored the effect of self-concept on the classroom

behavior of hiding one's feelings behind a facade, in children of three different age groups. The large sample was divided into three age groups, pre-adolescence (8-11 years old), early adolescence (12-14 years old), and late adolescence (15-19 years old). He found there was a statistically significant relationship between self-concept and fabrication, in that those with low self-concepts had greater tendencies to hide their real feelings in the classroom. This relationship was strongest in the youngest age group, and diminished with age. It also diminished earlier for boys than for girls. For boys, this loss of statistical significance occurred at early adolescence, while for girls, this loss occurred at late adolescence.

Burdett and Jensen (1983) explored the relationship between self-concept and aggressive behavior in the classroom, among groups of third and sixth grade children. Using two self-report instruments, as well as an adaptation of one for teachers use, they found that students who had low self-concepts had significantly higher teacher ratings of aggressiveness. In addition, boys were found to be significantly more aggressive than were girls, but these boys became less aggressive as they got older and these girls became more aggressive as they aged. These results were consistent with those found by Reynolds (1980), in an earlier study of the relationship between self-concept and maladaptive aggression in the classroom.

Strain, Cooke, and Apolloni (1976) did a thorough review of the incidence of problem behavior referral, and found that more than 10% of all school-age children showed abnormal behavior which required therapeutic intervention. Strain, Kerr, Stagg, Lenkner, Lambert, Mendelsohn, and

Franca (1983) observed the classroom behaviors of a sample of kindergartners and also measured their self-concepts. They found that those children who had high self-concepts engaged in significant levels of off-task behaviors, such as "looking around the room when seat-work is to be done, talking to peers when such activity is not sanctioned, and interrupting other children" (p. 501). They also engaged significantly more often in "negative social initiations directed toward peers" (p. 503), and received significantly more "negative social responses from peers" (p. 503).

Flores de Apodaca and Cowen (1982) investigated the relationship between self-concept and school problem behaviors, using a sample of children in the first through fifth grades. Children who were referred to a primary-grade intervention program by their teachers were compared to a nonreferred comparison group. They found that children who displayed problem behavior, such as acting-out or anxiousness, had significantly lower self-concept scores than did their nonreferred peers. Bloom, Shea, and Eun (1979) and Holdaway and Jensen (1983) also found that behaviorally disordered children had significantly lower self-concepts than did normal children in school.

The possible discrepancy between a behaviorally disordered child's self-concept and how a teacher sees that child was investigated by Holdaway and Jensen (1983). They used a matched sample of pairs of boys and girls in the first through sixth grades. One of each pair was a child who had been diagnosed as behaviorally disordered by school personnel. The other member of each pair was reported by the classroom teacher to have typical or normal behavior. They found that the teachers' evalua-

tions of the behaviorally disordered children were significantly lower than the children's evaluations of themselves. There was also a significant difference between the teachers' evaluations of the normal and those of the behaviorally disordered children, with the normal children having significantly higher evaluations. In addition, the self-concepts of the behaviorally disordered children in the first, second, and third grades were significantly higher than were those of the same type of children in the higher grades. The results of an earlier study by Brance, Purkey, and Damico (1976) provided support for these findings, since teachers rated the classroom behavior of disruptive students significantly lower than they did of nondisruptive students in fifth through eighth grades.

Research Related to Reading Achievement and Reading Attitudes

Many studies have investigated the relationship between a child's level of reading achievement and his or her attitudes toward reading. Most of these studies have focused on the nature of this relationship in varied age groups, while others concentrated on exceptional children or with ability groupings.

According to Schofield (1980), it is often believed that reading attitudes influence reading achievement (p. 111). Reading attitudes are part of the affective domain of noncognitive functions, which, in addition to cognitive functions, also influence reading and reading achievement. These attitudes toward reading are important because they provide the wish and determination to read (Alexander & Filler, 1976; McWilliams & McWilliams, 1976; Peterson, 1977).

Askov and Fischback (1973) conducted a study of the relationship between reading attitudes and reading achievement, using a sample of

first and third grade children. The measures of reading achievement were the Word Reading and Paragraph Meaning subtests of the Stanford Achievement Tests. They found that reading attitude scores were significantly and positively related to the Paragraph Meaning subtest scores, but not to the Word Related scores. Since Paragraph Meaning assessed global reading achievement, while Word Reading measured vocabulary, positive attitudes toward reading here were believed to be associated with good readers who had few comprehension difficulties (Askov & Fischback, 1973, p. 4).

Swanson (1982a) also used a sample of first grade children, in her study of the relationship between scores on a reading attitudes scale and those on the Reading composite score on the Metropolitan Achievement Test. A statistically significant and positive relationship was found in that higher reading achievement was associated with positive reading attitudes. These findings were consistent with those of an earlier study by Lewis (1980) who used fourth and fifth grade students.

Several studies involved the use of a sample of average intermediate grade students. Engin et al. (1976) used a sample of fourth, fifth, and sixth grade students, and found that reading attitude, as measured by the Survey of Reading Attitudes, was positively and significantly related to reading achievement. Using the same reading achievement measure but a revision of the reading attitudes survey, Wallbrown et al. (1978) found consistent results with a large sample of children of the same age. Roettger (1980) also found consistent results, but with different instruments. She also investigated how reading is viewed by those fourth through sixth grade children, for whom reading attitudes and reading

achievement are inversely related. She found that those children with high attitudes and low achievement saw reading as important to surviving in life. Children with low attitudes and high achievement saw reading as a way to improve themselves and succeed academically (Roettger, 1980). Blaha (1982) focused on only fifth graders, and also found that reading attitudes were significantly and positively related to reading achievement as measured by the Survey of Reading Attitudes and Iowa Tests of Basic Skills reading subtest.

Other investigators studied the relationships of reading attitudes and reading achievement in samples of exceptional children. Wallbrown and Wisneski (1981) used a sample of fifth grade reading disabled children, and found that reading attitudes were significantly related to reading achievement. These results were consistent with earlier ones obtained by Wallbrown, Vance, and Prichard (1979), in their study of the comparison of the attitudes toward reading of normal and disabled readers in the fourth, fifth, and sixth grades. They found that disabled readers had significantly more negative attitudes toward reading than did average readers.

Not all studies investigating the relationship between reading achievement and reading attitudes found positive results. Higgins and Elliott (1982) compared the reading attitudes and reading achievement of a sample of fourth grade reading disabled children, during library periods and periods of uninterrupted sustained silent reading. They found that these reading disabled children had positive attitudes toward reading which were believed to be the result of the sustained silent reading program. Another study by Kibby (1977) also found that reading attitudes

were not determined by reading achievement, but by the child's status as reader in the classroom. Second-graders, who were at least average readers in the classroom but whose measured reading achievement was poor, were found to have significantly more positive attitudes toward reading than did second-graders whose measured reading achievement was at least average but who were poor readers in the classroom. These results were interpreted to mean that children who believed themselves to be at least average readers, regardless of their actual level of reading performance, were more likely to have more positive attitudes toward reading than were children who believed themselves to be below average or poor readers (Kibby, 1977).

Research Related to Self-Concept and Attitudes Toward Reading

Few studies directly investigated the relationship between self-concept and reading attitudes. However, many researchers alluded to the relationship, and the importance of it.

Bettleheim and Zelan (1981a) believed that reading attitudes were strongly related to both academic and general self-concept. In addition, what children experienced in learning to read could be an important factor in the views children held about learning in general, reading in particular, and themselves (p. 25). They (Bettleheim & Zelan, 1981b) saw reading attitudes as a possible consequence of self-concept. Children whose self-concepts were such that they felt there was no point in trying to achieve at the level of parental expectations, often had negative attitudes toward reading (p. 45).

Hake (1969) was one of the investigators who studied the direct relationship between self-concept and attitudes toward reading. He found

that students who had negative self-concepts also had poor reading attitudes, in his study of the motivations of sixth grade students who had above-average and below-average reading achievement. In addition, Quandt (1973) showed that self-concept was associated with attitudes toward reading, in a study in which self-concepts were reinforced and then shown to be important in developing positive reading attitudes. Mangieri (1974) also found consistent results in which self-concept was correlated with reading attitudes.

The nature of the relationship between academic self-concept and reading attitudes was also investigated. Boersma and Chapman (1978) found that academic self-concept was highly related to reading attitudes, using the Student's Perception of Ability Scale with a sample of third, fourth, fifth, and sixth grade students. Chapman and Boersma (1979) compared the academic self-concepts and attitudes toward reading of a sample of learning disabled and normally-achieving third through sixth grade children. They found that academic self-concept was significantly related to attitudes toward reading in both samples. In addition, the learning disabled children were found to have significantly lower academic self-concepts and more negative reading attitudes than did normally-achieving children.

Other studies investigated the interactions among self-concept, reading attitudes, and reading achievement. Kokovich and Matthews (1971) investigated the main and interactive effects of cross-age tutoring and counselling on reading achievement, reading attitudes, and self-concept in first and sixth grade children who were having difficulties in reading. They found that both had significantly improved reading achievement,

reading attitudes and self-concepts. Glick (1972) also studied the relationships among reading achievement, self-concept, and reading attitudes, since he believed that reading failure was likely to have negative consequences in these two areas (p. 253). He measured changes in the self-concepts and reading attitudes of average and poor readers in the third grade over the course of the school year. He found that good readers were more likely to have positive changes in both self-concepts and attitudes toward reading by the end of the third grade than were poor readers, who were more likely to have negative changes in both of these affective areas.

Research Related to Classroom Behavior and Attitudes Towards Reading

Classroom behavior can be one way students express their attitudes toward reading. Teacher observation is one of the most valuable ways to access both behaviors in the classroom and attitudes toward reading (Alexander and Filler, 1976).

According to Heathington and Alexander (1978), classroom observation was valuable because of its comprehensiveness. Since behavior and attitudes can be observed over a relatively long period of time and in many types of situations, researchers can get a thorough understanding of just how a particular student feels about reading and how those feelings are expressed in behavior (p. 769). The use of a checklist of behaviors to look for was advocated by several researchers (Alexander & Filler, 1976, Heathington & Alexander, 1978).

Heathington and Alexander (1978) studied the classroom behavior of children in the first through sixth grades who had positive or negative attitudes toward reading. They found that students with positive atti-

tudes toward reading felt happy in reading group, liked to read aloud to the class, liked to read at their desks, brought books to school to read, read a lot of books in the classroom, went to the bookshelf frequently, and talked about books they read. The classroom behaviors of students who had negative attitudes toward reading were found to include a preference for coloring rather than reading, a dislike for oral reading or reading group, not finishing stories started, not being seen reading a book outside of reading group, not being on the correct page or not knowing the correct place in group reading work, and not talking about books read (p. 770).

Wallbrown and Blaha (1981) also related attitudes toward reading to classroom behavior, using the Survey of Reading Attitudes and the Devereux Elementary School Behavior Rating Scale with a large sample of inner-city fifth grade children. They found that certain positive or negative dimensions of the reading attitude scale were significantly correlated with certain classroom behaviors. The Expressed Reading Difficulty dimension, which measured the extent at which students perceived themselves as having difficulties with reading, was significantly related to losing contact with what was happening in the classroom, and a lack of understanding the daily work. However, these children usually made socially appropriate comments, and told the truth (p. 161).

Another dimension of this Survey of Reading Attitudes involved "Reading as a Direct Reinforcement" (p. 161), which identified those who saw themselves as being reinforced by significant others, such as peers or teachers. These children tended to become involved with other people in the classroom, and initiated academically-relevant behavior and ideas

(p. 163).

Still another dimension of this survey involved "Reading as Enjoyment" (p. 163). It was found that students who wanted to read because of its intrinsic value as sources of information, learning, and satisfaction, were significantly more likely to show creativity and independence of the teachers.

In addition, students who preferred to use ways other than reading to gain new information or to learn scored high on the dimension of "Alternative Learning Modes" (p. 163). These students were significantly more likely to give up easily when faced with a difficult task in schoolwork.

The reading attitude dimension of "Reading Group" measured the extent to which students saw their reading group as positive. These students were significantly more likely to have opinions, to make independent decisions, and put them into action. However, they were also significantly more likely to have difficulty in changing tasks, and showed signs of anxiety about meeting academic demands placed on them (p. 163).

"Reading Anxiety" was the reading attitude dimension which measured the extent to which a student experienced negative feelings while reading or thinking about reading. Those students who were anxious about reading were rated by their teachers as having significantly more difficulty in understanding what is taught and using this knowledge in new situations. It was also found that anxious students tended to make appropriate, rather than inappropriate, statements in class (p. 164).

Finally, the dimension of "Silent versus Oral Reading" measured the extent to which students preferred silent instead of oral reading. Stu-

dents who preferred to read silently were significantly less likely to understand the point of what was taught in class (p. 164).

Research Related to Preschool Attendance, Socioeconomic Status, and IQ

Research has generally shown that poor and disadvantaged children achieved at lower levels academically than did children from higher socioeconomic levels. (Sexton, 1961). According to Schweinhart and Weikart (1985), many educators and social scientists in the 1960's believed that attendance in preschool programs could raise children's levels of intelligence which in turn could raise their achievement in school and their socioeconomic status as adults.

Many federally-funded preschool programs were initiated in the early 1960's as part of Project Head Start, to serve the needs of the children of the poor. The individual programs varied tremendously but all contained an education component, a component to develop language skills and self-concept, health and nutrition elements, and a component of social and psychological services. Originally, these programs were to be run during the summer months only, but were extended to year-round centers after the first summer (Condry, 1983).

One of the ways in which these preschool programs were evaluated was in terms of the change in IQ points of their graduates. Gray and Klaus (1970) and Gray et al. (1983) found that those children who attended their Early Training Project had significantly higher scores on the Stanford Binet Intelligence Scale than did a control group, up through the end of fourth grade. Palmer (1977, 1983) also found significant differences when the program graduates and control group were ten and again twelve years old. Beller (1974, 1983) also found statistically

significant differences in IQ scores through the third grade. Likewise, Deutsch et al. (1974) and Deutsch (1983) reported significant differences through the third grade. Other studies reported significant differences in IQ scores only up to the end of first grade (Karnes & Teska, & Hodgins, 1970; Karnes et al. 1983) or up to the beginning of kindergarten (Miller & Bizzell, 1983).

The lack of lasting differences in IQ scores between program graduates and control groups was also reported in the Westinghouse Report (Westinghouse Learning Corp., 1969). This evaluation of federally funded preschool programs was designed to compare the effects of summer only and full-year attendance after the experimental and control groups of children had been in public school for one, two, and three years. It was concluded that "although full-year programs appeared to be more effective than summer programs, their benefits could not be described as satisfactory" (p. 11). The cognitive gains made, such as in IQ, were often lost after the children had been in elementary school for a few years. The affective measures of attitude toward oneself and school, classroom behavior, and feelings about peers, home, school, and society, which were designed for this evaluation, did not detect differences between the program graduates and control groups. Jensen (1969) agreed with these findings, and believed that compensatory educational programs have failed since they had been unable to boost the IQ scores of the students for any significant amount of time. This inability to boost IQ scores was due to the compensatory preschool programs "trying to compensate children of limited intellectual talents with higher learning processes, such as abstract reasoning that were really geared for students of superior tal-

ents" (p. 27). Jensen (1985) reiterated this position sixteen years later, and still believed that compensatory programs have not resulted in any appreciably, durable gains in IQ for those youngsters who have taken part in them" (p. 555). Bronfenbrenner (1974) agreed with the position that compensatory preschool programs were ineffective, and argued that lasting changes can be made in a child only by changing the ecological dimensions of the child's larger environment, such as his family and community" (p. 17).

There had been many criticisms of the Westinghouse Report (1969), and many disagreed with the views held by Jensen (1969) and Bronfenbrenner (1974). These criticisms involved its post-only design, the higher socioeconomic status of the control group children, the lack of adequate measures of the affective dimension, statistical techniques, and lack of differentiation of types of quality of preschool programs (Condry, 1983).

In response to these criticisms and the need for well-designed, long-term studies of the effects of preschool programs, the Consortium for Longitudinal Studies was formed. It was made up of twelve independent designers/implementers of compensatory preschool programs and two supervisors, who pooled their individual findings. These findings contradicted those of the Westinghouse Report (1969). The pooled results showed that there were statistically significant differences in IQ scores on the Stanford-Binet Intelligence Scale for program graduates as compared to control group children. These differences persisted up to three or four years after the program attendance stopped (Lazar et al., 1982). In 1976, the Wechsler Intelligence Scale for Children (WISC), or Wechsler Intelligence Scale for Children-Revised (WISC-R) was administered in all

of the consortium projects. The results of only the WISC were pooled across projects, since the WISC-R scores were of children of different ages and had attended programs of different lengths. The pooled analysis of the WISC scores failed to find any statistically significant differences between groups of children, who were then between 10 and 17 years old (Consortium for Longitudinal Studies, 1979).

CHAPTER III

METHOD

Introduction

This chapter includes a brief statement of the problems in the study, the research questions, and the hypotheses tested. In addition, the population and sample of subjects are explained, as well as the procedures and instrumentation used. Finally, the model of the research design is discussed, as well as the method of statistical analysis.

Statement of Problems

The first primary problem here was one of determining the effects of the frequency of preschool attendance on reading achievement, classroom behavior, self-concept, and attitude toward reading in first grade children. Another problem was determining the effects of the basal reading series used in the first grade on these variables. Still another primary problem was one of determining the effects of gender on these same four variables. Two auxiliary problems were to determine the effects of a child's socioeconomic status and level of intelligence on these variables.

Research Questions

The primary independent variables used in the present investigation were frequency of preschool attendance, type of basal reading program, and gender. The auxiliary independent variables were socioeconomic sta-

tus and intelligence. The dependent variables were reading achievement subtest scores, and the scores on a teacher rating scale of classroom behavior, self-concept screening test, and a reading attitude scale.

The reading achievement measure used was the Stanford Diagnostic Reading Test. Classroom behavior was measured by the Teacher Rating Scale of the Behavior Rating Profile. Self-concept was measured by the Joseph Pre-School and Primary Self-Concept Screening Test. Finally, the reading attitude measure used was the Heathington Primary Scale of Reading Attitudes.

Given the three primary and two auxiliary independent variables, the interest here is to assess the relationships and interaction effects between and/or among the terms. Because there are a total of five independent variables, this study can result in a five way interaction.

To facilitate understanding, the following 31 specific research questions are grouped into 7 subsets. Specific questions 1-3 focus on the relationships between the three primary independent variables and the four dependent variables, while questions 4-6 address two-way interactions of these variables. Specific questions 8-9 focus on the relationships between the two auxiliary independent variables and these same four dependent variables. Numbers 10-16 address possible two-way interactions among both types of independent variables and the dependent variables. Specific questions 7 and 17-25 address all possible three-way interactions, while 26-30 focus on four-way interactions. The final specific question 31 addresses the single possible five-way interaction. The following seven primary research questions were asked:

1. Will the frequency of preschool attendance be related to reading

achievement, classroom behavior, self-concept, and/or reading attitude?

2. Will the type of reading program used be related to reading achievement, classroom behavior, self-concept, and/or reading attitude?

3. Will gender be related to reading achievement, classroom behavior, self-concept, and/or reading attitude?

4. Will the frequency of preschool attendance interact with the type of reading program used, and be related to reading achievement, classroom behavior, self-concept, and/or reading attitude?

5. Will gender interact with frequency of preschool attendance, and be related to reading achievement, classroom behavior, self-concept, and/or reading attitude?

6. Will gender interact with the type of reading program used, and be related to reading achievement, classroom behavior, self-concept, and/or reading attitude?

7. Will gender and type of reading program used interact with the frequency of preschool attendance, and be related to reading achievement, classroom behavior, self-concept, and/or reading attitude?

The inclusion of the two auxiliary independent variables resulted in 24 more research questions. They were:

8. Will socioeconomic status be related to reading achievement, classroom behavior, self-concept, and/or reading attitude?

9. Will the level of intelligence be related to reading achievement, classroom behavior, self-concept, and/or reading attitude?

10. Will the level of intelligence interact with socioeconomic status, and be related to reading achievement, classroom behavior, self-concept, and/or reading attitude?

11. Will the level of intelligence interact with the frequency of preschool attendance, and be related to reading achievement, classroom behavior, self-concept, and/or reading attitude?

12. Will the level of intelligence interact with the type of reading program used, and be related to reading achievement, classroom behavior, self-concept, and/or reading attitude?

13. Will gender interact with the level of intelligence, and be related to reading achievement, classroom behavior, self-concept, and/or reading attitude?

14. Will socioeconomic status interact with the frequency of preschool attendance, and be related to reading achievement, classroom behavior, self-concept, and/or reading attitude?

15. Will socioeconomic status interact with the type of reading program used, and be related to reading achievement, classroom behavior, self-concept, and/or reading attitude?

16. Will gender interact with socioeconomic status, and be related to reading achievement, classroom behavior, self-concept, and/or reading attitude?

17. Will the type of reading program used interact with the frequency of preschool attendance and socioeconomic status, and be related to reading achievement, classroom behavior, self-concept and/or reading attitude?

18. Will the frequency of preschool attendance interact with gender and the level of intelligence, and be related to reading achievement, classroom behavior, self-concept, and/or reading attitude?

19. Will the type of reading program used interact with gender and the level of intelligence, and be related to reading achievement, classroom

behavior, self-concept and/or reading attitude?

20. Will the level of intelligence interact with gender and socioeconomic status, and be related to reading achievement, classroom behavior, self-concept, and/or reading attitude?

21. Will the frequency of preschool attendance interact with gender and socioeconomic status, and be related to reading achievement, classroom behavior, self-concept, and/or reading attitude?

22. Will the type of reading program used interact with gender and socioeconomic status, and be related to reading achievement, classroom behavior, self-concept, and/or reading attitude?

23. Will the type of reading program used interact with the frequency of preschool attendance and level of intelligence, and be related to reading achievement, classroom behavior, self-concept, and/or reading attitude?

24. Will the type of reading program used interact with the level of intelligence and socioeconomic status, and be related to reading achievement, classroom behavior, self-concept, and/or reading attitude?

25. Will the frequency of preschool attendance interact with the level of intelligence and socioeconomic status, and be related to reading achievement, classroom behavior, self-concept, and/or reading attitude?

26. Will the type of reading program used interact with gender, level of intelligence, and socioeconomic status, and be related to reading achievement, classroom behavior, self-concept, and/or reading attitude?

27. Will the frequency of preschool attendance interact with gender, level of intelligence, and socioeconomic status, and be related to reading achievement, classroom behavior, self-concept, and/or reading attitude?

28. Will the frequency of preschool attendance interact with the type of reading program used, gender, and socioeconomic status, and be related to reading achievement, classroom behavior, self-concept, and/or reading attitude?

29. Will the frequency of preschool attendance interact with the type of reading program used, gender, and level of intelligence, and be related to reading achievement, classroom behavior, self-concept, and/or reading attitude?

30. Will the frequency of preschool attendance interact with the type of reading program, level of intelligence, and socioeconomic status, and be related to reading achievement, classroom behavior, self-concept, and/or reading attitude?

31. Will the frequency of preschool attendance interact with the type of reading program used, gender, level of intelligence, and socioeconomic status, and be related to reading achievement, classroom behavior, self-concept, and/or reading attitude?

Population

The population of subjects consisted of all public school first grade children in two suburbs northwest of Chicago, Illinois. The subjects in the population who met the eligibility criteria were divided into two groups, those who used the Open Court or Bookmark reading program. These groups of children were further divided according to full-time preschool attendance, part-time preschool attendance, or no preschool attendance. Finally, the groups were again divided according to gender.

The population from the school district using the Open Court read-

ing program was found to contain 199 first grade children, and more males than females, as compared to a total population of 134 first grade children in the other school district. In order to determine and compare the effects of gender on the measures of the dependent variables, equal or approximately equal numbers of each gender were selected from each school district's population. However, these numbers were not the same for both populations.

Stratified random samples of subjects were used in this study, because the populations were divided into strata or categories. The Table of Random Numbers was used for the selection of sample children The total sample consisted of 136 children. A sample of 72 children was selected from an eligible population of 129 first grade children from the school district using the Open Court reading program. Here, there were 12 males and 12 females in each of three frequencies of preschool attendance. A sample of 64 children was selected from an eligible population of 79 first grade children in the school district using the Bookmark reading program. Here, there were 32 males and 32 females distributed in the three frequencies of preschool attendance.

Procedure

Arrangements were made with each school principal in each school district to distribute a letter of informed consent and questionnaire to each first grade child (Appendix A). The consent letter explained the study, and requested permission for the child's participation. It also asked for permission for the researcher to inspect the test scores received on the school-administered Stanford Diagnostic Reading Test, in the school district in which the Open Court reading program was used.

The questionnaire requested information concerning the child's preschool and kindergarten attendance. It also asked the occupation of at least one working parent or guardian. Within each school, arrangements were also made to receive back these consent forms and questionnaires. Two weeks after the original distribution, a follow-up distribution of questionnaires was made.

On the basis of the information provided in the completed and returned questionnaires, children were eliminated from the populations if they did not have the following characteristics: 1) Written permission by the parent or legal guardian was granted to participate in this study. 2) Kindergarten was attended for at least 85% of the school year. 3) The date of birth was between December 1, 1976 and November 30, 1977. 4) The reading program used in the first grade was either the Open Court or Bookmark basal series. 5) Speech included fluent English. 6) The working parent or guardian was a member of the civilian labor force, since this was a requirement of the measure of socioeconomic status. 7) The working parent or guardian reported his or her occupation on the questionnaire.

The subjects in the populations who were found to be eligible for inclusion in the samples were then stratified, according to type of reading program, frequency of preschool attendance, if at all, and gender. Children who had not attended preschool, or had attended one half day per week, were considered as having attended no preschool. Those who had attended two to three half days per week were considered as having attended on a part-time basis. Attendance of at least four half-days per week was considered as full-time. The two reading programs were the Bookmark and

Open Court series. From each strata, students were randomly selected, using the Table of Random Numbers.

Duncan's (1977) Socioeconomic Index for All Occupations was then applied to the parent's or guardian's occupation listed on the questionnaire. The application of this Index involved locating a certain occupation in the Conversion Table, and noting the Socioeconomic Index Number assigned to that occupation.

Teachers were then contacted to arrange for mutually convenient times for this researcher to conduct the administrations of the tests. Each classroom teacher was asked to rate the behavior of each child he or she taught in the sample, using the Teacher Rating Scale of the Behavior Rating Profile. These scales were returned to this researcher in the same way the parents' questionnaires were returned.

All of the data was then collated for each child according to strata membership. For each boy or girl, there was a score on the Joseph Pre-School and Primary Self-Concept Screening Test and the Slosson Intelligence Test. There was also a Socioeconomic Index number, as a result of Duncan's (1977) Index for All Occupations, and a score on the Heathington Primary Scale of Reading Attitudes. In addition, there was a rating score for classroom behavior on the Behavior Rating Profile. Finally, there were the six reading achievement subtests scores on the Stanford Diagnostic Reading Test (Appendix B).

Procedures For Testing

This researcher spent sufficient time with each child in establishing rapport prior to the administration of the Joseph Pre-School and Primary Self-Concept Screening Test, the Heathington Primary Scale of Read-

ing Attitudes, and the Slosson Intelligence Test. These instruments, as well as the socioeconomic index, were administered by the researcher. The Stanford Diagnostic Reading Test was also administered by this researcher in the school district which used the Bookmark reading program. It was administered by the classroom teachers, as part of their normal responsibilities, in the school district which used the Open Court program. This test was administered on the same days and times in both school districts. All standardized instructions were followed precisely. In both districts, the results of the Stanford Diagnostic Reading Test were machine-scored by the publisher.

The Socioeconomic Index For All Occupations was an ordinal measurement, based on a national opinion survey concerning the prestige ratings of occupations. According to Duncan (1977), "an investigator was at liberty to form class intervals of the index of any degree of coarseness that was wished" (p. 128). Therefore, the scale was used to form three status levels. Low socioeconomic status consisted of Index numbers which ranged from the lowest one, 11, to and including 39. Middle status began with the next index number 43 and ended with 53. High status began with the next number 60 and ended with 93, which was the highest. Each category consisted of approximately one-third of all the children involved in this study.

Duncan (1977) warned the user of this index "not to assume that the index was significant in the second digit. Slight changes in the computation could produce a change of + point in that digit" (p. 130). Therefore, index numbers will be considered to be significantly different if the two digit number differs from another two digit number by more than

one point

The Heathington Primary Scale of Reading Attitudes was an interval measure. This Lickert-type scale was designed to measure positive and negative attitudes toward reading. Standardized procedures for administration and scoring were followed precisely. All twenty items were read to every child. The child chose one of five face caricatures, ranging from very unhappy to very happy, which showed how he or she felt about the question or item. For scoring purposes, each very happy face selected received a score of five points, each neutral face three points, and each very unhappy face one point. The total range of possible scores was 20 to 100 points. High scores represented positive attitudes, and low scores represented negative attitudes (Alexander & Filler, 1976; Heathington, 1975).

The Slosson Intelligence Test, which was also an interval measurement, was designed as a screening instrument, to be used by professional people. It was norm-referenced, and yielded a deviation IQ. Each item had its own question, and the child was expected to answer verbally or demonstrate the answer. The test began with questions approximately at the child's chronological age. Ten consecutive questions must be answered correctly in order for the Basal Age to be established. The test continued until ten consecutive questions were answered incorrectly. The 1981 revision of the administrative and scoring procedures, and norm tables were used.

Three levels of intelligence were used in the study. An IQ of 90 to 109 was in the average range. An IQ of 110-119 was in the above average range. Finally, an IQ of 120 and above was in the superior range

The Joseph Pre-School and Primary Self-Concept Screening Test, also an interval measurement, consisted of a self-drawing and fifteen test items. All items were given to each child. The standardized procedures for administration, scoring, and interpretation for each item were followed precisely. For scoring purposes, positive responses were given a raw score of two points, and negative ones were given a raw score of zero. Ambivalent or "don't know" responses were given a raw score of one point. The total of these raw scores were classified according to a score on the record form (Joseph, 1979).

The Stanford Diagnostic Reading Test (Red Level, Form A) an interval measurement, was administered in April, 1985. Oral directions were given by either the classroom teacher or this researcher, depending on the school district. Each child was asked to complete sample items before the commencement of the actual testing. The child then was asked to listen to, or read, the question or test item, and then make an appropriate mark in the test booklet. The subtests were machine-scored by the test publisher. The raw scores of the subtests of Auditory Vocabulary, Auditory Discrimination, Phonetic Analysis, Word Reading, and Reading Comprehension, as well as Comprehension Total, which was comprised of the combined total raw scores of the Word Reading and Reading Comprehension subtests, were used in this research.

The Teacher Rating Scale, a subscale of the Behavior Rating Profile, was also an interval measure. The classroom teacher was supplied with individual rating forms. The classroom teacher was requested to fill out one form per child in the sample, independently of other teachers. Completion should have taken no more than ten minutes for each

child. Standardized instructions were printed at the top of each form, and the teacher was asked to follow them precisely. Only the raw scores were used in this research.

Instrumentation

The Joseph Pre-School and Primary Self-Concept Screening Test

Joseph (1979) determined this test's reliability in three different ways. A test retest reliability of .87 was found for a limited sample of 18 preschoolers whose median age was 4 years and 10 months. There was a four week interval between test administrations.

In addition, an item analysis was done to further establish the internal consistency of this test. Items were changed or left intact on the basis of their ability to predict overall global test scores. Item discrimination correlation coefficients, in the form of point-biserials, ranged from .30 to .70, with a median correlation in the low .50's. This range was seen as a function of both a particular item and the age of the subjects in the sample. All items in the scale significantly correlated with the overall global test scores ranging from the .01 level of confidence to the .001 level, and therefore, further demonstrated test reliability (Joseph, 1979).

In order to establish test validity, two forms of validity were used. A ten-item self-concept teacher rating scale, adapted by Joseph (1979) from Coopersmith's (1967) Behavior Rating Form, was used to establish construct validity. Using the same 18 preschoolers as were used to establish test-retest reliability, the correlation between the Joseph test and this ten-item adaptation was .65, and significant at the .001 level. Using a sample of kindergarten and first grade children, whose

median age was 6 years and 6 months, the correlations between the two tests was .52 and significant at the .01 level. When used with a sample of preschool and kindergarten children, the correlation between the two scores was .31, and significant at the .05 level. Joseph (1979) believed there was sufficient evidence to conclude that the Joseph Pre-School and Primary Self-Concept Screening Test really measured self-concept, as it purported to do.

Concurrent validity was established by the test's ability to distinguish between high and low levels of academic achievement. Teachers from 16 classrooms, which included five preschool, five kindergarten, three first grade, and three second grade groups were asked to identify their students who were academically in the top and bottom 15% of their classes. Those children in preschool and kindergarten were identified in terms of readiness skills. The mean score differences on this test were statistically significant at the .0001 level, with the higher scores being in the higher achiever and readiness groups (Joseph, 1979).

Slosson Intelligence Test

Slosson (1982) reported both a test-retest reliability and the standard error of measurement. A test-retest reliability of .97 was found for a sample whose ages ranged from 4 to 50 years. The test-retest interval was less than two months.

The standard error measurement was reported by Slosson (1982) to be 4.3. This was interpreted by Slosson (1982) to mean that the IQ scores would not change more than plus or minus 4.3 IQ points, about two-thirds of the time.

Armstrong and Jensen (1982) showed that since the standard devia-

tions of the Slosson Intelligence Test and the Stanford-Binet Intelligence Test, Form L-M did not significantly differ, the mean absolute IQ difference statistic "may be used to estimate the parallel forms reliability of the Slosson Intelligence Test and the Stanford-Binet Intelligence Test, Form L-M"(p. 134). According to Armstrong and Jensen (1982), the mean absolute IQ differences was "the average of the absolute differences between IQ's generated by body instruments" (p. 131). The reliability using this statistic was found to be .959.

Slosson (1982) also reported evidence of concurrent validity. This was indicated by the high correlations with the Stanford-Binet Intelligence Test, Form L-M, and with the Wechsler Intelligence Scale for Children. Using the Stanford-Binet, these correlations ranged from .90 for four year old children to .97 for those 18 years and older. Using the Wechsler Scale, the range was from a high of .96 to a low of .52, with a median correlation of .75.

Teacher Rating Scale of the Behavior Rating Profile

This scale was part of a larger instrument, which was designed to provide an ecological evaluation of students' behavior in the classroom, at home, and with peers. This norm-referenced scale permitted a determination of whether a teacher has rated a student's behavior within the "normal" or deviant range (Brown & Hammill, 1983, p. 3). The 30 items in it were descriptive phrases, and the teachers were asked to classify these phrases into one of four categories: "very much like the student", "like the student", "not much like the student", or "not at all like the student" (Brown & Hammill, 1983, p. 6).

The results of the scale were reported in raw scores, standard

scores, and percentile ranks. There were two grade intervals to be used for these score conversions, first through fourth grades and fifth through twelfth grades.

The Standard Scores were based on a distribution which had a mean of 10 and a standard deviation of 3. Scores which ranged from plus or minus one standard deviation from the mean, or from 7 to 13, were considered to be within the normal range. Scores which were below 7 or above 13 were considered to be statistically deviant (Brown & Hammill, 1983).

According to Brown and Hammill (1983), test reliability was demonstrated in terms of test-retest reliability, standard error measurement, and Coefficient Alpha. Coefficient Alpha was a formula for finding inter-item consistency in an instrument which had more than two response categories, and the categories were weighed differently. According to Anastasi (1976), "the procedure was to find the variance of all the individuals' scores for each item, and then to add these variances across all items" (p. 110). The Coefficient Alpha for the Teacher Rating Scale of the Behavior Rating Profile ranged from .87 to .98, depending on the grade level. The standard error of measurement of the Standard Score ranged from .5 to 1.1, and from 3.1 to 3.8 for the Raw Scores, again depending on the grade level. Test re-test reliability for the Teacher Rating Scale was found to be .91, for a two-week time interval.

Evidence of three types of validity was presented by Brown and Hammill (1983). Content validity was assured by constructing the scale items on the basis of teachers' anecdotal records and "content reviews of popular behavior rating scales and checklists" (p. 12). This procedure resulted in statistically significant item validities, which were also of

sufficient magnitude to provide evidence of content validity. For this item analysis, 150 protocols were randomly selected from the standardization population. The median coefficients of the item validities of the Teacher Rating Scale for second through seventh grade children ranged from .43 to .83.

Brown and Hammill (1983) also estimated criterion-related validity, using the Quay-Peterson Behavior Problem Checklist and the Vineland Social Maturity Scale as criteria. For public school students, the correlation coefficients for the Teacher Rating Scale with both these criteria were .84. With public school emotionally disturbed children, the correlation coefficient with the Quay-Peterson Behavior Problem Checklist was .92, and with the Vineland Social Maturity Scale was .67. For public school learning disabled students, the Teacher Rating Scale's correlation coefficients with the Quay-Peterson Checklist was .93, and with the Vineland was .86. All of these correlation coefficients were statistically significant at the .01 level.

Construct validity was also estimated by Brown and Hammill (1983). The authors attempted to determine whether the total instrument could discriminate among groups of students who were known or suspected of evidencing behavior problems. The mean raw scores for groups of normal, public school learning disabled, public school emotionally disturbed, and institutionalized emotionally disturbed children were found to be statistically different by means of t-tests. However, these exact t-ratios and levels of significance were not available to this researcher.

Another method for studying construct validity was to correlate the scales in the Behavior Rating Profile that were supposed to measure be-

haviors in the same setting. Therefore, if the two scales in the Profile that were supposed to measure school behavior had a high correlation, then construct validity was supported. The Teacher Rating Scale was correlated with the Student Rating Scale: School since both scales measured behavior at school. The Student Rating Scale: School was a self-rating school behavior scale, in which the student was asked to classify each item as "true" or "false" (Brown & Hammill, 1983, p.5). The correlations between the Teacher Rating Scale and the Student Rating Scale: School were .84 for public school children. For institutionalized emotionally disturbed children, this correlation was .67, and was .84 for public school learning disabled children. All of these correlation coefficients were statistically significant at the .01 level

Stanford Diagnostic Reading Test

According to the test authors (Karlsen, Madden, & Gardner, 1976), this group-administered test was organized into four levels, with two equivalent forms. The purpose of these different levels was to be able to use this test from the end of first grade through junior college. The battery of interest for the present study was Red Level, Form A, which could be used from the end of first grade through the end of second grade, although it could also be used with low-achieving third graders. It consisted of Auditory Vocabulary, Auditory Discrimination, Phonetic Analysis, Word Reading, and Reading Comprehension, as well as Comprehension Total, which was made up of the Word Reading and Reading Comprehension subtests. The raw scores of these subtests will be used here.

The reliability of this instrument was measured in several ways. The Kuder-Richardson Formula "20" was used, which determined the internal

consistency reliabilities of the subtest and Comprehension Total scores for each level and form of this test. For the level and form of interest in this study, the resulting reliability coefficients in raw score units ranged from .82 to .98. The standard errors of measurement also in raw score units for these same subtests and comprehension Total ranged from 1.6 to 3.1. The alternate-form reliability coefficients, based on a three-week retest period of time, ranged from .64 to .95 for the same units of this instrument. The standard errors of measurement for this measure of reliability ranged from 1.5 to 4.6

The validity of this instrument was demonstrated by its content and relationship to another related measure. The authors (Karlsen et al., 1976) believed that content validity was exhibited, since the test objectives reflected the content of commonly used reading programs throughout the country. Criterion-related validity was established by a comparison of raw scores obtained with this measure and the 1973 edition of the Stanford Reading, using parallel levels. The intercorrelation coefficients of the raw scores of the various subtests and Comprehension Total ranged from .61 to .98.

This measure of reading achievement was chosen because it continues to be used in one of the two school districts involved in this study, as their yearly measure of reading achievement. It also matched the content and objectives of the Bookmark reading series, which was used in the other school district.

Heathington Primary Scale of Reading Attitudes

Heathington (1975) determined the reliability of this scale by the test-retest method. This scale was readministered to 124 students in the

first, second, and third grades, two weeks after the first administration. The test-retest reliability was found to be .73.

Evidence of validity was provided in terms of internal consistency and item-analysis, according to Alexander and Filler (1976) and Heathington (1975). In the construction of the scale, one of the initial steps was conducting individual interviews with children in the first, second, and third grades. These children were asked to describe the activities and behaviors of children of the same age who liked reading, and who disliked reading. An item-analysis was then done to determine which descriptions or items discriminated between children who had positive attitudes and those who had negative attitudes. Each item was correlated with the total scores. Those items which had low correlation coefficients were eliminated from the scale.

Heathington (1975) also reported evidence of what was apparently criterion-related concurrent validity. The criteria were teacher ratings of students' attitudes toward reading. There were significantly high correlations between scores received on this scale and teachers' ratings of students who had positive attitudes toward reading. There were also significantly high correlations between scores received on this scale and teachers' ratings of students who had negative attitudes toward reading. The students used in this sample were also in the first, second, and third grades.

This measure of reading attitude was chosen for several reasons. First, it was readily available. More importantly, it demonstrated the highest validity and reliability of the measures available for use with first grade children.

Socioeconomic Index for All Occupations

According to Reiss (1977), most socioeconomic status scales measured income, education, and occupation. Duncan's (1977) socioeconomic status index "combined the available information on educational and income levels of persons engaged in those occupations" (Duncan, 1977, p 117). The prestige variable was correlated with the two other variables, income and educational attainment. The rank correlation coefficient of median income levels and prestige scores was .84. This coefficient of level of educational attainment and prestige scores was .85. Duncan (1977) included in the index only those occupations in the civilian labor force which were included in the detailed classification of the 1950 Census of the Population of the United States.

Duncan (1977) pointed out that the index was not universally valid, since its applicability depended on the particular research problems involved. As long as the occupations reported by the parents or legal guardians in the questionnaire was included in the index, this index will be regarded as valid for the population in question.

The Headway Reading Program (1982 Edition)

This intense-direct-synthetic phonics basal reading program was divided into three main levels. The first level, known as the Preparation Level, was used in preschool or kindergarten. The second level, known as the Foundation Program, was used in the first semester of first grade. The next main level, known as the Readers, was used from the second semester of first grade through sixth grade. At both levels, the program incorporates reading, spelling, and composition (Hughes, Bernier, Thomas, Bereiter, Anderson, Gurren, & Lebo, 1982).

The Foundation Program began with a sequential introduction to all of the 43 main sounds and blending of them. A multisensory approach was used. As new sounds and words were introduced, the child heard, said, saw, and wrote them. Proofreading was also introduced early. This enabled a child to learn to evaluate his or her own work and see progress in reading, spelling, penmanship, and writing of original sentences. The vocabulary at this level was consistently phonetic. After approximately one-half of the Foundation level was completed, composition was added to each lesson.

When reading fluency was developed, and the child had confidence in reading, the next level of this reading program was introduced. Normally by the second semester of the first grade the child was ready for irregularly-spelled words and vocabulary which was not phonetic. Through the use of the Readers, a student developed a high interest in reading, as well as skills in thinking, speaking, listening, spelling, grammar, usage, and composition.

Each lesson takes approximately two to two and one-half days to finish, and consists of whole-group instruction, listening activities, and workshops. Approximately twenty minutes is spent in an activity from one section, and then another activity is presented from another section, again for twenty minutes. At least three workshops should be held each day. Two to two and one-half hours per day should be spent on the program, which will allow the entire lesson to be completed on schedule.

Whole-group instruction consists of several types of activities. The first is a review of several letter sounds, which make up a word to be synthesized by the students. The new letter sound, and its spelling,

are then introduced auditorally and visually. The students then practice sounding and blending the letters while they trace and copy them in their workbook. Volunteers are chosen to write words on the board which are dictated to them, while the rest of the students watch. These students then take the dictation in their books.

Another type of activity is the picture exercise. Here, students are asked to read each of the six words on the page in their workbooks, and underline words which match pictures there. After the choices are discussed with the classmates, each word is written under the picture.

Still another type of whole-group activity is reading the core material. Previous parts of this story are reviewed, and the current part is read. Comprehension questions are then asked, to make sure the children understood the passage. Here, new vocabulary words are presented and practiced auditorally and in a workbook.

A final type of activity is reading a story in a storybook. The story is then discussed, and comprehension questions are asked. Beginning in lesson number 28, this activity is replaced by composition exercises, in which the students write original sentences about a topic supplied by the teacher.

Listening activities, the second major type of instructional method used in the lessons, consists of two types of exercises. In the first one, the teacher reads a poem or chapter in a book, to expose children to different forms of written language. The teacher then asks questions about what was read, to insure the students' understanding. The second type of exercise was the response card drill, which "reinforces auditory-to-visual associations, teaches sound sequences in words, and correct

spellings of sounds in various positions in words" (Hughes et al, 1982, p. 243).

Workshops, the third type of instructional method, are provided to give children enrichment or remediation, according to each individuals needs. Three types of exercises are available to meet these needs. The directed activities are selected by the teacher, for children to complete on their own, and in their free time. This activity should reinforce a previously-taught skill, and be explained to the whole class prior to any individual attempting it. The activities vary with the lesson being taught.

Small-group exercises are a second type of workshop activity. These can be used to "preteach" material to children who need it, to intensively "reteach" material for remediation, or to provide enrichment. Again, the purpose can be adjusted to meet the needs of the students, according to the lesson being taught (Hughes, et al., 1982, p. 211).

The final type of workshop exercise is independent activities. Here, each child selects a creative reading activity, and also chooses to work alone, with another student, or in small groups, in order to complete the activity.

According to Aukerman (1981), this program was one of the most thorough, detailed, elaborate, and structured beginning reading programs in existence. It had been used for several years in one of the two school districts involved in this study. There were no plans to change the use of this program in this district (Hughes et al., 1982).

The Bookmark Reading Program (1979 Edition)

This gradual-indirect-analytic phonics basal reading program was

made up of fifteen levels. The first level was used in kindergarten, for reading readiness. The next five levels are usually used in the first grade, and range from the first preprimer to the first reader. The next four levels are usually used in the second and third grades. These nine levels comprise the Primary Program, which is of interest here. The five remaining levels comprise the Intermediate Program, and are usually used in the fourth through eighth grades (Early, Cooper, & Santeusanio, 1979).

The Bookmark program (Early et al., 1979) is the second of two basal reading programs of interest here. It is a broadly-based and comprehensive program, which takes an eclectic or combined approach to beginning reading and word-attack skills (Bostian, 1979; Chall, 1983). It concentrates on the major areas of decoding instruction, comprehension, language arts, the capacity to use reading as a means of gaining information, and the appreciation of reading for enjoyment. All clues toward identification and decoding, such as sight words, phonics, contexts, and word structure are incorporated. Phonics are taught in contexts which are meaningful. Parts of words which are known and have meaning are used to teach new sounds and letters. Vocabulary and decoding skills are developed and reinforced before a selection is read. At this level, secondary emphasis is placed on informational reading and literary skills. According to Aukerman (1981), a distinctive feature of this program involves the instruction and learning practice on decoding, language arts, and vocabulary before reading actually occurs.

Each teaching unit in the Bookmark reading program requires "approximately three periods for average pupils" (Early et al., 1979, p. xix), which takes more than one day to finish. It consists of three core

elements and two optional ones.

The first step in the core or instructional sequence is called Preparation for Reading, which is made up of two processes. Children first learn new phonics or word structure skills by hearing and saying words representing them, and then by writing them. The knowledge of the new skill is used in contexts which are meaningful. Next, vocabulary is reviewed, and new words are introduced, again in a meaningful context of pictures or sentences. Practice is also given in writing the new words.

The second core step is called Reading and Discussing the Selection. Here, the selection is read, and skills and vocabulary are applied. The teacher establishes the purpose of the reading selection, and the selection is read silently. Then another selection is read orally, to meet other purposes such as reading with expression. Next, the silently read passage is reviewed, and critical and inferential comprehension skills are focused upon. A written activity may also be used to reinforce these skills.

The third step in instructional or core sequence is called Continuing Skill Development. Here, short and directed activities are used to reinforce and review skills learned in previous sections or Units.

There are two additional elements, which form the optional steps of the unit. Here, alternative methods are suggested which may be used to reteach or extend skills taught elsewhere.

The first optional step is called Providing for Individual Differences. Here, more practice is provided for those children who need remediation. Challenging activities are also suggested for children who are ready to use a skill in a novel or extended context.

Finally, the second optional step is called Enrichment. Here, opportunities are provided for acting out or retelling parts of stories, or complete ones. Career awareness is also developed here. In addition, opportunities are provided to relate reading passages to other subject areas, and the fine arts, to extend the value of reading.

This reading program continued to be used in the second school district of interest here, as it had for several years. Again, there were no plans in this district to change the reading program used (Early et al., 1979).

Design and Statistical Analysis

Based on search of the literature, the primary independent variables used in this research study were preschool attendance, reading program, and gender. The auxiliary independent variables were socioeconomic status and intelligence. The dependent variables were the subtest scores on measures of reading achievement, classroom behavior, self-concept, and attitudes toward reading of first grade children.

This research study was ex post facto, since the independent variables were measured, not manipulated. Random selection of subjects were used for the sample, but random assignment of subjects to groups were not used.

To assess the relationship of preschool attendance, reading program, and gender to reading achievement, classroom behavior, self-concept, and attitudes toward reading, the following primary paradigm was utilized:

	Preschool Attendance					
	None		Part Time		Full Time	
	Rdg. Prog.					
	OC-H	B	OC-H	B	OC-H	B
	Gender					
	M F	M F	M F	M F	M F	M F
Reading Achievement:						
Auditory Discrimination						
Phonetic Analysis						
Auditory Vocabulary						
Word Reading						
Reading Comprehension						
Comprehension Total						
Classroom Behavior:						
Teacher Rating Scale						
Self-Concept:						
Joseph Preschool and						
Primary Self-Concept						
Screening Test						
Attitude Toward Reading:						
Heathington Primary						
Scale of Reading						
Attitudes						

To assess the relationships of preschool attendance, reading program, gender, socioeconomic status, and intelligence to reading achievement, classroom behavior, self-concept, and reading attitude, the following three analytic paradigms based on full-time, part-time, or no preschool attendance were utilized incorporating the auxiliary variables:

ANALYTIC PARADIGM

INCLUDING AUXILIARY VARIABLES

FULL-TIME PRESCHOOL ATTENDANCE

Reading Program

OC-H B

SES

HI AV LO HI AV LO

IQ

H A L H A L H A L H A L H A L H A L

Gender

MF MF MF MF MF MF MF MF MF MF MF MF MF MF MF MF MF MF

Reading Ach.:

Aud. Dis.

Ph. Anal.

Aud. Voc.

Word Read.

Read. Comp.

Class Beh.:

Teach. Rat. S.

Self-Concept:

Joseph P.P.S.C.

Scrn. Test

Read. Att.:

Heathington

P.S.R.A

ANALYTIC PARADIGM

INCLUDING AUXILIARY VARIABLES

PART-TIME PRESCHOOL ATTENDANCE

Reading Program

OC-H B

SES

HI AV LO HI AV LO

IQ

H A L H A L H A L H A L H A L H A L

Gender

MF MF MF MF MF MF MF MF MF MF MF MF MF MF MF MF MF MF

Reading Ach.:

Aud. Dis.

Ph. Anal.

Aud. Voc.

Word Read.

Read. Comp.

Class Beh.:

Teach. Rat. S.

Self-Concept:

Joseph P.P.S.C.

Scrn. Test

Read. Att.

Heathington

P.S.R.A

ANALYTIC PARADIGM

INCLUDING AUXILIARY VARIABLES

NO PRESCHOOL ATTENDANCE

Reading Program

OC-H B

SES

HI AV LO HI AV LO

IQ

H A L H A L H A L H A L H A L H A L

Gender

MF MF MF MF MF MF MF MF MFMF MF MF MF MF MF MF MF MF

Reading Ach.:

Aud. Dis.

Ph. Anal.

Aud. Voc.

Word Read.

Read. Comp.

Class Beh.:

Teach. Rat. S.

Self-Concept:

Joseph P.P.S.C.

Scrn. Test

Read. Att.:

Heathington

P.S.R.A

The statistical technique used in this study was factorial analysis of variance, with a 3 x 2 x 2 design. For each measure or subtest of the four dependent variables, there were twelve cells or categories of data. There were three levels of preschool attendance, two reading programs, and two categories of gender.

When the auxiliary independent variables were considered, the factorial analysis of variance incorporated a five-way design, 3 x 2 x 2 x 3 x 3. For each measure or subtest of the four dependent variables, there were eighteen cells or categories of data. In addition to the three levels of preschool attendance, two reading programs, and two categories of gender, there were three levels of each of socioeconomic status and intelligence.

The required level of statistical significance was set at .05. When any factorial analysis of variance resulted in an overall F-ratio which was statistically significant, a one way analysis of variance or appropriate post hoc tests were done. These indicated which group differences contributed to the statistical significance.

According to Kerlinger (1973) this statistical technique was useful for several reasons. First, it allowed for the simultaneous testing of several hypotheses. It also allowed for the analysis of the interactive effects of at least two independent variables on a dependent variable (p. 245). This technique was also considered to be more precise than other ones. It identified more of the total variances as compared to other statistical techniques, and therefore, reduced the within-groups variance (p. 261).

The SPSS^{X} computer program (SPSS Inc., 1983) was used to apply the

factorial analysis of variance technique. This multivariate technique resulted in an F statistic, which was used to evaluate each of the hypotheses in this study.

CHAPTER IV

RESULTS

The procedures specified in Chapter III were used to answer all research questions. The null hypotheses were assumed rather than stated, since the relationships of the independent variables to the dependent variables were primarily evaluated in terms of research questions. Each assumed hypothesis was rejected, and each question answered in the negative, if the significance of the resulting statistic was equal to or greater than the .05 level. If the significance of the statistic was less than the .05 level, the assumed null hypothesis was not rejected and the research question was answered in the affirmative. In addition, when a statistic for an assumed null or statistical hypothesis or research question was found to be significant, at least one post hoc test was used to determine which comparison or comparisons between or among the means were contributing to that significance. The specific post hoc test chosen was the most conservative one which showed the location of the significance. In some instances, this was the Scheffe Test, while the Duncan test was used elsewhere.

To make these comparisons, the subjects were assigned memberships in several types of divisions and subdivisions. Groups 3, 2, and 1 referred to full-time, part-time, and no pre-school attendance, respectively. Reading programs 1 and 2 referred to the Open Court-Headway pro-

gram, with intensive phonics, and the Bookmark program, with gradual phonics, respectively. Males and females were assigned the numbers 1 and 2, respectively. Low, middle, and high socioeconomic status levels were assigned the numbers 1, 2, and 3, respectively. Finally, average, above average, and superior levels of intelligence were also assigned the numbers 1, 2, and 3, respectively.

A broad focus for this research is to determine whether or not the primary variables of the frequency of preschool attendance, type of reading program, and gender effects student performances. With respect to this broad focus, seven specific research questions are presented which are aimed at assessing the main and interaction effects of these variables on reading achievement, self-concept, classroom behavior, and reading attitude.

Two auxiliary independent variables are included for analysis within this research. These are the levels of socioeconomic status and intelligence. As a consequence, three research questions are presented which assess their main effects, as well as their interaction effect, on the dependent variables. Three other research questions assess the interaction of the level of intelligence with the primary independent variables. Three additional questions assess the interaction of the socioeconomic status with these same primary independent variables. The remaining fifteen research questions assess the interactions of three, four, and five of the independent variables on these same measures of student performance.

The answers to these thirty-one research questions are presented here, along with the statistically significant findings. The insignifi-

cant statistical findings are reported in Appendix D. These are the seventeen, eighteen, twenty-one, twenty-three, twenty-five, twenty-six, twenty-seven, thirty, and thirty-one.

Question One

The frequency of preschool attendance was found to be significantly related only to reading attitude, as shown in Table 1. Those who had attended preschool on a part-time basis did not have significantly different scores on Auditory Vocabulary, Auditory Discrimination, Phonetic Analysis, Word Reading, Reading Comprehension, Total Comprehension, Classroom Behavior, or Self-Concept from those of children who had not attended preschool, as indicated by the multiple one-way analyses of variance (Appendix C-1). For these measures, the level of probability ranged from .16 to .88, which all failed to reach the .05 level of significance required in this study. The one measure which did reach this required level of significance, Reading Attitude, had a probability of .04. Therefore, the only statistically significant difference between the variances of the children who had attended preschool and those who had not attended preschool was on Reading Attitude. The assumed null hypothesis was rejected for only the Reading Attitude measure.

As a result of the significant finding of an effect for preschool attendance on reading attitude by a one-way analysis of variance, a post hoc comparison was then applied to the means. This was done to determine the source of the statistical significance. As shown in Table 2, both the Scheffe and Duncan procedures revealed that preschool attendance on a full-time basis was negatively related to reading attitude. Those children who had not attended preschool were found to have significantly bet-

TABLE 1

Summary of the Effects[1] of Preschool Attendance

Variable	df	F	Significance of F
Reading Achievement			
Auditory Discrimination	134	.65	.51
Auditory Vocabulary	134	.69	.49
Phonetic Analysis	134	.41	.66
Word Reading	134	1.84	.16
Reading Comprehension	134	.12	.88
Total Comprehension	134	.73	.48
Classroom Behavior			
Teacher Rating Scale	134	.86	.42
Self Concept			
Joseph Test	134	1.63	.19
Reading Attitude			
Heathington	134	3.11	.04*

*$p \leq .05$

[1]: Taken from one-way analysis of variance Summary Table C-1 in Appendix C

TABLE 2

Summary Data and Post Hoc Comparisons of Reading Attitude Scores by Frequency of Preschool Attendance

Count	Mean	S.D.	Group	Group 1	Group 2	Group 3
45	85.00	9.92	1			
42	82.02	9.84	2			
48	79.77	10.52	3		*	

* = Pairs of groups significantly different at the .05 level, according to the Scheffe and Duncan tests, where:

Group 1 - no preschool attendance

Group 2 - part-time preschool attendance

Group 3 - full-time preschool attendance

ter reading attitudes than did those children who had attended preschool on a full-time basis.

Question Two

The type of reading program used was found to be significantly related to only auditory discrimination, classroom behavior, and self-concept, as shown in Table 3. Those who had used one type of reading program did not have significantly different scores on Auditory Vocabulary, Phonetic Analysis, Word Reading, Reading Comprehension, Total Comprehension, or Reading Attitude than did those children who had used the other type of reading program, as indicated by the multiple one-way analysis of variance (Appendix C-2). For those measures, the level of probability ranged from .07 to .81, which all failed to reach the required .05 level of significance. The three measures which did reach this required level of significance, Auditory Discrimination, Classroom Behavior, and Self-Concept, all had probabilities of .00. Therefore, the statistically significant differences between the variances of the children who had used one type of reading program and those who had used the other type of reading program were on the measures of Auditory Discrimination, Classroom Behavior, and Self-Concept. The assumed null hypothesis was rejected for only the Auditory Discrimination, Classroom Behavior, and Self-Concept measures.

As a result of the significant finding of an effect for the type of reading program in Auditory Discrimination, Classroom Behavior, and Self-Concept by one-way analyses of variance, post hoc comparisons were then applied to the means. These were done to locate the source of the statistical significance. Because there were only two types of reading pro-

TABLE 3

Summary of the Effects[1] of Type of Reading Program

Variable	df	F	Significance of F
Reading Achievement			
Auditory Discrimination	134	8.85	.00*
Auditory Vocabulary	134	1.91	.16
Phonetic Analysis	134	2.11	.14
Word Reading	134	3.25	.07
Reading Comprehension	134	0.36	.54
Total Comprehension	133	1.47	.22
Classroom Behavior			
Teacher Rating Scale	134	24.01	.00*
Self Concept			
Joseph Test	134	16.61	.00*
Reading Attitude			
Heathington	134	0.05	.81

*$p \leq .05$

[1]: Taken from one-way analysis of variance Summary Table C-2 in Appendix C

grams, these comparisons were visual rather than using the Scheffe or Duncan procedures. These comparisons revealed that those children who used the Open Court-Headway program had significantly better Auditory Discrimination and Self-Concept scores than did those children who used the Bookmark program, as shown in Tables 4 and 5, respectively. However, those children who used the Bookmark program had significantly better Classroom Behavior scores than did those children who had used the Open Court-Headway program, as indicated in Table 6.

Question Three

Gender was not found to be significantly related to any measured aspect of reading achievement, classroom behavior, self-concept, or reading attitude, as shown in Table 7. Females did not have significantly different scores on Auditory Discrimination, Auditory Vocabulary, Phonetic Analysis, Word Reading, Reading Comprehension, Total Comprehension, Classroom Behavior, Self-Concept, or Reading Attitude measures than did males, as indicated by the multiple one-way analyses of variance (Appendix C-3). The obtained F-ratios ranged from .01 to 1.85 and had probabilities which ranged from .17 to .19. None reached the required .05 level of significance. There were no statistically significant differences between the variances of males and females on any of the measures used in this study. Therefore, the assumed null hypothesis was not rejected.

Question Four

The interaction of the frequency of preschool attendance and the type of reading program used was significantly related only to the Auditory Vocabulary subtest of the reading achievement measure. The interac-

TABLE 4

Summary Data and Post Hoc Comparisons of Auditory Discrimination Scores by Reading Program

Count	Mean	S.D.	Group	Group 1	Group 2
71	35.59	3.87	1		*
64	33.54	4.10	2		

* - pairs of groups significantly different at the .05 level, where:

Group 1 - intensive phonics Open Court-Headway reading program

Group 2 - gradual phonics Bookmark reading program

TABLE 5

Summary Data and Post Hoc Comparisons of Self-Concept Scores by Reading Program

Count	Mean	S.D.	Group	Group 1	Group 2
71	27.43	2.29	1		*
64	25.62	2.85	2		

* - pairs of groups significantly different at the .05 level, where:

Group 1 - intensive phonics Open Court Headway reading program

Group 2 - gradual phonics Bookmark reading program

TABLE 6

Summary Data of Classroom Behavior Scores by Type of Reading Program

Count	Mean	S.D.	Group	Group 1	Group 2
71	78.53	13.47	1		*
64	87.23	4.69	2		

* - pairs of groups significantly different at the .05 level where:

Group 1 - intensive phonics Open Court Headway reading program

Group 2 - gradual phonics Bookmark reading program

TABLE 7

Summary of the Effects[1] of Gender

Variable	df	F	Significance of F
Reading Achievement			
Auditory Discrimination	134	.41	.52
Auditory Vocabulary	134	.01	.91
Phonetic Analysis	134	.05	.81
Word Reading	134	.98	.32
Reading Comprehension	134	1.85	.17
Total Comprehension	133	1.53	.21
Classroom Behavior			
Teacher Rating Scale	134	1.31	.25
Self Concept			
Joseph Test	134	.15	.69
Reading Attitude			
Heathington	134	.60	.43

*$p \leq .05$

[1]: Taken from one-way Analysis of variance Summary Tables C-3 in Appendix C

TABLE 8 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Self-Con.[10]						
	P.S. Att.	2	18.74	9.37	1.40	.24
	Rdg. Pro.	1	108.37	108.37	16.26	.00*
	P.S. Att. by Rdg. Pro.	2	2.07	1.03	.15	.85
Rdg. Att.[11]						
	P.S. Att.	2	621.59	310.79	.05	.05*
	Rdg. Pro.	1	3.59	3.59	.03	.85
	P.S. Att. by Rdg. Pro.	2	286.58	143.29	1.40	.24

*$p \leq .05$

[1] - Auditory Discrimination subtest
[2] - Preschool Attendance subtest
[3] - Reading Program subtest
[4] - Auditory Vocabulary subtest
[5] - Phonetic Analysis subtest
[6] - Word Reading subtest
[7] - Reading Comprehension subtest
[8] - Total Comprehension subtest
[9] - Classroom Behavior Rating Scale
[10] - Self-Concept Screening Test
[11] - Reading Attitude Scale

tion was not significantly related to classroom behavior, self-concept, or reading attitude, as shown in Table 8. The factorial analysis of variance showed F-ratios ranging from .15 to 3.73. These had significance levels ranging from .85 to .02, the latter of which surpassed the required level of significance for only the Auditory Vocabulary subtest. Therefore, there were statistically significant differences among the variances of the subjects across the frequencies of preschool attendance and type of reading program used for only the Auditory Vocabulary subtest of the reading achievement measure. The assumed null hypothesis was rejected for only the Auditory Vocabulary subtest.

The main effects of the frequency of preschool attendance and the type of reading program used on auditory vocabulary were also assessed. However, neither main effect was found to be statistically significant at the required .05 level.

Two one-way analyses of variance were done to identify the source of the statistical significance revealed by the factorial analyses of variance. As previously shown in Table 1, the effect of preschool attendance on auditory vocabulary was not statistically significant at the required .05 level. Similarly, as previously shown in Table 3, the effect of the type of reading program used was not statistically significant. Therefore, there were no statistically significant differences among or between the groups on the basis of the frequency of preschool attendance or the type of reading program used alone. However, on the basis of the means shown in Table 9, it may be concluded that those who had attended preschool on a part-time basis and used the Open Court-Headway reading program had significantly better Auditory Vocabulary than did those chil-

TABLE 9

Mean Auditory Vocabulary Scores by Preschool Attendance and Reading Program

Preschool Attendance:	None	Part-time	Full-time
	26.04	26.76	27.15
Reading Program:	Open Court		Bookmark
	27.17		26.09

	Reading Program	
Attendance	Open Court	Bookmark
None	26.65	25.41
Part-time	28.38	24.61
Full-time	26.46	27.83

dren who had attended on a part-time basis and used the Bookmark program.

Question Five

The interaction of the frequency of preschool attendance and gender was significantly related to the Reading Comprehension subtest and Total Comprehension scores of the reading achievement measure, as shown in Table 10. The factorial analysis of variance resulted in F-ratios of 3.58 and 3.22, respectively. These were statistically significant at the .03 and .04 levels respectively. For the other reading achievement subtests, classroom behavior, self-concept, or reading attitude, the interaction of the frequency of preschool attendance and gender was not statistically significant. These F-ratios ranged from .17 to 2.58 which had significance levels which ranged from .84 to .07. Therefore, there were statistically significant differences among the variances of the subjects across frequencies of preschool attendance and gender for the Total Comprehension score and Reading Comprehension subtest of the reading achievement measure. The assumed null hypothesis was rejected for only the Total Comprehension score and Reading Comprehension subtest.

The main effects of the frequency of preschool attendance and gender were also assessed. Neither main effect was found to be statistically significant at the required .05 level.

Two one-way analyses of variance were done to identify the source of the statistical significance revealed by the factorial analysis of variance. As previously shown in Table 1, the effects of preschool attendance on Reading Comprehension and Total Comprehension was not statistically significant at the required .05 level. Similarly, as shown in Table 7, the effect of gender was not statistically significant. There-

TABLE 10

Summary Table of Factorial Analysis of Variance of Scores by Preschool Attendance and Gender

Variable	Source	df	SS	MS	F	Sig. of F
Aud. Disc.[1]						
	P.S. Att.[2]	2	21.87	10.93	.64	.52
	Gender	1	6.52	6.52	.38	.53
	P.S. Att. by Gender	2	20.30	10.15	.59	.55
Aud. Voc.[3]						
	P.S. Att.	2	28.67	14.33	.70	.49
	Gender	1	.09	.09	.00	.94
	P.S. Att. by Gender	2	77.71	39.85	1.94	.14
Ph. Anal.[4]						
	P.S. Att.	2	17.74	8.87	.40	.66
	Gender	1	.88	.88	.04	.84
	P.S. Att. by Gender	2	34.33	17.16	.78	.46
Wd. Read.[5]						
	P.S. Att.	2	296.96	148.46	1.98	.14
	Gender	1	90.76	90.76	1.21	.27
	P.S. Att by Gender	2	387.55	193.77	2.58	.07
Rdg. Comp.[6]						
	P.S. Att.	2	31.26	15.63	.16	.84
	Gender	1	186.62	186.62	1.97	.16
	P.S. Att. by Gender	2	676.80	338.40	3.58	.03*
Tot. Comp.[7]						
	P.S. Att.	2	531.19	265.59	.85	.42
	Gender	1	549.84	549.84	1.76	.18
	P.S. Att. by Gender	2	2009.17	1004.58	3.22	.04*
Class Beh.[8]						
	P.S. Att.	2	235.81	117.90	.94	.39
	Gender	1	182.02	182.02	1.46	.22
	P.S. Att. by Gender	2	282.29	141.14	1.13	.32

TABLE 10 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Self-Con.[9]						
	P.S. Att.	2	25.89	12.94	1.72	.18
	Gender	1	.64	.64	.08	.77
	P.S. Att. by Gender	2	2.57	1.28	.17	.84
Rdg. Att.[10]						
	P.S. Att.	2	633.29	316.64	3.10	.04*
	Gender	1	37.84	37.94	.37	.54
	P.S. Att. by Gender	2	279.17	139.58	1.36	.25

*$p \leq .05$

[1] - Auditory Discrimination subtest
[2] - Preschool Attendance subtest
[3] - Auditory Vocabulary subtest
[4] - Phonetic Analysis subtest
[5] - Word Reading subtest
[6] - Reading Comprehension subtest
[7] - Total Comprehension Score
[8] - Classroom Behavior Rating Scale
[9] - Self-Concept Screening Test
[10] - Reading Attitude Scale

TABLE 11

Mean Reading Comprehension Scores by Frequency of Preschool Attendance and Gender

Preschool Attendance:	None	Part-time	Full-time
	34.58	35.64	35.13

Gender:	Male	Female
	33.94	36.25

	Gender	
Attendance	Male	Female
None	31.00	37.71
Part-time	37.59	33.50
Full-time	33.17	37.08

fore, there were no statistically significant differences among or between the groups on the basis of the frequency of preschool attendance or gender alone. However, on the basis of the means shown in Tables 11 and 12, it may be concluded that those females who had not attended preschool had better reading and total comprehension scores than did males who had attended on a full-time basis. Also, females who had attended on a full-time basis had better scores than did males who had not attended preschool.

Question Six

The interaction of the type of reading program used and gender was not significantly related to any measure of reading achievement, classroom behavior, self-concept, or reading attitude, as shown in Table D-1 in Appendix D. The obtained F-ratios ranged from .06 to 1.39, which had significance levels which ranged from .80 to .24. None were statistically significant at the .05 level of significance. Therefore, there were no statistically significant differences among the variances of the subjects across types of reading programs used and gender. Therefore, the assumed null hypothesis was not rejected.

Question Seven

The interaction of the type of reading program used, gender, and frequency of preschool attendance was significantly related to only the Auditory Vocabulary subtest of the reading achievement measure, as shown in Table 13. The obtained F-ratio of 4.20 was significant beyond the .05 level of significance. The obtained F-ratios for the remaining measures of reading achievement, classroom behavior, self-concept, and reading attitude ranged from .01 to 1.75. The levels of significance ranged from

TABLE 12

Mean Total Comprehension Scores by Frequency of Preschool Attendance and Gender

Preschool Attendance:	None	Part-time	Full-time
	66.13	70.80	67.92

Gender:	Male	Female
	66.28	70.12

	Gender	
Attendance	Male	Female
None	60.71	70.88
Part-time	74.32	66.74
Full-time	63.79	72.04

TABLE 13

Summary Table of Factorial Analysis of Variance of Scores by Gender, Preschool Attendance, and Reading Program

Variable	Source	df	SS	MS	F	Sig. of F
Aud. Disc.[1]						
	Gender	1	7.07	7.07	.43	.51
	P.S. Att.[2]	2	16.14	8.07	.49	.61
	Rdg. Pro.[3]	1	135.42	135.42	8.29	.00*
	Gender by Rdg. Pro.	1	.82	.82	.05	.82
	Gender by P.S. Att.	2	22.65	11.32	.69	.50
	Rdg. Pro. by P.S. Att.	2	4.89	2.44	.15	.86
	Gender by Rdg. Pro. by P.S. Att.	2	52.54	26.27	1.61	.20
Aud. Voc.[4]						
	Gender	1	.13	.13	.00	.93
	P.S. Att.	2	28.81	14.40	.78	.46
	Rdg. Pro.	1	39.10	39.10	2.12	.14
	Gender by Rdg. Pro.	1	21.38	21.38	1.16	.28
	Gender by P.S. Att.	2	82.45	41.22	2.22	.11
	Rdg. Pro. by P.S. Att.	2	150.05	75.02	4.07	.01*
	Gender by Rdg. Pro. by P.S. Att.	2	155.26	77.63	4.20	.01*
Ph. Anal.[5]						
	Gender	1	.99	.99	.04	.83
	P.S. Att.	2	14.45	7.22	.32	.72
	Rdg. Pro.	1	41.95	41.95	1.90	.17
	Gender by Rdg. Pro.	1	1.98	1.98	.09	.76
	Gender by P.S. Att.	2	37.77	18.88	.85	.42
	Rdg. Pro. by P.S. Att.	2	30.56	15.28	.69	.50
	Gender by Rdg. Pro. by P.S. Att.	2	45.12	22.56	1.02	.36
Wd. Rdg.[6]						
	Gender	1	88.21	88.21	1.19	.27
	P.S. Gender	2	269.31	134.65	1.82	.16

TABLE 13 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Wd. Rdg. (cont.)						
	Rdg. Pro.	1	219.90	219.90	2.98	.08
	Gender by Rdg. Pro.	1	11.81	11.81	.16	.69
	Gender by P.S. Att.	2	390.33	195.16	2.64	.07
	Rdg. Pro. by P.S. Att.	2	143.42	71.71	.97	.38
	Gender by Rdg. Pro. by P.S. Att.	2	212.39	106.19	1.44	.24
Rdg. Comp.[7]						
	Gender	1	185.21	185.21	1.92	.16
	P.S. Att.	2	28.36	14.18	.14	.86
	Rdg. Pro.	1	31.63	31.63	.32	.56
	Gender by Rdg. Pro.	1	1.72	1.72	.01	.89
	Gender by P.S. Att.	2	687.21	343.60	3.56	.03*
	Rdg. Pro. by P.S. Att.	2	87.42	43.71	.45	.68
	Gender by Rdg. Pro. by P.S. Att.	2	189.39	94.69	.98	.37
Tot. Comp.[8]						
	Gender	1	547.66	547.66	1.74	.18
	P.S. Att.	2	489.86	244.93	.78	.46
	Rdg. Pro.	1	432.73	432.73	1.38	.24
	Gender by Rdg. Pro.	1	23.42	23.42	.07	.78
	Gender by P.S. Att.	2	2031.00	1015.50	3.24	.04*
	Rdg. Pro. by P.S. Att.	2	419.10	209.55	.66	.51
	Gender by Rdg. Pro. by P.S. Att.	2	767.66	383.83	1.22	.29
Class Beh.[9]						
	Gender	1	342.47	342.47	2.70	.10
	P.S. Att.	2	301.79	150.89	1.18	.30
	Rdg. Pro.	1	3169.58	3169.58	24.98	.00*
	Gender by Rdg. Pro.	1	10.89	10.89	.08	.77

TABLE 13 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Class Beh. (Cont.)						
	Gender by P.S. Att.	2	523.95	261.97	2.06	.13
	Rdg. Pro. by P.S. Att.	2	154.36	77.18	.60	.54
	Gender by Rdg. Pro. by P.S. Att.	2	444.09	222.04	1.75	.17
Self-Con.[10]						
	Gender	1	1.49	1.49	.22	.64
	P.S. Att.	2	18.58	9.29	1.36	.25
	Rdg. Pro.	1	108.41	108.41	15.97	.00*
	Gender by Rdg. Pro.	1	7.55	7.55	1.11	.29
	Gender by P.S. Att.	2	2.30	1.15	.17	.84
	Rdg. Pro. by. P.S. Att.	2	1.66	.83	.12	.88
	Gender by Rdg. Pro. by P.S. Att.	2	14.16	7.08	1.04	.35
Rdg. Att.[11]						
	Gender	1	57.26	57.26	.55	.45
	P.S. Att.	2	613.89	306.94	2.96	.05*
	Rdg. Pro.	1	3.55	3.55	.03	.85
	Gender by Rdg. Pro.	1	45.16	45.16	.43	.51
	Gender by P.S. Att.	2	301.06	150.53	1.45	.23
	Rdg. Pro by P.S. Att.	2	272.06	136.03	1.31	.27
	Gender by Rdg. Pro. by P.S. Att.	2	2.96	1.48	.01	.98

*$p \leq .05$

[1] - Auditory Discrimination subtest
[2] - Preschool Attendance
[3] - Reading Program
[4] - Auditory Vocabulary subtest
[5] - Phonetic Analysis subtest
[6] - Word Reading subtest
[7] - Reading Comprehension subtest
[8] - Total Comprehension subtest

TABLE 13 (Cont.)

[9] - Classroom Behavior Rating Scale
[10] - Self-Concept Screening Test
[11] - Reading Attitude Scale

.98 to .17, none of which reached the required level. Therefore, there were statistically significant differences among the variances of the subjects across reading programs used, gender, and frequency of preschool attendance on the Auditory Vocabulary subtest only. The assumed null hypothesis was rejected for the Auditory Vocabulary subtest only.

The main effects of the type of reading program, gender, and frequency of preschool attendance were also assessed. The obtained F-ratios were 2.12, .00, and .78, respectively, none of which reached the required .05 level of statistical significance.

Three one-way analyses of variance were done to identify the source of the statistical significance revealed by the factorial analysis of variance. As previously shown in Table 1, the effect of preschool attendance on auditory vocabulary was not statistically significant at the required .05 level. Table 3 also showed that the effect of the type of reading programs was not statistically significant. Finally, as shown in Table 7, the effect of gender also failed to reach the required level of statistical significance. Therefore, there were no statistically significant differences between or among the groups on the basis of the type of reading program used, gender, or frequency of preschool attendance alone. However, on the basis of the means shown in Table 14, it may be concluded that females who had attended full-time preschool and used the Bookmark program had better Auditory Vocabulary scores than did males who had not attended preschool and used the Open Court-Headway program.

Question Eight

Socioeconomic status was found to be significantly related to the Auditory Vocabulary, Phonetic Analysis, and Word Reading subtests of the

TABLE 14

Mean Auditory Vocabulary Scores by Reading Program, Gender, and Frequency of Preschool Attendance

Preschool Attendance:	None	Part-time	Full-time
	26.04	26.76	27.15

Reading Program:	Open Court Headway	Bookmark
	27.17	26.09

Gender:	Male	Female
	26.70	26.62

Attend.	No Pre-School		Part-time		Full-time	
Gender	Males	Females	Males	Females	Males	Females
Program						
OC-H	26.73	26.58	28.84	27.92	27.33	25.58
B	25.80	25.08	26.20	22.63	25.08	30.58

reading achievement measure, as well as to Classroom Behavior, as shown on Table 15. Those who were from low or middle socioeconommic status backgrounds did not have significantly different scores on Auditory Discrimination, Reading Comprehension, Total Comprehension, Self-Concept, or Reading Attitude measures, than did those who were from high status backgrounds, as indicated by the multiple one-way analyses of variance (Appendix C-4). The obtained F-ratios of 7.69, 3.72, 3.43, and 8.29, respectively, were all statistically significant beyond the .05 level. The F-ratios for the remaining measures ranged from .33 to 1.62, none of which reached the required level of significance. Therefore, there were statistically significant differences among the groups across socioeconomic status on auditory vocabulary, phonetic analysis, word reading, and classroom behavior. The assumed null hypothesis was rejected for these four measures only.

As a result of the significant finding of an effect for socioeconomic status, post hoc comparisons were done to determine the locations of the statistical significance. As shown in Table 16, both the Scheffe and Duncan procedures revealed that those children from low socioeconomic status backgrounds had significantly lower auditory vocabulary scores than did children from either middle or high socioeconomic status backgrounds. In addition, those children from low socioeconomic status backgrounds had significantly lower phonetic analysis and word reading scores than did those children from high status backgrounds, as revealed by both the Scheffe and Duncan procedures shown in Tables 17 and 18, respectively. Finally, as shown in Table 19, both the Scheffe and Duncan procedures revealed that those children from middle and high socioeconomic

TABLE 15

Summary of the Effects[1] of Socioeconomic Status

Variable	df	F	Significance of F
Reading Achievement			
Auditory Discrim.	84	2.75	.06
Auditory Vocab.	84	7.69	.00*
Phonetic Analysis	84	3.72	.02*
Word Reading	84	3.43	.03*
Reading Comp.	84	1.62	.20
Total Comp.	84	2.51	.08
Classroom Behavior			
Teacher Rating Scale	84	8.29	.00*
Self-Concept			
Joseph Test	84	.33	.71
Reading Attitude			
Heathington	84	.37	.68

*$p \leq .05$

[1] - Taken from one-way analysis of variance Tables C-4 in Appendix C

TABLE 16

Summary Data and Post Hoc Comparisons of Auditory Vocabulary Scores by Socioeconomic Status

Count	Mean	S.D.	Group	Group 1	Group 2	Group 3
28	24.46	3.93	1			
26	28.26	3.94	2	*		
31	27.96	4.18	3	*		

* - Pairs of groups significantly different at the .05 level, according to the Scheffe Test, where:

Group 1 - low socioeconomic status

Group 2 - middle socioeconomic status

Group 3 - high socioeconomic status

TABLE 17

Summary Data and Post Hoc Comparisons of Phonetic Analysis Scores by Socioeconomic Status

Count	Mean	S.D.	Group	Group 1	Group 2	Group 3
28	34.39	4.49	1			
26	35.57	5.25	2			
31	37.32	2.42	3	*		

* - Pairs of groups significantly different at the .05 level, according to the Scheffe and Duncan tests, where:

Group 1 - low socioeconomic status

Group 2 - middle socioeconomic status

Group 3 - high socioeconomic status

TABLE 18

Summary Data and Post Hoc Comparisons of Word Reading Scores by Socioeconomic Status

Count	Mean	S.D.	Group	Group 1	Group 2	Group 3
28	30.53	10.88	1			
26	33.03	8.51	2			
31	36.16	4.44	3	*		

* - Pairs of groups significantly different at the .05 level, according to the Scheffe and Duncan Tests, where:

Group 1 - low socioeconomic status

Group 2 - middle socioeconomic status

Group 3 - high socioeconomic status

TABLE 19

Summary Data and Post Hoc Comparisons of Classroom Behavior Scores by Socioeconomic Status

Count	Mean	S.D.	Group	Group 1	Group 2	Group 3
28	74.78	16.88	1			
26	84.65	8.47	2	*		
31	86.16	6.51	3	*		

* - Pairs of groups significantly different at the .05 level, according to the Scheffe and Duncan tests, where:

Group 1 - low socioeconomic status

Group 2 - middle socioeconomic status

Group 3 - high socioeconomic status

status backgrounds had significantly better classroom behavior than did children from low socioeconomic backgrounds.

Question Nine

The level of intelligence was found to be significantly related to Auditory Discrimination, Auditory Vocabulary, Phonetic Analysis, Word Reading, Reading Comprehension, Total Comprehension, and Classroom Behavior, as shown in Table 20. Those who had average or above average levels of intelligence did not have significantly different scores on self-concept or reading attitude measures than did those who had superior levels of intelligence as indicated by the multiple one-way analyses of variance (Appendix C-5). The obtained F-ratios for these measures ranged from 4.13 to 13.29, which were all statistically significant beyond the .05 level. For the two remaining measure, the obtained F-ratios failed to reach the required level of statistical significance. Therefore, there were statistically significant differences among groups of children across levels of intelligence, on measures of auditory discrimination, auditory vocabulary, phonetic analysis, word reading, reading comprehension, total comprehension, and classroom behavior. The assumed null hypothesis was rejected for these measures.

Post hoc comparisons were then done. As shown in Table 21, the Scheffe procedure indicated that there were statistically significant differences in the auditory discrimination scores of those children whose intelligence was in the superior range and those in the average range. There were also statistically significant differences in the auditory vocabulary scores of those in the average and above average ranges of intelligence, and in the average and superior ranges, as shown by the

TABLE 20

Summary of the Effects[1] of Intelligence

Variable	df	F	Significance of F
Reading Achievement			
Auditory Discrim.	134	4.13	.01*
Auditory Vocab.	134	13.29	.00*
Phonetic Analysis	134	5.01	.00*
Word Reading	134	5.97	.00*
Reading Comp.	134	7.73	.00*
Total Comp.	134	7.59	.00*
Classroom Behavior			
Teacher Rating Scale	134	5.09	.00*
Self-Concept			
Joseph Test	134	1.62	.19
Reading Attitude			
Heathington	134	.78	.46

*$p \leq .05$

[1] - Taken from one-way analysis of variance Summary Table C-5 in Appendix C

TABLE 21

Summary Data and Post Hoc Comparisons of Auditory Discrimination Scores by Level of Intelligence

Count	Mean	S.D.	Group	Group 1	Group 2	Group 3
62	33.58	4.76	1			
28	35.07	3.62	2			
45	35.77	2.95	3	*		

* - Pair of groups significantly different at the .05 level, according to the Scheffe Test, where:

Group 1 - Average level of intelligence (90-109)

Group 2 - Above average level of intelligence (110-119)

Group 3 - Superior level of intelligence (120 and above)

Scheffe and Duncan procedures in Table 22. In addition, statistically significant differences in the phonetic analysis scores of those whose level of intelligence was in the superior range and those in the average range were shown by the Scheffe and Duncan procedures in Table 23. Also shown in Table 18 was another result of the Duncan post hoc procedure. There were statistically significant differences in the phonetic analysis scores of those whose level of intelligence was in the average and above average ranges. Also, statistically significant differences in the word reading scores were shown in Table 24. According to the Scheffe and Duncan procedures, those whose level of intelligence was in the superior range had significantly higher word reading scores than did those whose level of intelligence was in the average range. The Duncan procedure also revealed that those whose level of intelligence was in the above average range had significantly higher word reading scores than did those whose level of intelligence was in the average range.

Several other post hoc comparisons were also done. As shown in Table 25 and 26, the Scheffe procedure revealed that those whose levels of intelligence were in the above average and superior ranges had significantly better reading comprehension and total comprehension scores, respectively, than did children whose level of intelligence was in the average range. The Scheffe procedure shown in Table 27 revealed that those whose level of intelligence was in the superior range had significantly better classroom behavior than did children whose level of intelligence was in the average range.

Question Ten

Socioeconomic status did not interact with the level of intelli-

TABLE 22

Summary Data and Post Hoc Comparisons of Auditory Vocabulary Scores by Level of Intelligence

Count	Mean	S.D.	Group	Group 1	Group 2	Group 3
62	24.66	4.19	1			
28	28.10	4.66	2	*		
45	28.51	3.76	3	*		

* - Pairs of groups significantly different at the .05 level, according to the Scheffe Test, where:

Group 1 - Average level of intelligence (90-109)

Group 2 - Above average level of intelligence (110-119)

Group 3 - Superior level of intelligence (120 and above)

TABLE 23

Summary Data and Post Hoc Comparisons of Phonetic Analysis Scores by Level of Intelligence

Count	Mean	S.D.	Group	Group 1	Group 2	Group 3
62	34.25	4.91	1			
28	36.39	4.39	2	**		
45	36.88	3.94	3	*		

* - Pairs of groups significantly different at the .05 level, according to the Scheffe test

** - Additional pairs of groups significantly different at the .05 level, according to the Duncan test, where:

Group 1 - Average level of intelligence (90-109)

Group 2 - Above average level of intelligence (110-119)

Group 3 - Superior level of intelligence (120 and above)

TABLE 24

Summary Data and Post Hoc Comparisons of Word Reading Scores by Level of Intelligence

Count	Mean	S.D.	Group	Group 1	Group 2	Group 3
62	30.37	9.04	1			
28	34.96	9.23	2	**		
45	35.71	7.19	3	*		

* - Pairs of groups significantly difference at the .05 level, according to the Scheffe Test

** - Additional pairs of groups significantly different at the .05 level, according to the Duncan test, where:

Group 1 - Average level of intelligence (90-109)

Group 2 - Above average level of intelligence (110-119)

Group 3 - Superior level of intelligence (120 and above)

TABLE 25

Summary Data and Post Hoc Comparisons of Reading Comprehension Scores by Level of Intelligence

Count	Mean	S.D.	Group	Group 1	Group 2	Group 3
62	31.66	9.32	1			
28	37.50	9.81	2	*		
45	38.35	9.29	3	*		

* - Pairs of groups significantly different at the .05 level, according to the Scheffe Test, where:

Group 1 - Average level of intelligence (90-109)

Group 2 - Above average level of intelligence (110-119)

Group 3 - Superior level of intelligence (120 and above)

TABLE 26

Summary Data and Post Hoc Comparisons of Total Comprehension Scores by Level of Intelligence

Count	Mean	S.D.	Group	Group 1	Group 2	Group 3
61	61.91	17.39	1			
28	72.46	18.46	2	*		
45	74.06	15.90	3	*		

* - Pairs of groups significantly different at the .05 level, according to the Scheffe Test, where:

Group 1 - Average level of intelligence (90-109)

Group 2 - Above average level of intelligence (110-119)

Group 3 - Superior level of intelligence (120 and above)

TABLE 27

Summary Data and Post Hoc Comparisons of Classroom Behavior by Level of Intelligence

Count	Mean	S.D.	Group	Group 1	Group 2	Group 3
62	79.43	13.70	1			
28	85.21	8.42	2			
45	85.51	6.88	3	*		

* - Pairs of groups significantly different at the .05 level, according to the Scheffe Test, where:

Group 1 - Average level of intelligence (90-109)

Group 2 - Above average level of intelligence (110-119)

Group 3 - Superior level of intelligence (120 and above)

gence to a statistically significant degree, and was not related to reading achievement, classroom behavior, self-concept, or reading attitude. As shown in Table D-2 in Appendix D, the obtained F-ratios ranged from .21 to 2.10. None reached the required .05 level of statistical significance. There were no statistically significant differences among the variances of the subjects across socioeconomic status and level of intelligence on measures of reading achievement, classroom behavior, self-concept, or reading attitude. The assumed null hypothesis was not rejected.

Question Eleven

The frequency of preschool attendance did not significantly interact with the level of intelligence, and was not related to reading achievement, classroom behavior, self-concept, and reading achievement. As shown in Table D-3 in Appendix D, the obtained F-ratios ranged from .08 to .92. None of these reached the required level of statistical significance. There were no statistically significant differences among the variances of the subjects across socioeconomic status and level of intelligence on measures of reading achievement, classroom behavior, self-concept, or reading attitude. The assumed null hypothesis was not rejected.

Question Twelve

The reading program used did significantly interact with the level of intelligence, and was related to only classroom behavior. As shown in Table 28, the obtained F-ratio of 4.05 was statistically significant beyond the required .05 level. There were statistically significant differences among the variances of the subjects across reading programs and level of intelligence on a measure of classroom behavior. The assumed null hypothesis was rejected for classroom behavior.

TABLE 28

Summary Table of Factorial Analysis of Variance of Scores by Level of Intelligence and Reading Program

Variable	Source	df	SS	MS	F	Sig. of F
Aud. Disc.[1]						
	IQ[2]	2	202.47	101.23	6.97	.00
	Rdg. Pro.[3]	1	210.18	210.18	14.48	.00*
	IQ by Rdg. Pro.	2	38.88	19.44	1.34	.26
Aud. Voc.[4]						
	IQ	2	535.06	267.53	16.03	.00*
	Rdg. Pro.	1	113.47	113.47	6.80	.01*
	IQ by Rdg. Pro.	2	20.57	10.29	.61	.54
Phon. Anal.[5]						
	IQ	2	254.04	127.02	6.41	.00*
	Rdg. Pro.	1	95.23	95.23	4.80	.03*
	IQ by Rdg. Pro.	2	35.10	17.55	.88	.41
Wd. Rdg.[6]						
	IQ	2	1102.42	551.21	7.88	.00*
	Rdg. Pro.	1	486.03	486.03	6.90	.00*
	IQ by Rdg. Pro.	2	65.74	32.87	.47	.62
Rdg. Comp.[7]						
	IQ	2	1518.54	759.27	8.59	.00*
	Rdg. Pro.	1	182.83	182.83	2.07	.15
	IQ by Rdg. Pro.	2	123.55	61.77	.69	.49
Tot. Comp.[8]						
	IQ	2	5228.87	2614.44	9.07	.00*
	Rdg. Pro.	1	1237.74	1237.74	4.29	.04*
	IQ by Rdg. Pro.	2	358.26	179.13	.62	.53
Class Beh.[9]						
	IQ	2	897.10	448.55	3.73	.02*
	Rdg. Pro.	1	2348.88	2348.88	19.55	.00*
	IQ by Rdg. Pro.	2	973.22	486.61	4.05	.02*

TABLE 28 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Self-Con.[10]						
	IQ	2	39.20	19.60	3.00	.05*
	Rdg. Pro.	1	130.95	130.95	20.15	.00*
	IQ by Rdg. Pro.	2	3.11	1.55	.23	.78
Rdg. Att.[11]						
	IQ	2	183.10	91.55	.86	.42
	Rdg. Pro.	1	21.59	21.59	.20	.65
	IQ by Rdg. Pro.	2	213.63	106.81	1.00	.36

*$p \leq .05$

1 - Auditory Discrimination subtest
2 - Level of Intelligence
3 - Reading Program
4 - Auditory Vocabulary subtest
5 - Phonetic Analysis subtest
6 - Word Reading subtest
7 - Reading Comprehension subtest
8 - Total Comprehension Score
9 - Classroom Behavior Rating Scale
10 - Self-Concept Test
11 - Reading Attitude Scale

However, the assumed null hypothesis was not rejected for measures of reading achievement, self-concept, or reading attitude. As shown in the same Table 28, the obtained F-ratios for these measures ranged from .23 to 1.34. None reached the required .05 level of statistical significance. There were no statistically significant differences among the variances of the subjects across reading programs and level of intelligence on measures of reading achievement, self-concept, and reading attitude.

The main effects of the type of reading program used and level of intelligence on classroom behavior were also assessed. As shown in Table 28, the main effects of both the type of reading program and level of intelligence were statistically significant, with the former being more so than the latter. These findings of significant effects for reading programs and level of intelligence were consistent with the earlier findings shown in Table 3 and 20. On the basis of the findings reported in Table 29, it may be concluded that those who had used the Bookmark reading program and whose level of intelligence was in the superior, above average, or average range had significantly better classroom behavior than did children who had used the Open Court-Headway Program and whose level of intelligence was in the average range.

Question Thirteen

The level of intelligence significantly interacted with gender only for self-concept, as shown in Table 30. The obtained F-ratio of 2.94 was statistically significant at the .05 level. Therefore, there were statistically significant differences among the variances of the subjects across gender and level of intelligence on a measure of self-concept.

TABLE 29

Mean Classroom Behavior Scores by Reading Program and Level of Intelligence

Reading Program:	Open Court-Headway		Bookmark
	77.72		87.23
Level of Intelligence:	Average	Above Average	Superior
	78.49	85.21	85.51

	Reading Program	
Intell. Level	OC-H	B
Aver. (90-109)	73.17	87.74
Above Aver. (110-119)	83.50	86.93
Sup. (120 and above)	83.33	86.96

TABLE 30

Summary Table of Factorial Analysis of Variance of Scores by Gender and Level of Intelligence

Variable	Source	df	SS	MS	F	Sig. of F
Aud. Disc.[1]						
	Gender	1	1.23	1.23	.07	.78
	IQ[2]	2	127.29	63.64	3.98	.02*
	Gender by IQ	2	57.94	28.97	1.81	.16
Aud. Voc.[3]						
	Gender	1	4.39	4.39	.25	.61
	IQ	2	464.67	232.33	13.31	.00*
	Gender by IQ	2	30.06	15.03	.86	.42
Phon. Anal.[4]						
	Gender	1	.50	.50	.02	.87
	IQ	2	203.27	101.63	4.99	.00
	Gender by IQ	2	55.33	27.66	1.35	.26
Wd. Rdg.[5]						
	Gender	1	155.98	155.98	2.17	.14
	IQ	2	944.93	472.46	6.57	.00*
	Gender by IQ	2	143.15	71.57	.99	.37
Rdg. Comp.[6]						
	Gender	1	327.41	327.41	3.79	.05*
	IQ	2	1518.72	759.36	8.80	.00*
	Gender by IQ	2	253.75	126.87	1.47	.23
Tot. Comp.[7]						
	Gender	1	908.12	908.12	3.16	.07
	IQ	2	4880.42	2440.21	8.49	.00*
	Gender by IQ	2	792.84	396.42	1.37	.25
Class. Beh.[8]						
	Gender	1	510.04	510.04	3.60	.06
	IQ	2	1796.62	898.31	6.34	.00*
	Gender by IQ	2	23.38	11.69	.08	.92
Self-Con.[9]						
	Gender	1	1.43	1.43	.19	.65
	IQ	2	21.91	10.95	1.52	.22
	Gender by IQ	2	42.41	21.20	2.94	.05*
Rdg. Att.[10]						
	Gender	1	99.26	99.26	.9	.33
	IQ	2	200.93	100.46	.95	.38
	Gender by IQ	2	236.16	118.08	1.12	.32

TABLE 30 (Cont.)

*$p \leq .05$

[1] - Auditory Discrimination subtest
[2] - Level of Intelligence
[3] - Reading Program
[4] - Auditory Vocabulary subtest
[5] - Phonetic Analysis subtest
[6] - Word Reading subtest
[7] - Reading Comprehension subtest
[8] - Total Comprehension Score
[9] - Classroom Behavior Rating Scale
[10] - Self-Concept Test
[11] - Reading Attitude Scale

The assumed null hypothesis was rejected for self-concept only.

However, for the measures of reading achievement, classroom behavior, and reading attitude, the assumed null hypothesis was not rejected. As indicated in Table 30, the factorial analysis of variance resulted in F-ratios which ranged from .08 to 1.81. None reached the required .05 level of statistical significance. Therefore, there were no statistically significant differences among the variances of the subjects across levels of intelligence and gender on measures of reading achievement, classroom behavior, and reading attitude.

The main effects of intelligence and gender on self-concept were also assessed. As indicated in Table 30, the respective F-ratios of 1.52 and .19 were not statistically significant at the required .05 level.

The results of the one-way analyses of variance reported earlier also failed to indicate the source of the statistical significance in terms of the self-concept measure. As shown in Tables 7 and 20, the separate effects of gender and intelligence, respectively, on self-concept were not statistically significant. Therefore, there were no statistically significant differences in the self-concept scores among the groups on the basis of gender or level of intelligence alone. However, on the basis of Table 31, it may be concluded that males of above average intelligence had better self-concept scores than did females of superior intelligence.

Question Fourteen

The frequency of preschool attendance interacted with socioeconomic status. This interaction was statistically significant for only the Auditory Discrimination and Word Reading subtests. As shown in Table 32,

TABLE 31

Mean Self-Concept Scores by Gender and Level of Intelligence

Gender:	Male	Female		
	26.71	26.49		
Level of Intelligence:		Average	Above Average	Superior
		26.25	27.32	26.62

	Gender	
Intell. Level	Male	Female
Aver. (90-109)	25.71	26.69
Above Aver. (110-119)	27.77	26.93
Sup. (120 and above)	27.22	25.72

TABLE 32

Summary Table of Factorial Analysis of Variance of Scores by Socioeconomic Status and Preschool Attendance

Variable	Source	df	SS	MS	F	Sig. of F
Aud. Disc.[1]						
	SES[2]	2	81.21	40.60	3.19	.04*
	P.S. Att.[3]	2	36.61	18.30	1.44	.24
	SES by P.S. Att.	4	204.00	51.00	4.01	.00*
Aud. Voc.[4]						
	SES	2	250.20	125.10	7.71	.00*
	P.S. Att.	2	70.58	35.29	2.17	.12
	SES by P.S. Att.	4	30.10	7.52	.46	.76
Phon. Anal.[5]						
	SES	2	128.55	64.27	3.83	.02*
	P.S. Att.	2	24.26	12.13	.72	.48
	SES by P.S. Att.	4	115.91	28.97	1.72	.15
Wd. Rdg.[6]						
	SES	2	469.29	234.64	3.92	.19
	P.S. Att.	2	431.50	215.75	3.60	.03*
	SES by P.S. Att.	4	625.01	156.25	2.61	.04*
Rdg. Comp.[7]						
	SES	2	331.31	165.66	1.66	.19
	P.S. Att.	2	236.78	118.39	1.19	.30
	SES by P.S. Att.	4	577.79	144.44	1.45	.22
Tot. Comp.[8]						
	SES	2	1536.23	768.11	2.71	.07
	P.S. Att.	2	1245.28	622.64	2.19	.11
	SES by P.S. Att.	4	2318.81	579.70	2.04	.09
Class. Beh.[9]						
	SES	2	2177.01	1088.51	7.88	.00*
	P.S. Att.	2	129.97	64.98	.47	.62
	SES by P.S. Att.	4	137.56	34.39	.24	.90
Self-Con.[10]						
	SES	2	5.43	2.71	.34	.70
	P.S. Att.	2	16.43	8.46	1.08	.34

TABLE 32 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Self-Con.	(cont.)					
	SES by P.S. Att.	4	56.53	14.13	1.81	.13
Rdg. Att.[11]						
	SES	2	66.17	33.08	.39	.67
	P.S. Att.	2	254.24	127.12	1.51	.22
	SES by P.S. Att.	4	576.82	144.20	1.72	.15

*$p \leq .05$

[1] - Auditory Discrimination subtest
[2] - Level of Intelligence
[3] - Reading Program
[4] - Auditory Vocabulary subtest
[5] - Phonetic Analysis subtest
[6] - Word Reading subtest
[7] - Reading Comprehension subtest
[8] - Total Comprehension Score
[9] - Classroom Behavior Rating Scale
[10] - Self-Concept Test
[11] - Reading Attitude Scale

the obtained F-ratios of 4.01 and 2.61, respectively, were statistically significant at the required .05 level of significance. Therefore, there were statistically significant differences in the Auditory Discrimination and Word Reading subtest scores across frequencies of preschool attendance and levels of socioeconomic status. The assumed null hypothesis was rejected for these two reading achievement subtests.

The assumed null hypothesis was not rejected for the seven remaining measures of reading achievement, classroom behavior, self-concept, and reading achievement. There were no statistically significant differences in these scores across frequencies of preschool attendance and levels of socioeconomic status. As shown in Table 32, the F-ratios ranged from .24 to 2.04, none of which reached the required .05 level of significance.

The main effects of the frequency of preschool attendance and levels of socioeconomic status were also assessed. As shown in Table 32, the main effect of socioeconomic status was statistically significant for Classroom Behavior, Auditory Discrimination, Auditory Vocabulary, Phonetic Analysis, and Word Reading subtests. In addition, this same Table also showed a statistically significant main effect for the frequency of preschool attendance on the Word Reading subtest scores. However, a review of Tables 1 and 15 shown previously failed to disclose the location of the statistical significance of the frequency of preschool attendance on auditory discrimination and word reading, and of the level of socioeconomic status on auditory discrimination.

This same Table 15 also showed that there were statistically significant differences in the word reading scores among the groups on the

basis of socioeconomic status. The post hoc comparisons previously shown in Table 18 revealed that children from lower socioeconomic status backgrounds had significantly lower Word Reading subtest scores than did children from high status backgrounds.

The source of the statistical significance of the interaction of socioeconomic status and preschool attendance on Auditory Discrimination and Word Reading subtests was shown in Table 33. Those who had attended preschool on a part-time basis and were from a middle status background had better auditory discrimination scores than did those who had not attended preschool and were from a low status background. In addition, those who had attended preschool on a full-time basis and were from a high status background had better word reading scores than did those who had not attended preschool and were from a low status background.

Question Fifteen

The reading program used significantly interacted with the level of socioeconomic status only in terms of classroom behavior. As shown in Table 34, the obtained F-ratio of 5.33 was statistically significant beyond the required .05 level of significance. There were statistically significant differences among the groups in classroom behavior across types of reading programs and levels of socioeconomic status. The assumed null hypothesis was rejected for classroom behavior only.

It was not rejected for reading achievement, self-concept, or reading attitude. As shown in Table 34, the obtained F-ratios ranged from .06 to 1.49, none of which reached the required .05 level of significance. Therefore, there were no statistically significant differences in the variances of the subjects across levels of socioeconomic status and

TABLE 33

Mean Auditory Discrimination and Word Reading Scores by Socioeconomic Status and Preschool Attendance

	Auditory Discrim.			Word Reading		
SES:	Low	Middle	High	Low	Middle	High
	33.43	34.54	35.77	30.54	33.04	36.16

Attend:					
None	Part-time	Full-time	None	Part-time	Full-time
33.63	35.18	35.15	30.10	34.91	35.24

	SES			SES		
	Low	Middle	High	Low	Middle	High
Attend.						
None	30.75	33.75	37.00	23.75	31.13	36.90
Part-time	35.33	37.20	34.18	34.50	35.20	35.00
Full-time	35.50	34.00	36.30	36.30	33.38	36.70

TABLE 34

Summary Table of Factorial Analysis of Variance of Scores by Socioeconomic Status and Reading Program

Variable	Source	df	SS	MS	F	Sig. of F
Aud. Disc.[1]						
	SES[2]	2	124.55	62.27	4.47	.01*
	Rdg. Pro.[3]	1	73.11	73.11	5.24	.02*
	SES by Rdg. Pro.	2	41.55	20.77	1.49	.23
Aud. Voc.[4]						
	SES	2	206.92	103.46	6.35	.00*
	Rdg. Pro.	1	5.70	5.70	.35	.55
	SES by Rdg. Pro.	2	38.44	19.22	1.81	.31
Phon. Anal.[5]						
	SES	2	134.71	67.35	3.80	.02*
	Rdg. Pro.	1	15.44	15.44	.87	.35
	SES by Rdg. Pro.	2	2.13	1.06	.06	.94
Wd. Rdg.[6]						
	SES	2	589.77	294.88	4.34	.01*
	Rdg. Pro.	1	158.17	158.17	2.33	.13
	SES by Rdg. Pro.	2	92.43	46.21	.68	.50
Rdg. Comp.[7]						
	SES	2	334.39	167.19	1.58	.21
	Rdg. Pro.	1	.03	.03	.00	.98
	SES by Rdg. Pro.	2	34.23	17.11	.76	.85
Tot. Comp.[8]						
	SES	2	1780.18	890.09	2.84	.06
	Rdg. Pro.	1	162.69	162.69	.52	.47
	SES by Rdg. Pro.	2	222.35	111.17	.35	.70
Class. Beh.[9]						
	SES	2	947.59	473.79	4.47	.01*
	Rdg. Pro.	1	1464.28	1464.28	13.81	.00*
	SES by Rdg. Pro.	2	1129.88	564.94	5.33	.00*

TABLE 34 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Self-Con.[10]						
	SES	2	10.70	5.35	.73	.48
	Rdg. Pro.	1	85.13	85.13	11.69	.00*
	SES by Rdg. Pro.	2	7.05	3.52	.48	.61
Rdg. Att.[11]						
	SES	2	47.02	23.51	.26	.77
	Rdg. Pro.	1	37.98	37.98	.42	.51
	SES by Rdg. Pro.	2	20.20	10.10	.11	.89

*$p \leq .05$

[1] - Auditory Discrimination subtest
[2] - Level of Intelligence
[3] - Reading Program
[4] - Auditory Vocabulary subtest
[5] - Phonetic Analysis subtest
[6] - Word Reading subtest
[7] - Reading Comprehension subtest
[8] - Total Comprehension Score
[9] - Classroom Behavior Rating Scale
[10] - Self-Concept Test
[11] - Reading Attitude Scale

type of reading program on measures of reading achievement, self-concept, and reading attitude.

In addition to the statistical significance of the interaction effects, the significance of the main effects of the level of socioeconomic status and type of reading program used on classroom behavior were investigated. As shown in Table 34, the main effects of both the level of socioeconomic status and type of reading program were statistically significant. The obtained F-ratios of 4.47 and 13.81, respectively, were significant beyond the required .05 level. These results were consistent with the earlier ones shown in Tables 3, 6, 15, and 19.

On the basis of these results, and those shown in Table 35, a conclusion may be made. Those children who had used the Bookmark reading program and were from middle or higher socioeconomic status level backgrounds had significantly better classroom behavior than did children who had used the Open Court-Headway reading program and were from lower status backgrounds.

Question Sixteen

The interaction of gender and level of socioeconomic status was statistically significant for only the Auditory Vocabulary subtest of the reading achievement measure. The obtained F-ratio of 4.53 was statistically significant beyond the required .05 level, as shown in Table 36. There were statistically significant differences among the variances of the subjects on auditory vocabulary scores across gender and levels of socioeconomic status. The assumed null hypothesis was rejected for the auditory vocabulary section of the reading achievement instrument.

For the remaining subtests of reading achievement measure, as well

TABLE 35

Mean Classroom Behavior Scores by Socioeconomic Status and Reading Program

Reading Program	Open Court-Headway		Bookmark
	77.96		87.14
Socioeconomic Status	Low	Middle	High
	74.79	84.65	86.16
		SES	
Reading Program	Low	Middle	High
Open Court-Headway	68.84	81.00	86.00
Bookmark	87.33	87.79	86.36

TABLE 36

Summary Table of Factorial Analysis of Variance of Scores by Gender and Socioeconomic Status

Variable	Source	df	SS	MS	F	Sig. of F
Aud. Disc.[1]						
	SES[2]	2	79.58	39.79	2.70	.07
	Gender	1	.14	.14	.01	.92
	SES by Gender	2	43.95	21.97	1.49	.23
Aud. Voc.[3]						
	SES	2	225.69	112.84	7.45	.00*
	Gender	1	.25	.25	.01	.89
	SES by Gender	2	137.26	68.63	4.53	.01*
Phon. Anal.[4]						
	SES	2	138.59	69.29	4.03	.02*
	Gender	1	3.23	3.23	.18	.66
	SES by Gender	2	55.50	27.75	1.61	.20
Wd. Rdg.[5]						
	SES	2	554.71	272.35	4.01	.02*
	Gender	1	122.27	122.27	1.80	.18
	SES by Gender	2	138.01	69.00	1.01	.36
Rdg. Comp.[6]						
	SES	2	352.70	176.35	1.71	.18
	Gender	1	116.93	116.93	1.13	.29
	SES by Gender	2	142.20	71.10	.69	.50
Tot. Comp.[7]						
	SES	2	1741.69	870.84	2.84	.06
	Gender	1	478.35	478.35	1.56	.21
	SES by Gender	2	540.50	270.25	.88	.41
Class. Beh.[8]						
	SES	2	2027.81	1013.90	7.77	.00*
	Gender	1	232.41	232.41	1.78	.18
	SES by Gender	2	265.94	132.97	1.01	.36

TABLE 36 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Self-Con.[9]						
	SES	2	5.79	2.89	.34	.70
	Gender	1	3.66	3.66	.44	.50
	SES by Gender	2	6.19	3.09	.37	.69
Rdg. Att.[10]						
	SES	2	90.69	45.34	.50	.60
	Gender	1	13.55	13.55	.15	.69
	SES by Gender	2	106.06	53.03	.59	.55

*$p \leq .05$

[1] - Auditory Discrimination subtest
[2] - Socioeconomic Status
[3] - Auditory Vocabulary subtest
[4] - Phonetic Analysis subtest
[5] - Word Reading subtest
[6] - Reading Comprehension subtest
[7] - Total Comprehension subtest
[8] - Classroom Behavior Rating Scale
[9] - Self-Concept Test
[10] - Reading Attitude Scale

as the classroom behavior, self-concept, and reading attitude measures, the assumed null hypothesis was not rejected. The obtained F-ratios ranged from .37 to 1.61, none of which reached the required .05 level of statistical significance. There were no statistically significant differences among the variances of the subjects on auditory discrimination, phonetic analysis, word reading, reading comprehension, total comprehension score, classroom behavior, self-concept, and reading attitude, across gender and levels of socioeconomic status.

In addition to the interaction effects, the main effects of gender and level of socioeconomic status on auditory vocabulary were assessed. As shown in Table 36, only the main effects of the level of socioeconomic status was statistically significant. The obtained F-ratio of 7.45 was significant beyond the required .05 level. These findings were consistent with the ones reported in Tables 10, 15, and 32. Socioeconomic status appeared to contribute more than gender to the significant interaction of these variables to auditory vocabulary, with the higher levels having significantly better Auditory vocabulary scores. According to the results shown in Table 37, males who were from low status backgrounds had higher auditory vocabulary scores than did females from middle status backgrounds.

Question Seventeen

The frequency of preschool attendance, level of socioeconomic status, and type of reading program did not significantly interact to effect reading achievement, classroom behavior, self-concept, or reading attitude. As shown in Table D-4 Appendix D, the obtained F-ratios ranged from .33 to 2.13, none of which reached the required .05 level of statis-

TABLE 37

Mean Auditory Vocabulary Scores by Gender and Socioeconomic Status

SES	Low	Middle	High
	24.46	28.27	27.97
Gender	Male	Female	
	27.08	26.77	

	Gender	
SES	Male	Female
Low	23.55	25.06
Middle	26.78	29.06
High	29.53	26.07

tical significance. There were no statistically significant differences among the variances of the subjects on reading achievement, classroom behavior, self-concept, or reading attitude across frequency of preschool attendance, level of socioeconomic status, and type of reading program. The null hypothesis was not rejected.

Question Eighteen

The frequency of preschool attendance did not significantly interact with gender and level of intelligence to effect reading achievement, classroom behavior, self-concept, or reading attitude. As shown in Table D-5 in Appendix D, the obtained F-ratios ranged from .11 to 2.32. The significance of these F-ratios did not reach the required .05 level. Therefore, there were no statistically significant differences among the variances of the subjects on reading achievement, classroom behavior, self-concept, or reading attitude, across frequency of preschool attendance, gender, and level of intelligence. The assumed null hypothesis was not rejected.

Question Nineteen

The type of reading program did interact with gender and level of intelligence, and were significantly related to only self-concept. As shown in Table 38, the obtained F-ratio was 4.04, which was statistically significant beyond the required .05 level of significance. Therefore, there were statistically significant differences among the groups in their self-concept scores, across gender, types of reading programs, and levels of intelligence. The assumed null hypothesis was rejected for self-concept only.

In addition to the significance of the three-way interactions, the

TABLE 38

Summary Table of Factorial Analysis of Variance of Scores by Reading Program, Gender, and Level of Intelligence

Variable	Source	df	SS	MS	F	Sig. of F
Aud. Disc.[1]						
	IQ[2]	2	195.71	97.85	6.81	.00*
	Rdg. Pro.[3]	1	109.58	209.58	14.60	.00*
	Gender	1	.63	.63	.04	.83
	IQ by Rdg. Pro.	2	46.27	23.13	1.61	.20
	IQ by Gender	2	83.39	41.69	2.90	.05*
	Rdg. Pro. by Gender	1	2.35	2.35	.16	.68
	IQ by Rdg. Pro. by Gender	2	21.21	10.60	.73	.48
Aud. Voc.[4]						
	IQ	2	540.22	270.11	16.35	.00*
	Rdg. Pro.	1	114.50	114.50	6.93	.01*
	Gender	1	5.43	5.43	.32	.56
	IQ by Rdg. Pro.	2	28.49	14.24	.86	.42
	IQ by Gender	2	62.05	31.02	1.87	.15
	Rdg. Pro. by Gender	1	9.05	9.05	.54	.46
	IQ by Rdg. Pro. by Gender	2	44.21	22.10	1.33	.26
Ph. Anal.[5]						
	IQ	2	253.61	126.80	6.49	.00*
	Rdg. Pro.	1	95.58	95.58	4.89	.02*
	Gender	1	.85	.85	.04	.83
	IQ by Rdg. Pro.	2	42.93	21.46	1.10	.33
	IQ by Gender	2	109.74	54.87	2.81	.06
	Rdg. Pro. by Gender	1	12.72	12.72	.65	.42
	IQ by Rdg. Pro. by Gender	2	36.71	18.35	.94	.39
Wd. Rdg.[6]						
	IQ	2	1195.81	597.91	8.91	.00*
	Rdg. Pro.	1	498.43	498.43	7.43	.00*
	Gender	1	168.37	168.37	2.51	.11
	IQ by Rdg. Pro.	2	138.87	69.44	1.03	.35
	IQ by Gender	2	340.84	170.42	2.54	.08

TABLE 38 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Wd. Rdg. (cont.)						
	Rdg. Pro. by Gender	1	.27	.27	.00	.94
	IQ by Rdg. Pro. by Gender	2	250.58	125.29	1.86	.15
Rdg. Comp.[7]						
	IQ	2	1678.02	839.01	9.93	.00*
	Rdg. Pro.	1	193.82	193.82	2.29	.13
	Gender	1	338.40	338.40	4.00	.04*
	IQ by Rdg. Pro.	2	184.51	92.25	1.09	.33
	IQ by Gender	2	437.48	218.74	2.59	.07
	Rdg. Pro. by Gender	1	9.99	9.99	.11	.73
	IQ by Rdg. Pro. by Gender	2	237.25	118.62	1.40	.24
Tot. Comp.[8]						
	IQ	2	5703.20	2851.60	10.41	.00*
	Rdg. Pro.	1	1296.86	1296.86	4.73	.03*
	Gender	1	967.23	967.23	3.53	.06
	IQ by Rdg. Pro.	2	636.49	318.24	1.16	.31
	IQ by Gender	2	1544.53	772.27	2.82	.06
	Rdg. Pro. by Gender	1	12.08	12.08	.04	.83
	IQ by Rdg. Pro. by Gender	2	957.32	478.66	1.74	.17
Class Beh.[9]						
	IQ	2	1020.55	510.27	4.24	.01*
	Rdg. Pro.	1	2289.64	2289.64	19.06	.00*
	Gender	1	450.81	450.81	3.75	.05*
	IQ by Rdg. Pro.	2	1179.19	589.59	4.91	.00*
	IQ by Gender	2	.66	.33	.00	.99
	Rdg. Pro. by Gender	1	6.73	6.73	.05	.81
	IQ by Rdg. Pro. by Gender	2	47.32	23.66	.19	.82
Self-Con.[10]						
	IQ	2	38.32	19.16	3.14	.04*
	Rdg. Pro.	1	130.29	130.29	21.41	.00*
	Gender	1	.76	.76	.12	.72

TABLE 38 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Self-Con.	(cont.)					
	IQ by Rdg. Pro.	2	4.42	2.21	.36	.69
	IQ by Gender	2	37.17	18.58	3.05	.05*
	Rdg. Pro. by Gender	1	8.86	8.86	1.45	.23
	IQ by Rdg. Pro. by Gender	2	49.24	24.62	4.04	.02*
Rdg. Att.[11]						
	IQ	2	220.10	110.05	1.06	.34
	Rdg. Pro.	1	24.29	24.29	.23	.62
	Gender	1	101.96	101.96	.98	.32
	IQ by Rdg. Pro.	2	318.43	159.21	1.54	.21
	IQ by Gender	2	367.12	183.56	1.77	.17
	Rdg. Pro. by Gender	1	76.50	76.50	.74	.39

*$p \leq .05$

[1] - Auditory Discrimination subtest
[2] - Level of Intelligence
[3] - Reading Program
[4] - Auditory Vocabulary subtest
[5] - Phonetic Analysis subtest
[6] - Word Reading subtest
[7] - Reading Comprehension subtest
[8] - Total Comprehension Score
[9] - Classroom Behavior Rating Scale
[10] - Self-Concept Test
[11] - Reading Attitude Scale

significance of two-way interactions and main effects were also investigated. The interaction of level of intelligence and gender was found to be statistically significant at the .05 level, for only self-concept. The obtained F-ratio was 3.05, as shown in Table 38. While there was no statistically significant main effect for gender on self-concept, the main effects for both types of reading program and level of intelligence for self-concept were statistically significant. Those who had used the Open Court-Headway reading program had significantly better self-concepts than did those who had used the Bookmark program. These findings were consistent with those previously shown in Table 5. However, the one-way analysis of variance of level of intelligence on self-concept scores failed to show statistical significance, as previously shown in Table 20. Therefore, there were no significant differences in self-concept scores across levels of intelligence. The source of the statistical significance for level of intelligence could not be identified. In conclusion, females whose level of intelligence was in the above average range and who used the Open Court-Headway reading program had higher self-concept scores than did males whose level of intelligence was in the average range and used the Bookmark program, as shown in Table 39.

The assumed null hypothesis was not rejected for reading achievement, classroom behavior, or reading attitude. The obtained F-ratios ranged from .19 to 1.91, none of which reached the required .05 level of significance, as shown in Table 38. There were no statistically significant differences among the groups in their reading achievement, classroom behavior, or reading attitude, across gender, type of reading program, and level of intelligence.

TABLE 39

Mean Self-Concept Scores by Reading Program, Gender, and Level of Intelligence

Level of Intelligence:	Average	Above Average	Superior
	26.25	27.32	26.62
Reading Program:	Open Court-Headway		Bookmark
	27.46		25.63
Gender:	Male	Female	
	26.71	26.49	

	Gender			
	Males		Females	
	Reading Program			
	OC-H	B	OC-H	B
Intell. Level				
Aver.	27.38	23.50	26.75	26.55
Above Aver.	28.56	26.00	28.60	26.10
Sup.	27.73	26.88	27.43	24.64

Question Twenty

The three-way interaction of level of socioeconomic status, level of intelligence, and gender was statistically significant for reading attitude and the Auditory Vocabulary subtest of the reading achievement measure. As shown in Table 40, the obtained F-ratios were 2.65 and 3.19, respectively, and both were statistically significant at the required .05 level. There were statistically significant differences among the groups on reading attitude and auditory vocabulary, across levels of socioeconomic status, levels of intelligence, and gender. The assumed null hypothesis was rejected for reading attitude and auditory vocabulary.

While there were no other statistically significant interactions or main effects for reading attitude, there were both for auditory vocabulary. There was a statistically significant interaction of the level of socioeconomic status and gender, as shown in Table 40. This was consistent with the results previously shown in Table 36. Furthermore, the statistically significant main effect of socioeconomic status was consistent with the results previously shown in Tables 10, 11, and 38. In addition, these tables also provided evidence for the lack of statistical significance of gender on auditory vocabulary.

Several conclusions may be made on the basis of the results shown in these tables, as well as in Table 41. The combined effects of the level of socioeconomic status, level of intelligence, and gender on reading attitude were statistically significant, and resulted in significant differences among the groups. Those males who were from low status backgrounds and whose level of intelligence was in the average range had significantly more positive reading attitudes than did females from middle

TABLE 40

Summary Table of Factorial Analysis of Variance of Scores by Level of Intelligence, Gender, and Socioeconomic Status

Variable	Source	df	SS	MS	F	Sig. of F
Aud. Dis.[1]						
	IQ[2]	2	42.72	21.36	1.43	.24
	SES[3]	2	56.30	28.15	1.88	.16
	Gender	1	.24	.24	.01	.89
	IQ by SES	4	53.40	13.35	.89	.47
	IQ by Gender	2	26.34	13.17	.88	.41
	SES by Gender	2	18.41	9.20	.61	.54
	IQ by SES by Gender	4	23.27	5.81	.39	.81
Aud. Voc.[4]						
	IQ	2	58.85	29.42	2.36	.10
	SES	2	128.69	64.34	5.16	.00*
	Gender	1	.09	.09	.00	.93
	IQ by SES	4	55.87	13.96	1.12	.35
	IQ by Gender	2	49.72	24.86	1.99	.14
	SES by Gender	2	116.77	58.38	4.68	.01*
	IQ by SES by Gender	4	159.38	39.84	3.19	.01*
Ph. Anal.[5]						
	IQ	2	67.22	33.61	2.09	.13
	SES	2	45.96	22.98	1.43	.24
	Gender	1	2.71	2.71	.16	.68
	IQ by SES	4	65.23	16.30	1.01	.40
	IQ by Gender	2	54.70	27.35	1.70	.19
	SES by Gender	2	60.63	30.31	1.88	.15
	IQ by SES by Gender	4	61.26	15.31	.95	.43
Wd. Rdg.[6]						
	IQ	2	568.98	284.49	5.02	.00*
	SES	2	109.45	54.72	.96	.38
	Gender	1	56.78	56.78	1.00	.32
	IQ by SES	4	370.49	92.62	1.63	.17
	IQ by Gender	2	93.80	46.90	.82	.44
	SES by Gender	2	109.46	54.73	.96	.38
	IQ by SES by Gender	4	362.20	90.55	1.59	.18
Rdg. Comp.[7]						
	IQ	2	1052.13	526.06	6.26	.00*
	SES	2	1.56	.78	.00	.99

TABLE 40 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Rdg. Comp. (Cont.)						
	Gender	1	86.83	86.83	1.03	.31
	IQ by SES	4	813.35	203.33	2.42	.05*
	IQ by Gender	2	124.64	62.32	.74	.48
	SES by Gender	2	59.22	29.61	.35	.70
	IQ by SES by Gender	4	348.48	87.12	1.03	.39
Tot. Comp.[8]						
	IQ	2	3168.43	1584.22	6.49	.00*
	SES	2	126.30	63.15	.25	.77
	Gender	1	284.07	284.07	1.16	.28
	IQ by SES	4	2157.12	539.28	6.49	.07
	IQ by Gender	2	434.70	217.35	.89	.41
	SES by Gender	2	329.64	164.82	.67	.51
	IQ by SES by Gender	4	1418.73	354.68	1.45	.22
Class Beh.[9]						
	IQ	2	626.64	313.32	2.50	.08
	SES	2	333.67	166.83	1.33	.27
	Gender	1	105.26	105.26	.84	.36
	IQ by SES	4	992.80	248.20	1.98	.10
	IQ by Gender	2	52.35	26.17	.20	.81
	SES by Gender	2	167.76	83.88	.67	.51
	IQ by SES by Gender	4	159.80	39.95	.32	.86
Self-Con.[10]						
	IQ	2	31.96	15.98	1.88	.16
	SES	2	6.48	3.24	.38	.68
	Gender	1	11.22	11.22	1.32	.25
	IQ by SES	4	6.28	1.57	.18	.94
	IQ by Gender	2	36.94	18.47	2.17	.12
	SES by Gender	2	4.31	2.15	.25	.77
	IQ by SES by Gender	4	12.27	3.06	.36	.83
Rdg. Att.[11]						
	IQ	2	15.30	7.65	.08	.91
	SES	2	30.88	15.44	.17	.83
	Gender	1	12.22	12.22	.14	.70
	IQ by SES	4	136.30	34.07	.39	.81
	IQ by Gender	2	88.00	44.00	.51	.60
	SES by Gender	1	224.99	112.49	1.30	.27
	IQ by SES by Gender	4	916.07	229.01	2.65	.04*

TABLE 40 (Cont.)

*$p \leq .05$

1 - Auditory Discrimination
2 - Level of Intelligence
3 - Socioeconomic Status
4 - Auditory Vocabulary
5 - Phonetic Analysis subtest
6 - Word Reading subtest
7 - Reading Comprehension subtest
8 - Total Comprehension Score
9 - Classroom Behavior Rating Scale
10 - Self-Concept Test
11 - Reading Attitude Scale

TABLE 41

Mean Reading Attitude Scores by Socioeconomic Status, Level of Intelligence, and Gender

Level of Intelligence	Average	Above Average	Superior
	83.95	83.72	82.11
Socioeconomic Status	Low	Middle	High
	84.57	82.81	82.61
Gender	Male	Female	
	82.92	83.63	

	Gender					
	Males			Females		
SES	Low	Middle	High	Low	Middle	High
Level of Intell.						
Aver.	87.57	77.00	78.25	84.85	83.50	86.67
Above Aver.	78.50	79.00	82.42	81.67	85.83	82.92
Sup.	81.50	84.25	82.30	87.00	79.60	81.80

or high status backgrounds and whose level of intelligence was in the superior range. However, females who were from low status backgrounds and whose level of intelligence was in the superior range had significantly more positive reading attitudes than did males who were from middle status backgrounds and whose level of intelligence was in the average range.

Other conclusions may be made on the basis of Tables 40 and 42. The interaction of the level of socioeconomic status, level of intelligence, and gender was also statistically significant for auditory vocabulary. Those males who were from low status backgrounds and whose level of intelligence was in the above average range had significantly lower auditory vocabulary scores than did females who were from middle status backgrounds and whose levels of intelligence were in the above average or superior ranges.

Finally, the assumed null hypothesis was not rejected for the interaction of level of socioeconomic status, level of intelligence, and gender on auditory discrimination, phonetic analysis, word reading, reading comprehension, total comprehension scores, classroom behavior, and self-concept. There were no significant differences among the variances of the groups in these areas, across gender and levels of socioeconomic status and intelligence.

Question Twenty-one

The interaction of the level of socioeconomic status, frequency of preschool attendance, and gender was not statistically significant for reading achievement, classroom behavior, self-concept, or reading attitude. As shown in Table D-6 in Appendix D, the obtained *F*-ratios ranged from .30 to 1.48, none of which reached the required .05 level of statis-

TABLE 42

Mean Auditory Vocabulary Scores by Socioeconomic Status, Level of Intelligence, and Gender

Level of Intelligence	Average	Above Average	Superior
	24.92	28.61	28.70
Socioeconomic Status	Low	Middle	High
	24.46	28.27	27.97
Gender	Male	Female	
	27.08	26.77	

	Gender					
	Males			Females		
SES	Low	Middle	High	Low	Middle	High
Level of Intell.						
Average	23.78	27.83	26.09	25.38	23.33	25.92
Above Aver.	22.50	30.00	27.24	29.14	29.20	26.83
Sup.	28.50	28.50	27.78	28.60	29.33	27.06

tical significance. Therefore, there were no statistically significant differences among the variances of the subjects on reading achievement, classroom behavior, self-concept, and reading attitude, across gender, level of socioeconomic status, and frequency of preschool attendance. The assumed null hypothesis was not rejected.

Question Twenty-two

The interaction of gender, level of socioeconomic status, and type of reading program was statistically significant for self-concept only. As shown in Table 43, the obtained F-ratio of 3.23 was statistically significant for the .05 level of confidence. Therefore, there were statistically significant differences among the variances of the subjects on self-concept, across gender, level of socioeconomic status, and type of reading program. The assumed null hypothesis was not rejected for self-concept.

On the basis of Table 44, several conclusions may be made concerning the nature of the statistically significant interaction of gender, type of reading program, and level of socioeconomic status. Females who are from a middle status background and use the Open Court-Headway program have better self-concept scores than do males from a low status background and use the Bookmark program.

The statistical significance of two-way interactions and main effects were also investigated. While there were no statistically significant two-way interactions, there was a main effect of the type of reading program on self-concept, as shown in Table 43. It appeared that the type of reading program was more significantly related to self-concept than were gender and level of socioeconomic level. The significant effect of

TABLE 43

Summary Table of Factorial Analysis of Variance of Scores by Reading Program, Gender, and Socioeconomic Status

Variable	Source	df	SS	MS	F	Sig. of F
Aud. Disc.[1]						
	SES[2]	2	96.46	48.23	3.38	.03*
	Gender	1	.28	.28	.02	.88
	Rdg. Pro.[3]	1	65.05	65.05	4.57	.03*
	SES by Gender	2	56.24	28.12	1.97	.14
	SES by Rdg. Pro.	2	36.43	18.21	1.28	.28
	Gender by Rdg. Pro.	1	2.01	2.01	.14	.70
	SES by Gender by Rdg. Pro.	2	1.15	.57	.04	.96
Aud. Voc.[4]						
	SES	2	257.28	128.64	8.73	.00*
	Gender	1	.13	.13	.00	.92
	Rdg. Pro.	1	8.68	8.68	.58	.44
	SES by Gender	2	149.43	74.71	5.07	.00*
	SES by Rdg. Pro.	2	24.12	12.06	.81	.44
	Gender by Rdg. Pro.	1	19.19	19.19	1.30	.25
	SES by Gender by Rdg. Pro.	2	47.29	23.64	1.60	.20
Ph. Anal.[5]						
	SES	2	138.58	69.29	3.93	.02*
	Gender	1	2.99	2.99	.17	.68
	Rdg. Pro.	1	15.70	15.70	.89	.34
	SES by Gender	2	52.11	26.05	1.48	.23
	SES by Rdg. Pro.	2	.87	.43	.02	.97
	Gender by Rdg. Pro.	1	20.22	20.22	1.14	.28
	SES by Gender by Rdg. Pro.	2	27.35	13.67	.77	.46
Wd. Rdg.[6]						
	SES	2	587.28	293.64	4.23	.01*
	Gender	1	132.59	132.59	1.91	.17
	Rdg. Pro.	1	175.48	175.48	2.52	.11
	SES by Gender	2	170.36	85.18	1.22	.29

TABLE 43 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Wd. Rdg. (Cont.)						
	SES by Rdg. Pro.	2	86.59	43.29	.62	.53
	Gender by Rdg. Pro.	1	2.24	2.24	.03	.85
	SES by Gender by Rdg. Pro.	2	.81	.40	.00	.99
Rdg. Comp.[7]						
	SES	2	362.15	181.07	1.65	.19
	Gender	1	95.14	95.14	.87	.35
	Rdg. Pro.	1	1.36	1.36	.01	.91
	SES by Gender	2	136.81	68.40	.62	.53
	SES by Rdg. Pro.	2	15.82	7.91	.07	.93
	Gender by Rdg. Pro.	1	.82	.82	.00	.93
	SES by Gender by Rdg. Pro.	2	120.53	60.26	.55	.57
Tot. Comp.[8]						
	SES	2	1838.89	919.44	2.85	.06
	Gender	1	452.38	452.38	1.40	.24
	Rdg. Pro.	1	207.76	207.76	.64	.42
	SES by Gender	2	597.78	298.89	.92	.40
	SES by Rdg. Pro.	2	166.83	83.41	.25	.77
	Gender by Rdg. Pro.	1	.34	.34	.00	.97
	SES by Gender by Rdg. Pro.	2	138.62	69.31	.21	.80
Class Beh.[9]						
	SES	2	1745.49	872.74	7.99	.00*
	Gender	1	101.29	101.29	.92	.33
	Rdg. Pro.	1	1172.64	1172.64	10.73	.00*
	SES by Gender	2	176.53	88.26	.80	.45
	SES by Rdg. Pro.	2	1050.57	525.28	4.81	.01*
	Gender by Rdg. Pro.	1	110.84	110.84	1.01	.31
	SES by Gender by Rdg. Pro.	2	28.46	14.23	.13	.87

TABLE 43 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Self-Con.[10]						
	SES	2	11.61	5.80	.83	.43
	Gender	1	.90	.90	.13	.72
	Rdg. Pro.	1	81.33	81.33	11.67	.00*
	SES by Gender	2	7.64	3.82	.54	.58
	SES by Rdg. Pro.	2	9.19	4.59	.66	.52
	Gender by Rdg. Pro.	1	15.86	15.86	2.27	.13
	SES by Gender by Rdg. Pro.	2	45.06	22.53	3.23	.04*
Rdg. Att.[11]						
	SES	2	45.00	22.50	.24	.78
	Gender	1	11.12	11.12	.12	.72
	Rdg. Pro.	1	45.66	45.66	.49	.48
	SES by Gender	2	123.74	61.87	.67	.51
	SES by Rdg. Pro.	2	13.48	6.74	.07	.92
	Gender by Rdg. Pro.	1	59.43	59.43	.64	.42
	SES by Gender by Rdg. Pro.	2	237.75	118.87	1.29	.28

*$p \leq .05$

1 - Auditory Discrimination
2 - Socioeconomic Status
3 - Reading Program
4 - Auditory Vocabulary subtest
5 - Phonetic Analysis subtest
6 - Word Reading subtest
7 - Reading Comprehension subtest
8 - Total Comprehension Score
9 - Classroom Behavior Rating Scale
10 - Self-Concept Test
11 - Reading Attitude Scale

TABLE 44

Mean Self-Concept Scores by Level of Socioeconomic Status, Gender, and Type of Reading Program

Level of Socioeconomic Status	Low	Middle	High
	26.37	26.69	27.00

Gender	Males	Females
	26.97	26.50

Reading Program	Open Court-Headway	Bookmark
	27.54	25.62

	Gender					
	Males			Females		
Level of SES	Low	Middle	High	Low	Middle	High
Rdg. Prog.						
OC-H	27.75	28.67	27.78	26.36	27.83	27.63
B	22.00	24.67	26.75	26.83	25.55	25.33

the type of reading program on self-concept was previously demonstrated in Tables 5 and 28, where the use of the Open Court-Headway reading program was found to be related to higher self-concepts.

The interaction of gender, type of reading program, and level of socioeconomic status was not statistically significant for reading achievement, classroom behavior, or reading attitude. As shown in Table 43, the obtained F-ratios ranged from .00 to 1.60, none of which reached the required .05 level of statistical significance. Therefore, there were no statistically significant differences in the variances of the subjects across gender, type of reading program, and level of socioeconomic status for reading achievement, classroom behavior, and reading attitude. The assumed null hypothesis was not rejected for these scores.

Question Twenty-three

The interaction of type of reading program, frequency of preschool attendance, and level of intelligence was not statistically significant for reading achievement, classroom behavior, self-concept, and reading attitude. As shown in Table D-7 in Appendix D, the obtained F-ratios ranged from .07 to 2.01. None reached the required .05 level of significance. Therefore, there were no statistically significant differences among the variances of the subjects on the basis of their reading achievement, classroom behavior, self-concept, and reading attitude, across levels of intelligence, types of reading program, and frequencies of preschool attendance. The assumed null hypothesis was not rejected.

Question Twenty-four

The interaction of the level of intelligence, level of socioeconomic status, and type of reading program was statistically significant

for the phonetic analysis and word reading subtests of the reading achievement measure. For these two scores, the obtained F-ratios were 2.79 and 2.77, respectively, as shown in Table 45. Both reached the required level of statistical significance. Therefore, there were statistically significant differences among the variances of the subjects on their phonetic analysis and word reading scores, across levels of intelligence and socioeconomic status, and type of reading program. The assumed null hypothesis was rejected for the phonetic analysis and word reading subtests.

On the basis of Table 46, several conclusions may be made concerning the nature of the statistically significant three-way interaction. Those who use the Open Court-Headway reading program, whose level of intelligence is in the above average range, and are from a middle socioeconomic status background have higher phonetic analysis scores than do those who use the Bookmark reading program, whose level of intelligence is in the average range and are from a low status background.

Conclusions may also be made about the word reading scores, on the basis of Table 47. Those who use the Open Court-Headway program, whose level of intelligence was in the above average range, and are from a middle status background had better word reading scores than did those who use the Bookmark reading program, whose level of intelligence is in the average range, and are from a low status background.

In addition to the three-way interaction, the statistical significance of two-way interactions and the main effects of the levels of intelligence and socioeconomic status and type of reading program on the phonetic analysis and word reading subtests were also investigated. As

TABLE 45

Summary Table of Factorial Analysis of Variance of Scores by Reading Program, Level of Intelligence, and Socioeconomic Status

Variable	Source	df	SS	MS	F	Sig. of F
Aud. Disc.[1]						
	IQ[2]	2	98.48	49.24	3.93	.02*
	SES[3]	2	32.72	16.36	1.30	.27
	Rdg. Pro.[4]	1	77.51	77.51	6.18	.01*
	IQ by SES	4	57.23	14.30	1.14	.34
	IQ by Rdg. Pro.	2	25.94	12.97	1.03	.36
	SES by Rdg. Pro.	2	18.86	9.43	.75	.47
	IQ by SES by Rdg. Pro.	4	69.41	17.35	1.38	.24
Aud. Voc.[5]						
	IQ	2	166.79	38.39	5.89	.00*
	SES	2	123.94	61.97	4.37	.01*
	Rdg. Pro.	1	14.72	14.72	1.04	.31
	IQ by SES	4	45.21	11.30	.79	.53
	IQ by Rdg. Pro.	2	103.93	51.96	3.67	.03*
	SES by Rdg. Pro.	2	52.47	26.23	1.85	.16
	IQ by SES by Rdg. Pro.	4	32.22	8.05	.56	.68
Ph. Anal.[6]						
	IQ	2	73.86	36.93	2.38	.10
	SES	2	69.41	34.70	2.24	.11
	Rdg. Pro.	1	19.36	19.36	1.25	.26
	IQ by SES	4	48.11	12.02	.77	.54
	IQ by Rdg. Pro.	2	73.21	36.60	2.36	.10
	SES by Rdg. Pro.	2	1.97	.98	.06	.93
	IQ by SES by Rdg. Pro.	4	173.01	43.25	2.79	.03*
Wd. Rdg.[7]						
	IQ	2	593.56	296.78	5.58	.00*
	SES	2	210.70	105.35	1.98	.14
	Rdg. Pro.	1	185.69	185.69	3.49	.06
	IQ by SES	4	344.60	86.15	1.62	.17
	IQ by Rdg. Pro.	2	236.07	118.03	2.22	.11
	SES by Rdg. Pro.	2	60.59	30.29	.57	.56

Table 45 (cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Wd. Rdg. (cont.)						
	IQ by SES by Rdg. Pro.	4	590.29	147.57	2.77	.03*
Rdg. Comp.[8]						
	IQ	2	1131.69	565.84	6.91	.00*
	SES	2	33.44	16.72	.20	.81
	Rdg. Pro.	1	5.99	5.99	.07	.78
	IQ by SES	4	735.25	183.81	2.24	.07
	IQ by Rdg. Pro.	2	313.79	156.89	1.91	.15
	SES by Rdg. Pro.	2	60.78	30.39	.37	.69
	IQ by SES by Rdg. Pro.	4	673.43	168.35	2.05	.09
Tot. Comp.[9]						
	IQ	2	3357.20	1678.60	7.03	.00*
	SES	2	397.33	198.66	.83	.43
	Rdg. Pro.	1	258.40	258.40	1.08	.30
	IQ by SES	4	1974.67	493.66	2.06	.09
	IQ by Rdg. Pro.	2	1066.21	533.10	2.23	.11
	SES by Rdg. Pro.	2	174.93	87.46	.36	.69
	IQ by SES by Rdg. Pro.	4	2243.85	560.96	2.35	.06
Class Beh.[10]						
	IQ	2	546.53	273.26	2.66	.07
	SES	2	1136.79	568.39	5.54	.00*
	Rdg. Pro.	1	1198.06	1198.06	11.68	.00*
	IQ by SES	4	647.99	161.99	1.58	.19
	IQ by Rdg. Pro.	2	282.00	141.00	1.37	.26
	SES by Rdg. Pro.	2	496.02	248.01	2.41	.09
	IQ by SES by Rdg. Pro.	4	173.46	43.36	.42	.79
Self-Con.[11]						
	IQ	2	16.24	8.12	1.04	.35
	SES	2	8.71	4.35	.56	.57
	Rdg. Pro.	1	83.71	83.71	10.79	.00*
	IQ by SES	4	2.85	.71	.09	.98
	IQ by Rdg. Pro.	2	1.24	.62	.08	.92

Table 45 (cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Self-Con.	(cont.)					
	SES by Rdg. Pro.	2	7.27	3.63	.46	.62
	IQ by SES by Rdg. Pro.	2	32.91	8.22	1.06	.38
Rdg. Att.[12]						
	IQ	2	22.88	11.44	.11	.89
	SES	2	26.94	13.47	.13	.87
	Rdg. Pro.	1	36.88	36.88	.37	.54
	IQ by SES	4	271.90	67.97	.69	.59
	IQ by Rdg. Pro.	2	174.97	87.48	.89	.41
	SES by Rdg. Pro.	2	9.68	4.84	.05	.95
	IQ by SES by Rdg. Pro.	4	137.67	34.41	.35	.84

*$p \leq .05$

[1] - Auditory Discrimination
[2] - Level of Intelligence
[3] - Socioeconomic Status
[4] - Reading Program
[5] - Auditory Vocabulary subtest
[6] - Phonetic Analysis subtest
[7] - Word Reading subtest
[8] - Reading Comprehension subtest
[9] - Total Comprehension Score
[10] - Classroom Behavior Rating Scale
[11] - Self-Concept Test
[12] - Reading Attitude Scale

Table 46

Mean Phonetic Analysis Scores by Level of Intelligence, Socioeconomic Status, and Type of Reading Program

Level of Socioeconomic Status:	Low	Middle	High
	34.39	35.58	37.32

Level of Intelligence:	Average	Above Average	Superior
	34.52	36.67	37.19

Reading Program:	Open Court-Headway	Bookmark
	36.08	35.49

	Reading Program					
	Open Court-Headway			Bookmark		
Level of Intell.	Average	Above Average	Superior	Average	Above Average	Superior
SES						
Low	35.00	30.50	37.50	30.20	37.33	39.00
Middle	36.75	40.00	33.20	33.17	35.25	38.00
High	36.00	37.80	38.83	35.75	37.00	37.67

Table 47

Mean Word Reading Scores by Level of Intelligence, Socioeconomic Status, and Type of Reading Program

Level of Socioeconomic Status:	Low	Middle	High
	30.54	33.04	36.16

Level of Intelligence:	Average	Above Average	Superior
	30.05	36.44	36.19

Reading Program:	Open Court-Headway	Bookmark
	34.29	32.14

	Reading Program					
	Open Court-Headway			Bookmark		
Level of Intell.	Average	Above Average	Superior	Average	Above Average	Superior
SES						
Low	32.07	26.00	41.50	17.20	37.33	41.00
Middle	33.00	40.33	29.60	28.83	36.00	35.25
High	33.33	39.00	39.00	32.50	32.00	36.67

shown in Table 45, there was no statistically significant two-way interactions for either the phonetic analysis or word reading subtests. However, there was a statistically significant main effect of the level of intelligence for word reading. This was consistent with the previous results reported in Table 24, where the word reading scores were fround to increase with an increase in the level of intelligence.

There were no other statistically significant main effects or interactions among levels of intelligence and socioeconomic status, and type of reading program on auditory discrimination, auditory vocabulary, reading comprehension, total comprehension score, classroom behavior, self-concept, or reading attitude. Therefore, the assumed null hypothesis was not rejected here.

Question Twenty-five

The three-way interaction of the levels of intelligence and socioeconomic status and frequency of preschool attendance was not statistically significant for reading achievement, classroom behavior, self-concept, or reading attitude. There were no statistically significant differences among the variances of the subjects on reading achievement, classroom behavior, self-concept, or reading attitude, across levels of intelligence and socioeconomic status and frequency of preschool attendance. As shown in Table D-8 in Appendix D, the obtained F-ratios ranged from .24 to 1.12. None reached the required .05 level of statistical significance. The assumed null hypothesis was not rejected.

Questions Twenty-six, Twenty-seven, and Thirty

The statistical significane of the various four-way interactions which involved both the level of socioeconomic status and the level of

intelligence could not be analyzed. As shown in Tables D-9, D-10, and D-11 in Appendix D, all three-way and higher order interactions were suppressed due to empty cells. Therefore, no conclusions could be made concerning differences among the groups or the assumed null hypothesis.

Question Twenty-eight

The four-way interaction of the frequency of preschool attendance, gender, type of reading program, and level of socioeconomic status was statistically significant for only self-concept. As shown in Table 48, the obtained F-ratio of 3.81 was statistically significant at the .05 level. Therefore, there were statistically significant differences in self-concept across gender, frequency of preschool attendance, type of reading program, and level of socioeconomic status. The assumed null hypothesis was rejected for self-concept.

In addition to the statistical significance of the four-way interaction, the significance of lower-order interactions and main effects of the frequency of preschool attendance, gender, type of reading program, and level of socioeconomic status on self-concept scores were also investigated. Only the main effect of the type of reading program was statistically significant at the required level. Therefore, it appeared that the source of the statistical significance of the four-way interaction was the type of reading program used. Those who had used the Open Cour Headway reading program had significantly better self-concepts than did those who had used the Bookmark reading program, on the basis of these results shown earlier in Table 5. These results were consistent with the ones reported in Tables 39 and 48, where the statistical significance of the type of reading program met the required .05 level.

TABLE 48

Summary Table of Factorial Analysis of Variance of Scores by Preschool Attendance, Socioeconomic Status, Reading Program, and Gender

Variable	Source	df	SS	MS	F	Sig. of F
Aud. Disc.[1]						
	P.S. Att.[2]	2	31.74	15.87	1.24	.29
	SES[3]	2	86.80	43.40	3.39	.04*
	Rdg. Pro.[4]	1	60.18	60.18	4.70	.03*
	Gender	1	.26	.26	.02	.88
	P.S. Att. by SES	4	189.32	47.33	3.70	.01*
	P.S. Att. by Rdg. Pro.	2	40.56	20.28	1.58	.21
	P.S. Att. by Gender	2	81.73	40.86	3.19	.04*
	SES by Rdg. Pro.	2	28.31	14.26	1.10	.33
	SES by Gender	2	41.20	20.60	1.61	.20
	Rdg. Pro. by Gender	1	.33	.33	.02	.87
	P.S. Att. by SES by Rdg. Pro.	4	35.74	8.93	.69	.59
	P.S. Att. by SES by Gender	4	13.47	3.36	.26	.90
	P.S. Att. by Rdg. Pro. by Gender	2	.93	.46	.03	.96
	SES by Rdg. Pro. by Gender	2	.00	.00	.00	1.00
	P.S. Att. by SES by Rdg. Pro. by Gender	1	12.97	12.97	1.01	.31
Aud. Voc.[5]						
	P.S. Att.	2	68.04	34.02	2.49	.09
	SES	2	223.82	111.91	8.22	.00*
	Rdg. Pro.	1	6.13	6.13	.45	.50
	Gender	1	.17	.17	.01	.91
	P.S. Att. by SES	4	26.83	6.70	.49	.74
	P.S. Att. by Rdg. Pro.	2	105.80	52.90	3.88	.02*
	P.S. Att. by Gender	2	13.51	6.75	.49	.61
	SES by Rdg. Pro.	2	55.38	27.69	2.03	.14

TABLE 48 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Aud. Voc.	(Cont.)					
	SES by Gender	2	155.62	77.81	5.71	.00*
	Rdg. Pro. by Gender	1	18.41	18.41	1.35	.25
	P.S. Att. by SES by Rdg. Pro.	4	40.87	10.21	.75	.56
	P.S. Att. by SES by Gender	4	34.36	8.59	.63	.64
	P.S. Att. by Rdg. Pro. by Gender	2	12.85	6.42	.47	.62
	SES by Rdg. Pro. by Gender	2	7.95	3.97	.29	.74
	P.S. Att. by SES by Rdg. Pro. by Gender	1	10.61	10.61	.78	.38
Ph. Anal[6]						
	P.S. Att.	2	21.76	10.88	.62	.54
	SES	2	125.84	62.92	3.59	.03*
	Rdg. Pro.	1	13.22	13.22	.75	.38
	Gender	1	2.85	2.85	.16	.68
	P.S. Att. by SES	4	120.59	30.14	1.72	.15
	P.S. Att. by Rdg. Pro.	2	27.61	13.80	.78	.46
	P.S. Att. by Gender	2	61.34	30.67	1.75	.18
	SES by Rdg. Pro.	2	.66	.33	.01	.98
	SES by Gender	2	40.72	20.36	1.16	.32
	Rdg. Pro. by Gender	1	7.96	7.96	.45	.50
	P.S. Att. by SES by Rdg. Pro.	4	32.61	8.15	.46	.76
	P.S. Att. by SES by Gender	4	56.23	14.05	.80	.52
	P.S. Att. by Rdg. Pro. by Gender	2	7.15	3.57	.20	.81
	SES by Rdg. Pro. by Gender	2	17.41	8.70	.49	.61
	P.S. Att. by SES by Rdg. Pro. by Gender	1	4.47	4.47	.25	.61

TABLE 48 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Wd. Rdg.[7]						
	P.S. Att.	2	404.48	202.24	3.42	.04*
	SES	2	517.61	258.80	4.38	.01*
	Rdg. Pro.	1	148.61	148.61	2.51	.11
	Gender	1	130.21	130.21	2.20	.14
	P.S. Att. by SES	4	531.51	132.88	2.25	.07
	P.S. Att. by Rdg. Pro.	2	75.19	37.59	.63	.53
	P.S. Att. by Gender	2	386.35	193.17	3.27	.04*
	SES by Rdg. Pro.	2	11.79	5.89	.10	.90
	SES by Gender	2	90.97	45.48	.77	.46
	Rdg. Pro. by Gender	1	20.02	20.02	.33	.56
	P.S. Att. by SES by Rdg. Pro.	4	413.53	103.38	1.75	.15
	P.S. Att. by SES by Gender	4	176.80	44.20	.74	.56
	P.S. Att. by Rdg. Pro. by Gender	2	12.12	6.06	.10	.90
	SES by Rdg. Pro. by Gender	2	23.07	11.53	.19	.82
	P.S. Att. by SES by Rdg. Pro. by Gender	1	12.76	12.76	.21	.64
Rdg. Comp.[8]						
	P.S. Att.	2	237.11	118.55	1.17	.31
	SES	2	335.78	167.89	1.66	.20
	Rdg. Pro.	1	.90	.90	.00	.92
	Gender	1	95.49	95.49	.94	.33
	P.S. Att. by SES	4	720.26	180.06	1.78	.14
	P.S. Att. by Rdg. Pro.	2	15.14	7.57	.07	.92
	P.S. Att. by Gender	2	720.66	360.33	3.56	.03*
	SES by Rdg. Pro.	2	6.31	3.15	.03	.96
	SES by Gender	2	67.87	33.93	.33	.71
	Rdg. Pro. by Gender	1	1.91	1.91	.01	.89

TABLE 48 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Rdg. Comp. (Cont.)						
	P.S. Att. by SES by Rdg. Pro.	4	478.39	119.60	1.18	.32
	P.S. Att. by SES by Gender	4	452.15	113.03	1.11	.35
	P.S. Att. by Rdg. Pro. by Gender	2	79.85	39.92	.39	.67
	SES by Rdg. Pro. by Gender	2	153.42	76.71	.75	.47
	P.S. Att. by SES by Rdg. Pro. by Gender	1	52.70	52.70	.52	.47
Tot. Comp.[9]						
	P.S. Att.	2	1211.49	605.74	2.13	.12
	SES	2	1661.35	830.67	2.92	.06
	Rdg. Pro.	1	172.67	172.67	.60	.43
	Gender	1	448.73	448.73	1.58	.21
	P.S. Att. by SES	4	2442.56	610.64	2.15	.08
	P.S. Att. by Rdg. Pro.	2	73.72	36.86	.13	.87
	P.S. Att. by Gender	2	2159.55	1079.77	3.80	.02*
	SES by Rdg. Pro.	2	27.66	13.83	.04	.95
	SES by Gender	2	300.90	150.45	.53	.59
	Rdg. Pro. by Gender	1	34.31	34.31	.12	.72
	P.S. Att. by SES by Rdg. Pro.	4	1600.42	400.10	1.41	.24
	P.S. Att. by SES by Gender	4	1007.48	251.87	.88	.47
	P.S. Att. by Rdg. Pro. by Gender	2	154.07	77.03	.27	.76
	SES by Rdg. Pro. by Gender	2	132.24	66.12	.23	.79
	P.S. Att. by SES by Rdg. Pro. by Gender	1	117.35	117.35	.41	.52

TABLE 48 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Class Beh.[10]						
	P.S. Att.	2	198.76	99.38	.77	.46
	SES	2	1597.90	798.95	6.19	.00*
	Rdg. Pro.	1	1243.53	1243.53	9.64	.00*
	Gender	1	96.95	96.95	.75	.39
	P.S. Att. by SES	4	275.29	68.82	.53	.71
	P.S. Att. by Rdg. Pro.	2	25.78	12.89	.10	.90
	P.S. Att. by Gender	2	465.93	232.96	1.80	.17
	SES by Rdg. Pro.	2	823.05	411.52	3.19	.04*
	SES by Gender	2	94.84	47.42	.36	.69
	Rdg. Pro. by Gender	1	144.79	144.79	1.12	.29
	P.S. Att. by SES by Rdg. Pro.	4	212.69	53.17	.41	.79
	P.S. Att. by SES by by Gender	4	220.45	55.11	.42	.78
	P.S. Att. by Rdg. Pro by Gender	2	141.01	70.50	.54	.58
	SES by Rdg. Pro. by Gender	2	53.04	26.52	.20	.81
	P.S. Att. by SES by Rdg. Pro. by Gender	1	81.58	81.58	.63	.43
Self-Con.[11]						
	P.S. Att.	2	12.49	6.24	.85	.43
	SES	2	10.78	5.39	.73	.48
	Rdg. Pro.	1	76.78	76.78	10.48	.00*
	Gender	1	.99	.99	.13	.71
	P.S. Att. by SES	4	29.98	7.49	1.02	.40
	P.S. Att. by Rdg. Pro.	2	7.00	3.50	.47	.62
	P.S. Att. by Gender	2	9.37	4.68	.64	.53
	SES by Rdg. Pro.	2	2.25	1.12	.15	.85
	SES by Gender	2	6.13	3.06	.41	.66

TABLE 48 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Self-Con.	(Cont.)					
	Rdg. Pro. by Gender	1	15.02	15.02	2.05	.15
	P.S. Att. by SES by Rdg. Pro.	4	8.25	2.06	.28	.88
	P.S. Att. by SES by Gender	4	15.52	3.88	.53	.71
	P.S. Att. by Rdg. Pro. by Gender	2	1.93	.96	.13	.87
	SES by Rdg. Pro by Gender	2	32.99	16.49	2.25	.11
	P.S. Att. by SES by Rdg. Pro. by Gender	1	27.96	27.96	3.81	.05*
Rdg. Att.[12]						
	P.S. Att.	2	256.84	128.42	1.26	.29
	SES	2	35.18	17.59	.17	.84
	Rdg. Pro.	1	48.50	48.50	.47	.49
	Gender	1	11.00	11.00	.10	.74
	P.S. Att. by SES	4	715.44	178.86	1.76	.14
	P.S. Att. by Rdg. Pro.	2	133.22	66.61	.65	.52
	P.S. Att. by Gender	2	50.25	25.12	.24	.78
	SES by Rdg. Pro.	2	6.12	3.06	.03	.97
	SES by Gender	2	74.14	37.07	.36	.69
	Rdg. Pro. by Gender	1	86.04	86.04	.85	.36
	P.S. Att. by SES by Rdg. Pro.	4	303.15	75.78	.74	.56
	P.S. Att. by SES by Gender	4	254.66	63.66	.62	.64
	P.S. Att. by Rdg. Pro. by Gender	2	22.48	11.24	.11	.89
	SES by Rdg. Pro. by Gender	2	240.14	120.07	1.18	.31

TABLE 48 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Rdg. Att.	(cont.) P.S. Att. by SES by Rdg. Pro. by Gender	1	.23	.23	.00	.96

*$p \leq .05$

1 - Auditory Discrimination subtest
2 - Preschool Attendance
3 - Socioeconomic Status
4 - Reading Program
5 - Auditory Vocabulary subtest
6 - Phonetic Analysis subtest
7 - Word Reading subtest
8 - Reading Comprehension subtest
9 - Total Comprehension Score
10 - Classroom Behavior Rating Scale
11 - Self-Concept Test
12 - Reading Attitude Scale

Several conclusions may also be made regarding the significant interaction of the frequency of preschool attendance, gender, type of reading, and level of socioeconomic status, on the basis of Table 49. Males who had attended preschool on a part-time basis, used the Open Court-Headway reading program, and were from a middle status background had better self-concept scores that did females who had not attended preschool, used the Bookmark program, and were from a high status background.

The four-way interaction of the frequency of preschool attendance, gender, type of reading program, and level of socioeconomic status was not statistically significant for reading achievement, classroom behavior, or reading atttitude. The obtained F-ratios ranged from .00 to 1.01, none of which reached the required .05 level of statistical significance. Therefore, there were no statistically significant differences among the variances of the subjects on reading achievement, classroom behavior, and reading attitude, across the frequency of preschool attendance, gender, type of reading program, and level of socioeconomic status.

Question Twenty-nine

The four-way interaction of the frequency of preschool attendance, type of reading program, gender, and level of intelligence was statistically significant for only the Auditory Vocabulary subtest of reading achievement measure. The obtained F-ratio of 3.44 was statistically significant beyond the required .05 level, as shown in Table 50. Therefore, there were statistically significant differences among the variances of the subjects on auditory vocabulary, across frequency of preschool atten-

TABLE 49

Mean Self-Concept Scores by Frequency of Preschool Attendance, Gender, Type of Reading Program, and Level of Socioeconomic Status

Freq. of Preschool Attendance:	None	Part-time	Full-time
	26.63	27.45	26.27

Gender:	Males	Females
	26.97	26.50

Type of Reading Program:	Open Court-Headway	Bookmark
	27.54	25.62

SES:	Low	Middle	High
	26.39	26.69	27.00

Males

SES:	Low		Middle		High	
Rdg. Prog.:	OC-H	B	OC-H	B	OC-H	B
Attend.						
None	27.50	20.50	28.50	--	27.00	27.00
P-T	28.00	25.00	29.00	--	28.50	26.33
F-T	28.00	--	28.67	24.67	27.33	27.00

Females

SES:	Low		Middle		High	
Attend.:						
Rdg. Prog.:	OC-H	B	OC-H	B	OC-H	B
None	25.50	27.00	28.00	27.50	27.25	22.00
P-T	28.00	23.00	29.00	28.00	28.00	25.50
F-T	25.83	30.00	24.00	23.83	28.00	26.33

TABLE 50

Summary Table of Factorial Analysis of Variance of Scores by Preschool Attendance, Reading Program, Gender, and Level of Intelligence

Variable	Source	df	SS	MS	F	Sig. of F
Aud. Disc.[1]						
	P.S. Att.[2]	2	18.41	9.20	.62	.53
	IQ[3]	2	197.98	98.99	6.70	.00*
	Rdg. Pro.[4]	1	203.93	203.93	13.81	.00*
	Gender	1	.56	.56	.03	.84
	P.S. Att. by IQ	4	41.12	10.28	.69	.59
	P.S. Att. by Rdg. Pro.	2	1.27	.63	.04	.95
	P.S. Att. by Gender	2	30.87	15.43	1.04	.35
	IQ by Rdg. Pro.	2	62.98	31.49	2.13	.12
	IQ by Gender	2	80.18	40.09	2.71	.07
	Rdg. Pro. by Gender	1	5.18	5.18	.35	.55
	P.S. Att. by IQ by Rdg. Pro.	4	130.33	32.58	2.20	.07
	P.S. Att. by IQ by Gender	4	29.16	7.29	.49	.74
	P.S. Att. by Rdg. Pro. by Gender	2	.95	.47	.03	.96
	IQ by Rdg. Pro. by Gender	2	36.31	18.15	1.23	.29
	P.S. Att. by IQ by Rdg. Pro. by Gender	3	60.27	20.09	1.36	.25
Aud. Voc.[5]						
	P.S. Att.	2	15.68	7.84	.53	.59
	IQ	2	527.09	263.54	17.80	.00*
	Rdg. Pro.	1	114.47	114.47	7.73	.00*
	Gender	1	5.61	5.61	.38	.53
	P.S. Att. by IQ	1	28.77	7.19	.48	.74
	P.S. Att. by Rdg. Pro.	2	180.90	90.45	6.11	.00*
	P.S. Att. by Gender	2	52.36	26.18	1.76	.17

TABLE 50 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Aud. Voc.	(cont.)					
	IQ by Rdg. Pro.	2	10.61	5.30	.35	.70
	IQ by Gender	2	82.02	41.01	2.77	.06
	Rdg. Pro. by Gender	1	2.16	2.16	.14	.70
	P.S. Att. by IQ by Rdg. Pro.	4	27.07	6.78	.45	.76
	P.S. Att. by IQ by Gender	4	40.15	10.03	.67	.60
	P.S. Att. by Rdg. Pro. by Gender	2	48.71	24.35	1.64	.19
	IQ by Rdg. Pro. by Gender	2	47.55	23.77	1.60	.20
	P.S. Att. by IQ by Rdg. Pro. by Gender	3	152.72	50.91	3.44	.02*
Ph. Anal.[6]						
	P.S. Att.	2	11.60	5.80	.28	.75
	IQ	2	250.77	125.38	6.15	.00*
	Rdg. Pro.	1	91.27	91.27	4.47	.03
	Gender	1	1.01	1.05	.05	.82
	P.S. Att. by IQ	4	64.92	16.23	.79	.53
	P.S. Att. by Rdg. Pro.	2	13.05	6.52	.32	.72
	P.S. Att. by Gender	2	13.57	6.78	.33	.71
	IQ by Rdg. Pro.	2	35.84	17.92	.87	.41
	IQ by Gender	2	116.14	58.07	2.84	.06
	Rdg. Pro. by Gender	1	13.19	13.19	.64	.42
	P.S. Att. by IQ by Rdg. Pro.	4	57.06	14.26	.70	.59
	P.S. Att. by IQ by Gender	4	81.06	20.26	.99	.41
	P.S. Att. by Rdg. Pro. by Gender	2	8.38	4.19	.20	.81

TABLE 50 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Ph. Anal.	(Cont.)					
	IQ by Rdg. Pro. by Gender	2	56.85	28.42	1.39	.25
	P.S. Att. by IQ by Rdg. Pro. by Gender	3	44.64	14.88	.73	.53
Wd. Rdg.[7]						
	P.S. Att.	2	203.35	101.67	1.51	.22
	IQ	2	1129.85	564.92	8.40	.00*
	Rdg. Pro.142	1	455.04	455.04	6.77	.01*
	Gender	1	182.50	182.50	2.71	.10
	P.S. Att. by IQ	4	86.85	21.71	.32	.86
	P.S. Att. by Rdg. Pro.	2	52.38	26.19	.39	.67
	P.S. Att. by Gender	2	245.84	122.92	1.82	.16
	IQ by Rdg. Pro.	2	93.59	46.79	.69	.50
	IQ by Gender	2	407.11	203.55	3.02	.05
	Rdg. Pro. by Gender	1	4.75	4.75	.07	.79
	P.S. Att. by IQ by Rdg. Pro.	4	173.67	43.41	.64	.63
	P.S. Att. by IQ by Gender	4	275.43	68.85	1.02	.39
	P.S. Att. by Rdg. Pro. by Gender	2	30.75	15.37	.22	.79
	IQ by Rdg. Pro. by Gender	2	293.43	146.71	2.18	.11
	P.S. Att. by IQ by Rdg. Pro. by Gender	3	147.86	49.28	.73	.53
Rdg. Comp.[8]						
	P.S. Att.	2	6.64	3.32	.03	.96
	IQ	2	1656.30	828.15	9.27	.00*
	Rdg. Pro.	1	188.14	188.14	2.10	.15
	Gender	1	341.42	341.42	3.82	.05*
	P.S. Att. by IQ	4	241.28	60.32	.67	.61

TABLE 50 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Rdg. Comp.(Cont.)						
	P.S. Att. by Rdg. Pro.	2	81.30	40.65	.45	.63
	P.S. Att. by Gender	2	410.85	205.42	2.30	.10
	IQ by Rdg. Pro.	2	212.96	106.48	1.19	.30
	IQ by Gender	2	515.57	257.78	2.88	.06
	Rdg. Pro. by Gender	1	27.07	27.07	.30	.58
	P.S. Att. by IQ by Rdg. Pro.	4	110.31	27.57	.30	.87
	P.S. Att. by IQ by Gender	4	301.89	75.47	.84	.50
	IQ by Rdg. Pro. by Gender	2	4.27	2.13	.02	.97
	P.S. Att. by IQ by Rdg. Pro. by Gender	2	284.42	142.21	1.59	.20
	P.S. Att. by IQ by Rdg. Pro. by Gender	3	80.48	26.82	.30	.82
Tot. Comp.[9]						
	P.S. Att.	2	277.89	138.94	.48	.61
	IQ	2	5491.24	2745.62	9.60	.00*
	Rdg. Pro.	1	223.77	1223.77	4.28	.04*
	Gender	1	1051.66	1051.66	3.55	.06
	P.S. Att. by IQ	4	531.20	132.80	.46	.76
	P.S. Att. by Rdg. Pro.	2	153.52	76.76	.26	.76
	P.S. Att. by Gender	2	1223.04	611.52	2.13	.12
	IQ by Rdg. Pro.	2	557.82	278.91	.97	.38
	IQ by Gender	2	1834.90	917.45	3.20	.04*
	Rdg. Pro. by Gender	1	49.58	49.58	.17	.67
	P.S. Att. by IQ by Rdg. Pro.	4	554.76	138.69	.48	.74

TABLE 50 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Tot. Comp. (Cont.)						
	P.S. Att. by IQ by Gender	4	1125.95	281.48	.98	.42
	P.S. Att. by Rdg. Pro. by Gender	2	54.10	27.05	.09	.91
	IQ by Rdg. Pro. by Gender	2	1137.40	568.70	1.98	.14
	P.S. Att. by IQ by Rdg. Pro. by Gender	3	150.79	50.26	.17	.91
Class Beh.[10]						
	P.S. Att.	2	274.78	137.39	1.10	.35
	IQ	2	993.54	496.77	4.00	.02*
	Rdg. Pro.	1	2371.38	2371.36	19.12	.00*
	Gender	1	466.64	466.64	3.76	.05*
	P.S. Att. by IQ	4	293.66	73.41	.59	.66
	P.S. Att. by Rdg. Pro.	2	67.09	33.54	.27	.76
	P.S. Att. by Gender	2	278.24	139.12	1.12	.31
	IQ by Rdg. Pro.	2	1147.84	573.92	4.62	.01*
	IQ by Gender	2	9.77	4.88	.03	.96
	Rdg. Pro. by Gender	1	2.13	2.13	.01	.89
	P.S. Att. by IQ by Rdg. Pro.	4	201.55	50.38	.40	.80
	P.S. Att. by IQ by Gender	4	778.49	194.62	1.57	.18
	P.S. Att. by Rdg. Pro. by Gender	2	105.68	52.84	.42.65	
	IQ by Rdg. Pro. by Gender	2	52.56	26.28	.21	.80
	P.S. Att. by IQ by Rdg. Pro. by Gender	3	321.50	107.16	.86	.46

TABLE 50 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Self-Con.[11]						
	P.S. Att.	2	17.63	8.81	1.32	.27
	IQ	2	37.37	18.68	2.81	.06
	Rdg. Pro.	1	125.30	125.30	18.86	.00*
	Gender	1	.64	.64	.09	.75
	P.S. Att. by IQ	4	11.64	2.91	.43	.78
	P.S. Att. by Rdg. Pro.	2	1.07	.53	.08	.92
	P.S. Att. by Gender	2	5.23	2.61	.39	.67
	IQ by Rdg. Pro.	2	3.73	1.86	.28	.75
	IQ by Gender	2	27.28	13.64	2.05	.13
	Rdg. Pro. by Gender	1	7.01	7.01	1.05	.30
	P.S. Att. by IQ by Rdg. Pro.	4	6.13	1.53	.23	.92
	P.S. Att. by IQ by Gender	4	31.51	7.87	1.18	.32
	P.S. Att. by Rdg. Pro. by Gender	2	12.64	6.32	.95	.38
	IQ by Rdg. Pro. by Gender	2	39.24	19.62	2.95	.05*
	P.S. Att. by IQ by Rdg. Pro. by Gender	3	15.82	5.27	.79	.50
Rdg. Att.[12]						
	P.S. Att.	2	677.35	338.68	3.42	.03*
	IQ	2	283.57	141.78	1.43	.24
	Rdg. Pro.	1	24.83	24.83	.25	.61
	Gender	1	97.70	97.70	.98	.32
	P.S. Att. by IQ	4	110.68	27.67	.28	.89
	P.S. Att. by Rdg. Pro.	2	252.76	126.38	1.27	.28
	P.S. Att. by Gender	2	477.75	238.87	2.41	.09
	IQ by Rdg. Pro.	2	364.01	182.02	1.84	.16

TABLE 50 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Rdg. Att.	(Cont.)					
	IQ by Gender	2	267.89	133.94	1.35	.26
	Rdg. Pro. by Gender	1	84.26	84.26	.85	.35
	P.S. Att. by IQ by Rdg. Pro.	4	1011.67	252.91	2.56	.04*
	P.S. Att. by IQ by Gender	4	134.56	33.64	.34	.85
	P.S. Att. by Rdg. Pro. by Gender	2	79.31	39.65	.40	.67
	IQ by Rdg. Pro. by Gender	2	222.15	111.07	1.12	.32
	P.S. Att. by IQ by Rdg. Pro. by Gender	3	449.39	149.79	1.51	.21

*$p \leq .05$

[1] - Auditory Discrimination subtest
[2] - Level of Intelligence
[3] - Socioeconomic Status
[4] - Reading Program
[5] - Auditory Vocabulary subtest
[6] - Phonetic Analysis subtest
[7] - Word Reading subtest
[8] - Reading Comprehension subtest
[9] - Total Comprehension subtest
[10] - Classroom Behavior Rating Scale
[11] - Self-Concept Test
[12] - Reading Attitude Scale

dance, type of reading program, gender, and level of intelligence. The assumed null hypothesis was rejected for auditory vocabulary only.

The statistical significance of lower-order interactions and the main effects of the frequency of preschool attendance, type of reading program, gender, and level of intelligence on auditory vocabulary were also assessed. The only significant two-way interaction was that of the frequency of preschool attendance and the type of reading program. The F-ratio of 6.11 was significant beyond the required .05 level, also as shown in Table 50. Also shown to be significant were the main effects of intelligence and the type of reading program. The obtained F-ratios were 17.80 and 7.73, respectively. Both were statistically significant beyond the required .05 level. The results were consistent with the earlier ones reported in Table 20, in which the level of intelligence was positively related to auditory vocabulary.

Several conclusions may be made on the basis of Table 51, concerning these main and interaction effects on auditory vocabulary. Those whose level of intelligence was in the superior range had the highest auditory vocabulary scores. Those who had used the Open Court-Headway reading program also had better auditory vocabulary scores than did those who used the Bookmark program. In addition, those who had attended preschool on a full-time basis and used the Open Court-Headway program had the highest auditory vocabulary scores, while those who had not attended preschool and used the Bookmark program had the lowest scores. Finally, those males whose level of intelligence was in the superior range, used the Open Court-Headway program, and had attended preschool on a full-time basis had the highest auditory vocabulary scores, while those

TABLE 51

Mean Auditory Vocabulary Scores by Preschool Attendance, Reading Program, Gender, and Level of Intelligence

Preschool Att.	None	Part-time	Full-time
	26.04	26.76	27.15

Reading Pro.	Open Court-Headway	Bookmark
	27.17	26.09

Gender	Males	Females
	26.70	26.62

Level of Intell.	Average	Above Average	Superior
	24.66	28.11	28.51

Males

Level of Intell.	Average		Above Average		Superior	
Read. Pro.	OC-H	B	OC-H	B	OC-H	B
Preschool						
None	26.43	21.50	28.33	--	24.00	28.67
P.T.	27.25	24.50	30.20	16.00	28.67	28.14
F.T.	23.75	24.00	23.00	25.00	30.00	27.33

Females

Level of Intell.	Average		Above Average		Superior	
Read. Pro.	OC-H	B	OC-H	B	OC-H	B
Preschool						
None	25.17	23.00	27.50	28.50	28.25	24.50
P.T.	26.56	18.67	31.00	28.50	34.00	22.67
F.T.	24.67	29.00	29.00	30.00	28.00	32.00

females whose level of intelligence was in the average ranged, used the Bookmark program, and had not attended preschool had the lowest auditory vocabulary scores.

The four-way interaction of the frequency of preschool attendance, type of reading program, gender, and level of intelligence was not statistically significant for classroom behavior, self-concept, reading attitude, or any measure of reading achievement other than the Auditory Vocabulary. The obtained F-ratios ranged from .17 to 1.51, none of which reached the required .05 level of statistical significance, as shown in Table 50. Therefore, there were no statistically significant differences among the variances of the subjects on any measure of reading achievement other than auditory vocabulary, classroom behavior, self-concept, and reading attitude, across frequency of preschool attendance, type of reading program, gender, and level of intelligence. The assumed null hypothesis was not rejected for these measures.

Question Thirty-one

The statistical significance of the five-way interactions of the levels of socioeconomic status and intelligence, frequency of preschool attendance, gender, and type of reading program could not be assessed. As shown in Table D-12 in Appendix D, the three-way and higher order interactions were suppressed due to empty cells. Therefore, no conclusions could be made concerning differences among the groups or the null hypothesis.

CHAPTER V

DISCUSSION

The results of this study have shown that the relationships between and/or among the independent variables of the frequency of preschool attendance, type of reading program, gender, socioeconomic status, and level of intelligence, and the dependent variables of reading achievement, classroom behavior, self-concept, and reading attitude were significant in certain situations. In this final chapter, the results will be reviewed, and these situations will be discussed in terms of specific questions which were supported or rejected. In addition, these findings will be discussed in terms of previous research findings, their implications, threats to internal validity, and suggestions for future research.

Main Effects

The data indicated the frequency of preschool attendance is significantly related to reading attitude. Assumed Null Hypothesis One is rejected for reading attitude only. In this study, those children who had not attended preschool have significantly more positive attitudes toward reading in first grade than did those children who had attended preschool on a full-time basis. The frequency of preschool attendance is not related to any of the measure aspects of reading achievement, classroom behavior, or self-concept.

The finding of a positive but inverse relationship between the fre-

quency of preschool attendance and reading attitude in first grade contributes to the limited information known about the nature of the relationship between preschool attendance and subsequent reading attitude in elementary school. This limited information has been supplied by Karnes (1973), who is the only researcher found who had assessed the relationship between these two variables. However, this previous research (Karnes, 1973) had investigated the effects of different types of preschool curricula on reading attitude in the fourth grade. Because the present study does not address the issue of preschool curricula, no direct comparison with the previous research by Karnes (1973) can be made here.

However, comparisons can be made among the present study and those assessing the effects of preschool attendance on subsequent reading achievement, classroom behavior, or self-concept, if the previous studies also included a control group. The findings of the present study are inconsistent with those of the American Institutes for Research in the Behavioral Sciences (1970), who reported the findings of positive relationships between preschool attendance in the Perry Preschool Project and subsequent reading achievement, classroom behavior, and self-concept. The present findings of no significant relationships between preschool attendance and each of the three variables of reading achievement, classroom behavior, and self-concept in the first grade are inconsistent with those later reported by Deutsch et al. (1974), McAfee (1972), Gray et al. (1982), Karnes, Shwedel, and Williams (1983), and Lazar and Darlington (1978).

The present findings are consistent with the results of a meta-

analysis reported by Lazar et al. (1982) through 1978, and Royce et al. (1983) through 1981. Both reported no significant differences in the reading achievement of those who had attended preschool and those who had not attended.

There were several possible explanations for the similarities and differences in conclusions. Most of the previous research studies were done longitudinally, in which the reading achievement scores of the same children were compared after a specified time interval. The results of the first graders' scores were probably measured too long ago to be comparable with the scores of the present study. Still other possible reasons for the differences in results involved probable differences in the preschools' curricula, purposes of the programs, and sources of funding. Because the percentage of government funding and the curriculum used in each of the preschools attended by the students in this study was not known, it was not possible to assess the effects of public versus private funding, nor of different curricula used. It was also not possible to assess the effects of the purpose of the program, such as intervention or enrichment. A final reason involved differences in the measures of reading achievement, classroom behavior, and self-concept used. Since the measures used in the studies were not the same, the conclusions based upon them were probably not equivocal. The similarities in the research results were probably due to the studies combining the effects of preschool attendance, regardless of the types of preschools and curricula, on reading achievement, classroom behavior, and self-concept.

The data in this study also indicate that the type of reading program used is significantly related to reading achievement, classroom be-

havior, and self-concept. Assumed Null Hypothesis Two is rejected for reading achievement, classroom behavior, and self-concept. In this study, those children who had used the Open Court-Headway reading program had significantly better Auditory Discrimination subtest scores and self-concept scores than did those children who had used the Bookmark reading program. The intensive-direct-synthetic phonics reading program is related to significantly better discrimination between or among sounds and self-concept scores than is the gradual-indirect-analytic reading program. However, the opposite is true of the effect on classroom behavior. Here, the gradual-indirect-analytic is related to significantly better classroom behavior than is the intensive-direct-synthetic type. Neither type of reading program is significantly related to reading attitude.

If auditory discrimination can be considered as representative of reading achievement in general, the findings of this study are consistent with those of Dykstra (1968), Fulwiler and Groff (1980), Kean et al. (1979), Potts and Savino (1968), and Talmage and Walberg (1978). They all found that the intensive-direct-synthetic type of reading program, such as Open Court-Headway, is significantly related to better reading achievement than is the gradual-indirect-analytic program, such as Bookmark. The results of several meta-analyses done by Bond and Dykstra (1967), Chall (1967, 1983), Gurren and Hughes (1965), and Pflaum et al. (1980) were all consistent with the present findings. Because no relevant research was found concerning the relationships between the type of reading program and each of the variables of classroom behavior, self-concept, and/or reading attitude, the degree of consistency in research results can not be assessed.

It is interesting that classroom behavior is aligned with the gradual-indirect-analytic type of reading program, while another affective variable of self-concept is aligned with auditory discrimination and the intensive-direct-synthetic type of reading program. There are several possible explanations for these unexpected findings. One involves the use of the drill technique, in which sounds are repeatedly reviewed and practiced. This technique is used frequently with the intensive-direct-synthetic approach in the Open Court-Headway program. It is used much less frequently with the gradual-indirect-analytic approach in the Bookmark program. This technique could lead to the students being bored in class and therefore increasing the probability of their misbehaving. Another possible explanation involves the relationships among the variables. According to Potts and Savino (1968) and Fulwiler and Groff (1980), the reading achievement of first grade students is significantly higher if they use an intensive-direct-synthetic reading approach, such as the Open Court-Headway program, than if they use a gradual-indirect-analytic approach, such as the Bookmark program. Assuming auditory discrimination is representative of reading achievement in general, and self-concept is significantly related to reading achievement (Eldredge, 1981; Furst, 1983; and Taylor & Michael, 1981), self-concept is significantly related to both auditory discrimination and the intensive-direct-synthetic type of reading approach found in the Open Court-Headway program. Still another explanation is that the intensive-direct-synthetic approach is a much more verbal program, and success with it requires or develops significantly better verbal and/or auditory skills, such as auditory discrimination. A final explanation involves the philosophies of

the two school districts in which this study occurred. It is assumed that the school districts chose the particular reading program they use because it meets their purposes and needs. If the school district, and therefore, its teachers, value and encourage verbal development and phonics in reading instruction more than the other word identification and decoding skills of sight words, meaningful context, and word structure, the reading approach of choice is the Open Court-Headway program, and the auditory discrimination and other reading achievement subtest scores would be higher than if the opposite is true.

The data in this study further indicate no gender differences in reading achievement, classroom behavior, self-concept, or reading attitude. Assumed Null Hypothesis Three is not rejected. The research results are consistent with those of Thompson (1975) and Yarborough and Johnson (1980).

The data additionally indicate that socioeconomic status is significantly related to reading achievement and classroom behavior. Assumed Null Hypothesis Eight is rejected for reading achievement and classroom behavior only. Those who are from the middle and higher socioeconomic status backgrounds have significantly higher auditory vocabulary, phonetic analysis, and word reading scores, as well as better classroom behavior, than do those who are from lower socioeconomic status backgrounds. Socioeconomic status is not related to self-concept or reading attitude.

The present finding of a positive and significant relationship between socioeconomic status and reading achievement is consistent with the recent results of Barton and Wilder (1979), Entwisle (1976), Low and

Clement (1982), and Seitz (1977). In addition, Haywood (1982) and Meade (1981) had also found positive and significant relationships between socioeconomic status and classroom behavior, which were consistent with the results of this study.

The data in this study also indicate that socioeconomic status is not significantly related to self-concept or reading attitude. These findings are consistent with those of Cicirelli (1977), Filler (1973), Entwisle and Hayduk (1982), Rosenberg (1979), Swanson (1981), and Trowbridge and Trowbridge (1972), who also had failed to find significant relationships between socioeconomic status and each of these two variables.

There are several possible explanations for these findings. Most of the studies used students who were older than the students in the present study. Those few that did use first graders used only two socioeconomic status groups, instead of the three groups used in the present study. Still another explanation involved the basis for the divisions of the three socioeconomic strata. In the present study, the occupation of at least one working parent was used. The comparison studies usually used income as the basis for the strata. A final explanation involves the measure of self-concept used. Most of the comparison studies used measures of self-concept which were not specifically designed for use with, and standardized on, preschool and primary age children. Therefore, their conclusions about first grade children had to be questioned.

In addition, the conclusions concerning socioeconomic status should be considered as tentative. Out of 136 subjects, 51, or 37.5 percent, of the parents failed to report information concerning their occupations or reported their occupation as "housewife". Because this category was not

included by Duncan (1977) in his Index For All Occupations, it was considered as being missing data for the statistical analysis. It is assumed that this data would have contributed to the significance and status of the conclusions made.

The data also indicate that the level of intelligence is significantly related to auditory discrimination, auditory vocabulary, phonetic analysis, word reading, reading comprehension, total comprehension, and classroom behavior. Assumed Null Hypothesis Nine is rejected for reading achievement and classroom behavior. It is not rejected for self-concept or reading attitude.

Those whose levels of intelligence are in the superior range have significantly better auditory discrimination, auditory vocabulary, phonetic analysis, word reading, reading comprehension, total comprehension, and classroom behavior than do those whose level of intelligence is in the average range. In addition, those whose level of intelligence is in the above average range have significantly better auditory vocabulary, phonetic analysis, word reading, and classroom behavior, than do those whose level of intelligence is in the average range.

The present findings are consistent with the results of previous studies. Alexander and Eckland (1975), Hale et al. (1982), and Walberg and Marjoribanks (1976) found that the level of intelligence was significantly and positively related to reading achievement. Furthermore, the meta-analysis done by Stanovich et al. (1984) had provided more evidence of the significance of the positive relationship between the level of intelligence and reading achievement in six through thirteen year old children. The finding of a significant and positive relationship between the

level of intelligence and classroom behavior in this study is also consistent with the results of previous studies. Haier and Denham (1978) found that as the level of intelligence increased, the better the classroom behavior became. Milgram and Milgram (1976) had also found consistent results, in their comparative study of fourth and eighth grade students. Lehman and Erdwins (1981) also found that children whose level of intelligence was in the average range had significantly more behavioral problems in the classroom than did those who had a higher level of intelligence in their comparative study of third and sixth grade children. Haskins et al. (1983) found similar results, in their study of kindergartners and first graders. Ludwig and Cullinan (1984) studied the classroom behavior of first through fifth grade children, and also found similar results.

Previous studies also reported consistent findings of no statistically significant relationship between the level of intelligence and self-concept. Ross and Parker (1980) studied fifth through eighth grade students, and found that the nature of this relationship depended on the aspect of self-concept being measured. When academic self-concept was measured, its relationship to the level of intelligence was positive and statistically significant. However, the relationship between the level of intelligence and social self-concept was not statistically significant. Winne et al. (1982) found similar results with children in the fourth through seventh grades.

Other researchers have also reported no significant relationships between the level of intelligence and attitude toward reading. Groff (1962) and Hansen (1969) found no statistically significant relationship

in fourth, fifth, and sixth graders. Alexander and Filler (1976) advised against assuming a positive and statistically significant relationship between these two variables, in their meta-analysis of the available research.

Interaction Effects

In addition to the main effects of the independent variables of the frequency of preschool attendance, type of reading program, gender, socioeconomic status, and level of intelligence, on the dependent variables of reading achievement, classroom behavior, self-concept, and reading attitude, the interaction effects are also assessed. Some of these two- through four-way interactions are statistically significant, while others are not. Several of the four- and five-way interactions could not be assessed due to empty cells.

There are several statistically significant two-way interactions. For some, there are neither statistically significant main effects nor one-way analyses of variance. One is the frequency of preschool attendance and the type of reading program for auditory vocabulary only. An examination of the means showed that those who had attended preschool on a part-time basis and used the Open Court-Headway reading program had the highest Auditory Vocabulary scores. Assumed Null Hypothesis Four is rejected for auditory vocabulary only.

The frequency of preschool attendance also significantly interacts with gender for only reading comprehension and total comprehension. The differences among the means forms the basis for the conclusions that females who had not attended preschool have better reading and total comprehension scores than do males who had attended on a full-time basis.

Also, females who had attended on a full-time basis have better scores than do males who had not attended. Assumed Null Hypothesis Five is rejected for reading comprehension and total comprehension only.

The final significant two-way interaction for which there are no significant main effects or one-way analysis of variance is that of the level of intelligence and gender for self-concept only. On the basis of differences in the means, it may be concluded that males of above average intelligence have better self-concept scores than do females of superior intelligence. Assumed Null Hypothesis Thirteen is rejected for self-concept only.

For other statistically significant two-way interactions, there are significant main effects. One is the interaction of the type of reading program and the level of intelligence for classroom behavior only. Therefore Assumed Null Hypothesis Twelve is rejected for classroom behavior only. There are also main effects for both the type of reading program and the level of intelligence. Those children who use the Bookmark reading program and whose level of intelligence is in the superior, above average, or average ranges have significantly better classroom behavior than do those children who use the Open Court-Headway program and whose level of intelligence is in the average range. These results are consistent with the earlier ones reported for Hypotheses Two and Nine.

Another two-way interaction having main effects is that of the frequency of preschool attendance and socioeconomic status for auditory discrimination and word reading only. Assumed Null Hypothesis Fourteen is rejected for only these two reading achievement subtests. There are main effects of socioeconomic status for both subtests, and of the frequency

of preschool attendance for word reading. Those who had attended preschool on a part-time basis and are from a middle status background have better auditory discrimination scores than do those who had not attended preschool and are from a low status background. Also, those who had attended preschool on a full-time basis and are from a high status background have better word reading scores than do those who had not attended preschool and were from a low status background. These findings are consistent with the earlier results for assumed Null Hypothesis Eight.

Still another of these significant interactions is socioeconomic status and the type of reading program. Assumed Null Hypothesis Fifteen is rejected for classroom behavior only. There are main effects of both socioeconomic status and the type of reading program for classroom behavior only. Those who use the Bookmark reading program and are from average or high status backgrounds have better classroom behavior than do those children who use the Open Court program and are from lower status backgrounds. These findings are also consistent with those for assumed Null Hypothesis Eight.

This consistency in findings is further maintained in the significance of the main and interaction effects of gender and socioeconomic status for auditory vocabulary only. Assumed Null Hypothesis Sixteen is rejected for this subtest only. An investigation of the main effects showed statistical significance for socioeconomic status only. However, according to an examination of the means, males who were from low status backgrounds have higher auditory vocabulary scores than do females from middle status backgrounds.

There are also many significant three-way interactions. Assumed Hypotheses Seven, Nineteen, Twenty, Twenty-two, and Twenty-four are rejected for different measures. The interaction of the type of reading program, gender, and the frequency of preschool attendance is significant for only auditory vocabulary, but there are no significant main effects. Also showing significance for auditory vocabulary, as well as for reading attitude, is the interaction of gender, socioeconomic status and level of intelligence in assumed Null Hypothesis Twenty. The finding of a significant main effect of socioeconomic status on auditory vocabulary, where those from higher status backgrounds have better auditory vocabulary, is consistent with the earlier findings for assumed Null Hypothesis Eight. Therefore, females who had attended preschool on a full-time basis and use the Bookmark reading program have better auditory vocabulary scores than do males who had not attended preschool and use the Open Court-Headway program. Females who are from a middle status background and whose levels of intelligence are in the above average or superior ranges have better auditory vocabulary scores than do males from a low status background and whose level of intelligence is in the average range. In addition males who are from a lower status background and whose level of intelligence is in the average range have better reading attitude scores than do females from middle or high status backgrounds and whose level of intelligence is in the superior range. Also, females from a low status background and whose level of intelligence is in the superior range have better reading attitude scores than do males from a middle status background and whose level of intelligence is in the average range.

Two of these three-way interactions are significant for only self-

concept. The type of reading program interacts with gender and the level of intelligence, as well as with gender and socioeconomic status, as tested in assumed Null Hypotheses Nineteen and Twenty-two. The main effect of the type of reading program shows that those who use the Open Court-Headway program have better self-concepts than do those who use the Bookmark program. Females whose level of intelligence is in the above average range and who use the Open Court-Headway program have higher self-concept scores than do males whose level of intelligence is in the average range and who use the Bookmark program. In addition, females who are from a middle status background and use the Open Court-Headway program have higher self-concept scores than do males from a low status background and use the Bookmark program.

The last significant three-way interaction is that of the type of reading program, socioeconomic status, and the level of intelligence for only phonetic analysis and word reading, as tested in assumed Null Hypothesis Twenty-four. The main effect of the level of intelligence shows that the higher the level of intelligence, the higher the word reading score. An examination of the differences in the means showed that those who use the Open Court-Headway program, whose level of intelligence is in the above average range, and are from a middle status background have higher phonetic analysis scores than do those who use the Bookmark program, whose level of intelligence is in the average range, and are from a low status background. In addition, those who use the Open Court-Headway program, whose level of intelligence is in the above average range, and are from a middle status background have better word reading scores than do those who use the Bookmark program, whose level of intelligence is in

the average range, and are from a low status background.

There are also two significant four-way interactions. Assumed Null Hypotheses Twenty-eight and Twenty-nine are rejected for only self-concept and auditory vocabulary, respectively. The former one is the interaction of the frequency of preschool attendance, gender, type of reading program, and socioeconomic status. Males who had attended preschool on a part-time basis, were from a middle status background, and use the Open Court-Headway reading program have better self-concept scores than do females who had not attended preschool, were from a high status background, and use the Bookmark program. The only main effect, that of the type of reading program, shows that those who use the Open Court-Headway program have better self-concepts than do those who use the Bookmark program. The latter significant interaction is the frequency of preschool attendance, type of reading program, gender, and level of intelligence. Males whose level of intelligence is in the superior range, had attended preschool on a full-time basis, and use the Open Court-Headway program have the highest auditory vocabulary scores. Females whose level of intelligence is in the average range, had not attended preschool, and use the Bookmark program have the lowest auditory vocabulary scores. Here, the only main effect of the level of intelligence shows that those who have higher levels of intelligence have better auditory vocabulary, which is consistent with the previous results of this study.

In addition to these significant findings of interaction effects, there are many non-significant ones. Assumed Null Hypotheses Six, Ten, and Eleven are not rejected. There are no significant two-way interactions of the type of reading program and gender, socioeconomic status and

level of intelligence, or the frequency of preschool attendance and the level of intelligence, on reading achievement, classroom behavior, self-concept, or reading attitude.

In addition, many of the three-way interactions are not significant. Assumed Null Hypotheses Seventeen, Eighteen, Twenty-one, Twenty-three, and Twenty-five are all not rejected. There are no significant interactions of the frequency of preschool attendance, socioeconomic status, and type of reading program. The frequency of preschool attendance also does not interact with gender and the level of intelligence. Similarly, the frequency of preschool attendance does not interact with socioeconomic status, and gender. In addition, the interaction of the type of reading program, the frequency of preschool attendance, and the level of intelligence was not significant. The final three-way non-significant interaction involves the frequency of preschool attendance, the level of intelligence, and socioeconomic status.

The significance of three four-way interactions, from assumed Null Hypotheses Twenty-six, Twenty-seven, and Thirty, could not be assessed. The first one is the effect of socioeconomic status, the type of reading program, level of intelligence, and gender. The second one is the effect of the frequency of preschool attendance, level of intelligence, socioeconomic status, and gender. The last one involves the interaction of the level of intelligence, socioeconomic status, the frequency of preschool attendance, and type of reading program. All three-way and higher order interactions involving both the level of intelligence and socioeconomic status are suppressed due to empty cells.

This suppression also occurred in the analysis of the five-way in-

teraction of the frequency of preschool attendance, the type of reading program, gender, level of intelligence, and socioeconomic status. Therefore, assumed Null Hypothesis Thirty-one could not be assessed.

Potential Threats To Internal Validity

Many of the potential threats to internal validity are controlled or accounted for in the research design used. These include the effects of history, maturation, testing, instrumentation, statistical regression, selection, and subject mortality.

Elements in the children's histories were controlled. All of the children had attended kindergarten and had used one of the two reading programs of interest here since they began first grade. They had been with the same teachers and in the same school since they began first grade. Finally, their health histories were all within the normal range, since no parent reported abnormal absenteeism or serious health incidents.

Another threat involves the effects of maturation. However, all of the testing was completed within seven weeks, in order to minimize these maturation effects. In addition, the children all met the age requirement of being six years old.

The third threat to internal validity involves the effects of prior testing. However, none of the children involved in this study had undergone any prior standardized testing. Their experience with testing was limited to that within the realm of the classroom.

Still another threat involves the measuring instruments. While the same instruments were used with all the subjects, the times these instruments were administered were not all the same. Some of these students

were examined during the morning, while some were seen in the afternoon. Some were seen shortly after they arrived at school, while others were seen shortly after lunch. These differing times were required in order to avoid using different examiners, all in order to complete all testing within the seven weeks. With the exception of the reading achievement subtest, the performances on all of the instruments were evaluated by the same examiner. This was done to control for examiner differences. All reading achievement subtests were machine-graded by the test publisher.

A fifth threat to internal validity is that of statistical regression. This was accounted for in the design of the study, since the subjects were selected by means other than extreme scores.

The sixth threat involves the differential selection of subjects. There were no apparent biases in the subject selection. They were selected through the use of the Table of Random Numbers, after they met several essential criteria.

Experimental mortality is the final threat to internal validity. This threat was not applicable in this study, since no subjects dropped out of either group.

Implications

These findings have both practical implications as well as implications for future research. These findings are based on research with preschool education as a whole, while prior research generally dealt with federally funded preschool education. More research is needed to define the conditions under which preschool attendance is related to progressively poorer attitudes toward reading. The conditions under which different types of reading programs are related to either classroom behavior

or self-concept also need to be identified through future research.

Research should also be done from the developmental point of view. While these findings are applicable to six year old children they may not be applicable to children who are eight, ten, or fifteen years old. If consistent results are found to occur developmentally for these two affective variables of self-concept and classroom behavior, their implications for use in remediation appear to be clear.

The need for developmental research is also apparent when one reviews the literature in the areas of the affective variables of self-concept, classroom behavior, and attitude toward reading. There seemed to be a great deal more research done concerning self-concept, while less was done about classroom attitude. The research in this last area appeared to heavily concentrate on the use of middle adolescent and adult subjects, while under-utilizing samples of younger children.

The need for longitudinal research is also apparent. The assessment of change in self-concept, classroom behavior, and reading attitude over a period of time could provide clues into the nature of any critical periods. Furthermore, this type of research also provides information to aid in the development of positive self-concepts, appropriate classroom behavior, and favorable reading attitudes.

Longitudinal research would also assess the long-term effects of privately funded preschool attendance. Possible explanations for the unexpected findings concerning the lack of a significant relationship between the frequency of preschool attendance in a privately funded center and each of the variables of reading achievement, classroom behavior, and self-concept in first-graders need to be investigated. These explana-

tions include the degree of consistency in preschool programs, the nature of the experiences offered in the home which are different from those in the preschool, and the over-emphasis on pre-reading experiences which result in children having negative attitudes toward reading.

Still another avenue for longitudinal investigation involves a comparison of the effects of preschool attendance immediately upon finishing the preschool program, again one year later, and then in first grade. It is possible that the effects are positive immediately after finishing the program, but the kindergarten program used makes these effects no longer significant.

Future research should also investigate the possibility of a "sleeper effect", since Beller (1983) had found that preschool attendance was significantly related to classroom behavior in the tenth grade but not the fourth grade. Therefore, it is possible that the effects of the frequency of preschool attendance will be statistically significant at some point in the future.

In addition, research should also investigate the effects of different types of reading programs. The review of the literature showed a scarcity for current research results comparing gradual and intensive phonics programs. No relevant studies could be found relating the type of program to the variables of interest in this study.

Finally, research should involve many more subjects than were involved in this study. This would allow for the evaluation of the four- and five-year way interaction effects, which were suppressed in this study due to empty cells.

In addition to this study's implications for future research, there

are several practical implications. First grade teachers need to be aware of the negative attitude toward reading held by those who attended preschool on a full-time basis, in order to remediate the negativism and to aid in the development of positive attitudes.

The school districts, principals, and first grade teachers should also be aware of the nature of the relationship between the type of reading program and each of the variables of auditory discrimination, classroom behavior, and self-concept. Since the Open Court-Headway program, which uses the intensive phonics approach, is significantly related to better auditory discrimination and self-concepts, special attention may need to be given to improving classroom behavior in those classrooms in which this reading program is used. Likewise, special attention may be desirable to improve the auditory discrimination and self-concepts of those children who use the Bookmark reading program, since this program is significantly related to better classroom behavior.

Still another practical implication involves the directions for remediation. Socioeconomic status and/or the level of intelligence have been shown to be significantly related to all of the dependent variables. Because these variables cannot be manipulated, other variables found to be related to reading achievement, classroom behavior, self-concept, and/or reading attitude are the ones to be used in remediation. For example, those children who have poor classroom behavior may benefit from additional use of the Bookmark reading program in a remedial context.

This study has revealed the situations in which the relationships of the independent variables of the frequency of preschool attendance, type of reading program, gender, level of intelligence, and socioeconomic

status, to the dependent variables of reading achievement, classroom behavior, self-concept, and reading attitude in first grade children. Only some of these relationships were shown to be statistically significant however. The implications of these findings were also discussed, in terms of future practices and research studies.

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Appendix A

Appendix A-1

Letter of Informed Consent

Dear Parent or Guardian,

I am now conducting a research study for my doctoral dissertation at Loyola University in Chicago, Illinois. This study will focus on the relationships of the frequency of preschool attendance, type of reading program, and gender on reading achievement, classroom behavior, self-concept, and reading attitude in first graders.

To do this, I will need three groups of children from each of two school districts having different reading programs. Each group will consist of equal numbers of boys and girls. One group will have attended full-time preschool. A second group will have attended preschool on a part-time basis. The third group will not have preschool, or attended for only one-half day per week. Not all children permitted to participate will be randomly selected to do so.

The classroom teacher will give all children a reading achievement test as part of the tests given in the spring of each school year. The teacher will also rate a child's behavior in the classroom. All of these scores received by the children involved n the study will be shown to me.

I will give each of the 90 children a scale of self-concept, a scale of attitudes toward reading, and an intelligence test, to compare them with other first grade children. A survey to be filled out by you will have questions about your present occupation, your child's background, and his or her preschool and kindergarten attendance. The preschools and kindergartens may be contacted to make sure the attendance was correct.

The results of this study will be strictly confidential. The names of the children involved in this study will be known only to me. Their anonymity is guaranteed. If you desire, these results will be available to you in a private discussion with me, as it relates to your child. You will decide what to do with these results when the study is completed.

There are many potential benefits of this study. If you desire, you will be told of any difficulty your child has. If no area of difficulty is found, your concerns can be eased. If an area of difficulty is found, confidential suggestions can be made to ease this. If a problem area has already been suggested, the results of this study can provide another opinion. You may relay the findings of this study to the appropriate people, to help in making decisions about your child. Finally, the results of his study may aid in making decisions about other young children in your home.

There is no risk involved to you or your child. You may withdraw your child from participation in this study at any time, without prejudice.

You may keep this letter. Please sign the form on the next page, and indicate whether or not you consent to your child's participation in this study. Return the signed form to your child's teacher.

Sincerely,

Gail Waxman, M.A., M. Ed.,
Ed.D. Candidate

Appendix A-2

PARENT'S CONSENT FORM

Project Title: An Assessment of Factors Related to Reading Achievement, Classroom Behavior, Self-Concept, and Reading Attitude in First Grade Children.

I am the parent or guardian of _____, a minor _____ years of age. I have read the description of the research project, and understand the procedures to be used. I also understand that no risk is involved, and that I may withdraw my child from participation at any time without prejudice.

I choose:

_____ to consent to my child's participation
or
_____ not to consent to my child's participation

I will return this form to my child's teacher.

_____
Signature of Parent or Guardian

_____
Date

Appendix A-3

PARENT OR GUARDIAN QUESTIONNAIRE

Dear Parent or Guardian,

Please answer all of the following questions. When you are finished, please return this to your child's teacher.

1. Your first-grader's name and sex _____

2. This child's birthday and age _____

3. This child's present school and teacher _____

4. When did he or she start this school? _____

5. Did this child go to kindergarten? _____

   If yes, where? _____

6. Approximately how many days was this child absent from _____

   kindergarten? _____

7. Does this child speak English well? _____

8. Did this child go to nursery school or preschool? _____

   If yes, where and when? _____

9. How many times per week did your child go to this nursery

   school or preschool? _____

10. What is your occupation? _____

11. Are you now a part of the Armed Forces? _____

12. Do you want to know how well your child does in this study?

13. Do you want to know the results of this study? _____

If yes to Questions 12 or 13, what is your telephone number?

Thank you for your help,

_____

Gail Waxman, M.A., M.Ed.
Ed.D. Candidate

Appendix B

The JOSEPH PRE-SCHOOL and PRIMARY SELF CONCEPT SCREENING TEST

by JACK JOSEPH

INDIVIDUAL RECORD FORM

		Year	Month	Day
Name _____	Date Tested	____	____	____
Address _____	Date of Birth	____	____	____
School/Grade _____/_____	Age	____	____	____
Examiner _____	Sex	M F (circle one)		

SUMMARY INFORMATION

Global Self Concept Score _____

_____ High Positive
_____ Moderate Positive
_____ Watch List
_____ Poor
_____ High Risk Negative
(check one category)

SELF CONCEPT CLASSIFICATION	Normative Age Groups 3-6 to 4-6	4-7 to 5-11	6-0 to 9-11
High Positive	28-30	29-30	30
Moderate Positive	22-27	25-28	26-29
Watch List	21	24	25
Poor	17-20	22-23	23-24
High Risk Negative	0-16	0-21	0-22

IRD Emotional Indicators _____

Qualitative Observations _____

_____

_____

Total Number of Confusions _____ Refer for further evaluation: Yes ____ No ____

Diagnostic Dimensional Evaluation

(To be completed for children whose global self concept scores fall into the Poor or High Risk Negative categories).

Significance _____ Competence _____

GEC _____

Virtue Power

Item Dimension Chart

1. GEC	6. SIG, POW	11. COM
2. SIG	7. COM	12. SIG, COM, POW
3. SIG	8. COM	13. VIR
4. SIG	9. GEC	14. GEC
5. SIG	10. COM	15. GEC

Optional: In order to gain further insight into the relationship between a child's self-image and externally perceived ratings of that image, the following question may be detached and rated by an unbiased informed observer (e.g., a teacher). Prior to completing this question, the rater should not have access to the subject's JPPSST score performance.

Child's Name _____ Rater _____

To what degree does this child display a sense of self-respect and hold a positive regard for his own worthiness? (Rate by circling one number)

Always	Usually		Sometimes					Seldom		Never
10	9	8	7	6	5	4	3	2	1	0

Test Item Administration

	Score 2 Positive	Score 1 Both/DK	Score 0 Negative	Confu
1. ONE OF THESE BOYS (GIRLS) IS VERY CLEAN AND THE OTHER BOY (GIRL) IS VERY DIRTY. Distinguish. NOW WHICH ONE IS MOST LIKE YOU? Confirm (e.g., SO YOU'RE A CLEAN BOY) **Scoring** clean = 2, both or DK = 1, dirty = 0	_____	_____	_____	
2. ONE OF THESE BOYS (GIRLS) HAS NO ONE TO PLAY WITH AND ONE OF THESE BOYS (GIRLS) IS PLAYING WITH LOTS OF FRIENDS. Distinquish. NOW WHICH ONE HAPPENS TO YOU THE MOST? Confirm. (if child seems unable to understand the situation ask: DO YOU PLAY ALONE OR WITH FRIENDS? Then score verbal response). **Scoring** friends = 2, both or DK = 1, alone = 0	_____	_____	_____	
3. ONE OF THESE BOYS (GIRLS) HAS A TEACHER WHO DOESN'T LIKE HIM (HER) VERY MUCH AND THE OTHER BOY (GIRL) HAS A TEACHER WHO LIKES HIM (HER) A LOT. Distinguish. NOW WHICH ONE HAPPENS TO YOU THE MOST? Confirm. (If child seems unable to understand the situation ask: DOES YOUR TEACHER LIKE YOU OR NOT? Then score verbal response). **Scoring** likes = 2, both or DK = 1, doesn't like = 0	_____	_____	_____	
4. DO YOU HAVE A BROTHER OR SISTER? WHAT'S HIS (HER) NAME? (If more than 1 sibling say: GIVE ME JUST ONE OF THEIR NAMES). Select appropriate stimulus card and say: NOW LET'S PRETEND THAT THIS IS YOUR BROTHER (SISTER)_____ OK? NOW WHO DO YOUR MOMMY AND DADDY LIKE BETTER, YOU OR_____? Confirm. (If child's response is "both of us" ask: BUT IF THEY HAD TO PICK JUST ONE, WHO DO YOU THINK THEY WOULD PICK?) **Scoring** me or both of us on second inquiry = 2; DK or sometimes each of us = 1; pick sibling on first or second inquiry = 0	_____	_____	_____	N Appl

	Score 2 Positive	Score 1 Both/DK	Score 0 Negative	Confusion
*Note: If child has no siblings then question becomes: DO YOUR MOMMY AND DADDY LIKE YOU? No picture would be used in this case. **Scoring** yes = 2, sometimes or DK = 1, no = 0				
5. ONE OF THESE BOYS (GIRLS) IS GETTING SPANKED BY HIS (HER) MOTHER AND THE OTHER BOY (GIRL) IS GETTING CANDY FROM HIS (HER) MOTHER. Distinguish. NOW WHICH ONE HAPPENS TO YOU THE MOST? Confirm. **Scoring** candy = 2, both or DK = 1, spanked = 0	_____	_____	_____	_____
6. ONE OF THESE BOYS (GIRLS) HAS A BUNCH OF TOYS TO PLAY WITH, AND THE OTHER BOY (GIRL) HAS NO TOYS TO PLAY WITH. Distinguish. NOW WHICH ONE HAPPENS TO YOU THE MOST? Confirm. **Scoring** toys = 2, DK = 1, no toys = 0	_____	_____	_____	_____
7. ONE OF THESE BOYS (GIRLS) KNOWS HOW TO SAY LOTS OF WORDS AND THE OTHER BOY (GIRL) CAN ONLY SAY A FEW WORDS. Distinguish. NOW WHICH ONE IS MOST LIKE YOU? Confirm. **Scoring** lots = 2, both or DK = 1, few = 0	_____	_____	_____	_____
8. ONE OF THESE BOYS (GIRLS) IS A SLOW RUNNER AND THE OTHER BOY (GIRL) CAN RUN VERY FAST. Distinguish. NOW WHICH ONE IS MOST LIKE YOU? Confirm. **Scoring** fast = 2, both or DK = 1, slow = 0	_____	_____	_____	_____
9. (No pictures are required) WHAT'S YOUR FIRST NAME? DO YOU LIKE THAT NAME OR WOULD YOU RATHER HAVE ANOTHER NAME? Confirm. **Scoring** likes name = 2, both or DK = 1, doesn't like = 0	_____	_____	_____	Not Applicable
10. ONE OF THESE BOYS (GIRLS) CAN JUMP VERY HIGH AND THE OTHER BOY (GIRL) CAN'T JUMP VERY MUCH AT ALL. Distinguish. NOW WHICH ONE IS MOST LIKE YOU? Confirm. **Scoring** jump high = 2, both or DK = 1, can't jump = 0	_____	_____	_____	_____

	Score 2 Positive	Score 1 Both/DK	Score 0 Negative

11. (Three pictures are required)
HERE ARE SOME BOYS AND GIRLS PLAYING BASEBALL. ONE BOY (GIRL) WINS THE GAME AND THE OTHER BOY (GIRL) LOSES THE GAME. Distinguish as follows: NOW OUT OF THESE TWO BOYS (GIRLS) (examiner points to Cards 11L & 11R) WHICH ONE WINS? NOW WHICH ONE IS THE LOSER? NOW WHICH ONE HAPPENS TO YOU THE MOST? Confirm.

*Note: If child says "I've never done that," then ask: BUT IF YOU DID PLAY BASEBALL, DO YOU THINK THAT YOU WOULD WIN OR LOSE?

Scoring

win = 2, both or DK = 1, lose = 0 _____ _____ _____

12. HERE ARE TWO BOYS (GIRLS) THAT ARE TRICK-OR-TREATING AT HALLOWEEN. ONE BOY (GIRL) GETS LOTS OF CANDY AND THE OTHER BOY (GIRL) ONLY GETS A LITTLE CANDY. Distinguish. NOW WHICH ONE HAPPENS TO YOU THE MOST? Confirm.
*Note: If child says "I've never done that," then ask: BUT IF YOU DID GO TRICK-OR-TREATING, DO YOU THINK THAT YOU WOULD GET LOTS OF CANDY OR ONLY A LITTLE CANDY?

Scoring

lots = 2, both or DK = 1, little = 0 _____ _____ _____

* Note: See Administration Section of manual for re-wording of this item for children with limited or no exposure to the custom of Halloween.

13. ONE OF THESE BOYS (GIRLS) IS A BAD BOY (GIRL) AND THE OTHER BOY (GIRL) IS A GOOD BOY (GIRL). Distinguish. NOW WHICH ONE ARE YOU? Confirm.

Scoring

good = 2, both or DK = 1, bad = 0 _____ _____ _____

14. ONE OF THESE BOYS (GIRLS) IS SMILING AND THE OTHER BOY (GIRL) IS CRYING. Distinquish. NOW WHICH ONE DO YOU DO THE MOST? Confirm.

Scoring

smile = 2, both or DK = 1, cry = 0 _____ _____ _____

15. (No pictures are required)
WHERE DO YOU LIVE, IN A HOUSE OR A BIG APARTMENT BUILDING? DO YOU LIKE LIVING IN THAT HOUSE (APARTMENT) OR WOULD YOU RATHER LIVE SOMEWHERE ELSE? Confirm.

Scoring

likes where he lives = 2, sometimes or DK = 1, rather live somewhere else = 0 _____ _____ _____

Totals _____ _____

Global Score _____

SLOSSON

1984 EDITION **SIT**

INDIVIDUAL TEST FORM

SLOSSON INTELLIGENCE TEST

Richard L. Slosson, M.A.

Name _____ (LAST) (FIRST) (MIDDLE)

Address _____

School/Agency _____

Sex _____ Grade _____ Parent _____

Referred By _____ (NAME) (POSITION)

Examiner _____ (NAME) (POSITION)

Comments: _____

Test Results:

Chronological Age (CA) ..... _____

Mental Age (MA) ..... _____

Intelligence Quotient (IQ) ..... _____

Percentile Rank (PR) ..... _____

Normal Curve Equivalent (NCE) .... _____

Stanine Category ..... _____

T-score ..... _____

Finding the MA

Basal Age _____ (JUST BEFORE FIRST ERROR)

Added months _____ (QUESTIONS PASSED AFTER BASAL AGE)

MA _____

Date of Test: _____ YEAR MONTH DAY

Date of Birth: _____ YEAR MONTH DAY

Chronological Age:* _____ YEAR MONTH DAY**

*When using Norms Tables, the minimum CA is 2 years and never exceeds 18 years.
**If the number of days exceeds 15, consider as a full month and increase the months by one.

CONVERTING YEARS TO MONTHS:									
	1-12	4-48	7-84	10-120	13-156	16-192	19-228	22-264	25-300
	2-24	5-60	8-96	11-132	14-168	17-204	20-240	23-276	26-312
	3-36	6-72	9-108	12-144	15-180	18-216	21-252	24-288	27-324

1/2 MONTH'S CREDIT		1 MONTH'S CREDIT		2 MONTH'S CREDIT			3 MONTH'S CREDIT	
Years and months		Years and months		Years and months			Years and months	
0-0.5	1-0.0	2-0	4-0	5-0	9-0	13-0	16-0	22-0
0-1.0	1-0.5	2-1	4-1	5-2	9-2	13-2	16-3	22-3
0-1.5	1-1.0	2-2	4-2	5-4	9-4	13-4	16-6	22-6
0-2.0	1-1.5	2-3	4-3	5-6	9-6	13-6	16-9	22-9
0-2.5	1-2.0	2-4	4-4	5-8	9-8	13-8	17-0	23-0
0-3.0	1-2.5	2-5	4-5	5-10	9-10	13-10	17-3	23-3
0-3.5	1-3.0	2-6	4-6	6-0	10-0	14-0	17-6	23-6
0-4.0	1-3.5	2-7	4-7	6-2	10-2	14-2	17-9	23-9
0-4.5	1-4.0	2-8	4-8	6-4	10-4	14-4	18-0	24-0
0-5.0	1-4.5	2-9	4-9	6-6	10-6	14-6	18-3	24-3
0-5.5	1-5.0	2-10	4-10	6-8	10-8	14-8	18-6	24-6
0-6.0	1-5.5	2-11	4-11	6-10	10-10	14-10	18-9	24-9
0-6.5	1-6.0	3-0		7-0	11-0	15-0	19-0	25-0
0-7.0	1-6.5	3-1		7-2	11-2	15-2	19-3	25-3
0-7.5	1-7.0	3-2		7-4	11-4	15-4	19-6	25-6
0-8.0	1-7.5	3-3		7-6	11-6	15-6	19-9	25-9
0-8.5	1-8.0	3-4		7-8	11-8	15-8	20-0	26-0
0-9.0	1-8.5	3-5		7-10	11-10	15-10	20-3	26-3
0-9.5	1-9.0	3-6		8-0	12-0		20-6	26-6
0-10.0	1-9.5	3-7		8-2	12-2		20-9	26-9
0-10.5	1-10.0	3-8		8-4	12-4		21-0	27-0
0-11.0	1-10.5	3-9		8-6	12-6		21-3	
0-11.5	1-11.0	3-10		8-8	12-8		21-6	
	1-11.5	3-11		8-10	12-10		21-9	
1/2 X ____ = ____		1 X ____ = ____		2 X ____ = ____			3 X ____ = ____	

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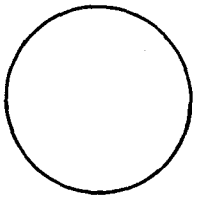
P.O. Box 280, East Aurora, New York 14052

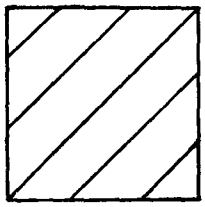
3-9, 4-0, 4-9, 5-0 (Drawing Apples)

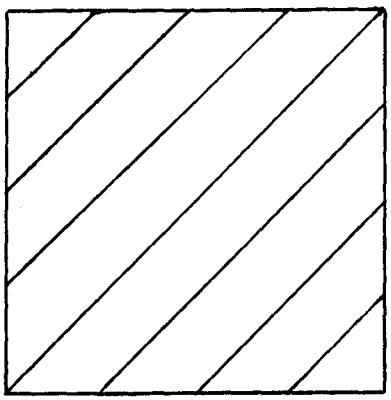
3-1 "Draw a cookie for me like this."

Trial 1. Trial 2.



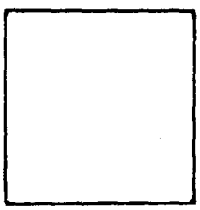
3-6 "Which of these squares is smaller?"





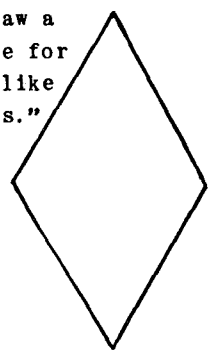
5-2 "Draw a block for me like this "

Trial 1. Trial 2.



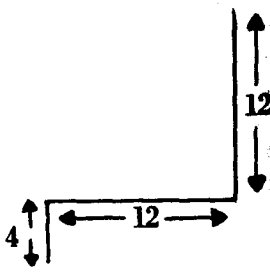
7-4 "Draw a kite for me like this."

Trial 1. Trial 2.



(Encircle the numbers of arithmetic problems as you to them so that the per being tested can look at while formulating an answ

9-6	28	
10-8	45¢	5¢
11-10	36	
12-2	5¢	65¢
12-8	50¢	5½
13-0	13	
14-0	80¢	20¢
14-6	12	20
14-10	50¢	1½
15-6	9	12
16-0	$10.00	$1.50
16-9	300	5
19-0	3/5	2/3
19-9	1	40
20-3	$40,000	5
20-9	5	40
21-9	10	2
22-3	216	
22-9	1000	10%
23-3	$1000	8
24-0	2, 4, 12, 48,	
24-3		



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Appendix B-3

Duncan's Socioeconomic Index for All Occupations
Partial Conversion Table

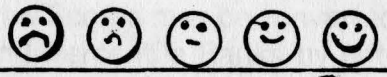
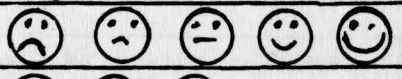
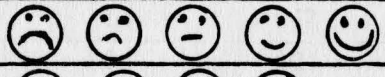
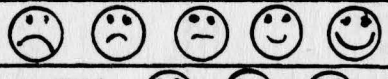
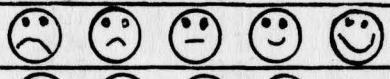
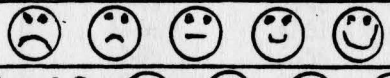
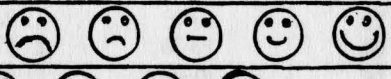
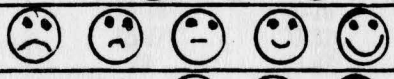
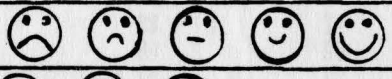
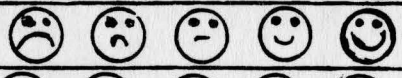
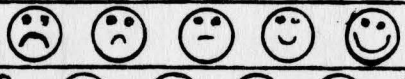
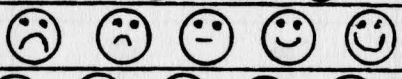
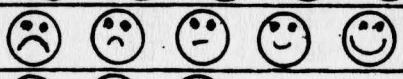
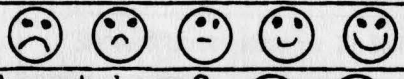
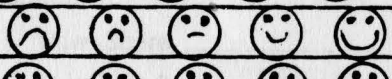
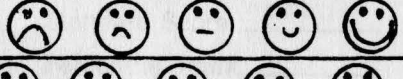
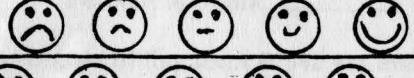
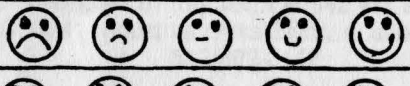
Occupation	Index Number	Occupation	Index Number
lawyer	93	library assistant	44
architect	90	cashier	44
engineer	87	electrician	44
civil engineer	84	retail business owner	43
accountant	78	decorator	40
teacher	72	retail sales	39
department head	72	restaurant manager	39
postal service inspector	72	apprentice electrician	37
wholesale sales manager	70	apprentice plumber	33
retail man.-gen. merch	68	service station manager	31
retail man.-bldg. mat.	64	lodging-house keeper	30
real estate agent	62	tile-setter	27
secretary	61	glazier	26
retail owner-hardware	61	upholsterer	22
wholesale sales	61	baker	22
construction manager	60	shipping clerk	22
mail carrier	53	farm foreman	20
bookkeeper	51	paper box manuf.	17
housewife	50	glass box manuf.	17
telephone linemen	49	stationary fireman	17
foremen	49	painter	16
medical technician	48	roofer	15
garage manager	47	gardener	11
nurse	46	taxi driver	10
telephone operator	45		

CHILD'S NAME_____

HEATHINGTON PRIMARY SCALE OF READING ATTITUDES

Standardized Instructions: This sheet is made up of 20 questions. Beside each question are 5 faces: a very unhappy face, an unhappy face, a face that's neither happy nor unhappy, a happy face, and a very happy face. I will ask you how you feel about certain things and you will put an X on the face that shows how you feel. Suppose I said, "How do you feel when you eat chocolate candy? Which face shows how you feel?" Someone may have chosen an unhappy face because he or she doesn't like it; someone else may have chosen a happy face because he or she likes it. Now, I'll read some questions to you, and you mark the face that shows how you feel about what I read. Remember to mark how you feel because everyone does not feel the same about certain things. I'll read each question two times. Mark only one face for each number. Are there any questions? Now listen carefully. Number 1....

HOW DO YOU FEEL.....

1. when you go to the library? 
2. when you read instead of playing outside? 
3. when you read a book in free time? 
4. when you are in reading group? 
5. when you read instead of watching TV? 
6. when you read to someone at home? 
7. about the stories in your reading book? 
8. when you read out loud in class? 
9. when you read with a friend after school? 
10. when you read in a quiet place? 
11. when you read stories in books? 
12. when you read a story at bedtime? 
13. when it's time for reading group? 
14. when you read on a trip? 
15. when you have lots of books at home? 
16. when you read outside when it's warm? 
17. when you read at your desk at school? 
18. when you find a book at the library? 
19. when you read in your room at home? 
20. when you read instead of coloring? 

BEHAVIOR RATING PROFILE

LINDA L. BROWN & DONALD D. HAMMILL

TEACHER RATING SCALE

Student's Name: _____ Rater's Name: _____

Birthdate: _____ Subject Taught: _____

Grade: _____ School: _____

Date: _____

OTHER RELEVANT TEST SCORES:

_____

_____

_____

TEACHER'S COMMENTS AND OBSERVATION:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Raw Scores may be converted into Standard Scores and Percentile Ranks by entering the table below.

Standard Score	Raw Scores for Students in Grades 1-4	Raw Scores for Students in Grades 5-12	Percentile Rank
1	0-4	0-2	.1
2	5-11	3-10	.4
3	12-17	11-28	1
4	18-27	29-31	2
5	28-34	32-37	4
6	35-45	38-46	9
7	46-56	47-51	16
8	57-64	52-58	25
9	65-71	59-65	37
10	72-78	66-69	50
11	79-84	70-76	63
12	85-87	77-82	75
13	88	83-87	84
14	89	88	91
15	90	89	96
16		90	98
17			99.1
18			99.6
19			99.9
20			>99.9
M	70.6	66.2	M
SD	18.3	16.5	SD
N	387	568	N

Standard Scores: Mean = 10, Standard Deviation = 3

Results:

Raw Score _____

Standard Score _____

Percentile Rank _____

Additional copies of this form #0042 are available from:
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512/892-3142

INSTRUCTIONS

This behavior rating form contains a list of descriptive words and phrases. Some of these items will describe the student quite well. Some will not. What we wish to know is this: Which of these behaviors are you concerned about particular time and to what extent do you see them as problems?

Take for example item #1, "Is sent to the principal for discipline." If the child frequently is sent to the principal's the rater might check the "Very Much Like" space. If the child is sent to the principal's office on an infrequent but basis, the rater might check the "Somewhat Like" space. If the child has been sent to the principal's office on rare sions, a check in the "Not Much Like" space might be appropriate. If the child never has been disciplined by the pr the "Not At All Like" space would be indicated. These ratings should reflect your perceptions of the child's behavior. do not confer with other teachers in completing this form.

The student	Very Much Like the Student	Like the Student	Not Much Like the Student	Not At All Like the Student
1. Is sent to the principal for discipline	☐	☐	☐	☐
2. Is verbally aggressive to teachers or peers .	☐	☐	☐	☐
3. Is disrespectful of others' property rights . .	☐	☐	☐	☐
4. Tattles on classmates	☐	☐	☐	☐
5. Is lazy	☐	☐	☐	☐
6. Lacks motivation and interest	☐	☐	☐	☐
7. Disrupts the classroom	☐	☐	☐	☐
8. Argues with teachers and classmates	☐	☐	☐	☐
9. Doesn't follow directions	☐	☐	☐	☐
10. Steals	☐	☐	☐	☐
11. Has poor personal hygiene habits	☐	☐	☐	☐
12. Is passive and withdrawing	☐	☐	☐	☐
13. Says that other children don't like him/her .	☐	☐	☐	☐
14. Can't seem to concentrate in class	☐	☐	☐	☐
15. Pouts, whines, snivels	☐	☐	☐	☐
16. Is overactive and restless	☐	☐	☐	☐
17. Is an academic underachiever	☐	☐	☐	☐
18. Bullies other children	☐	☐	☐	☐
19. Is self-centered	☐	☐	☐	☐
20. Does not do homework assignments	☐	☐	☐	☐
21. Is kept after school	☐	☐	☐	☐
22. Is avoided by other students in the class . . .	☐	☐	☐	☐
23. Daydreams	☐	☐	☐	☐
24. Has unacceptable personal habits	☐	☐	☐	☐
25. Swears in class	☐	☐	☐	☐
26. Has nervous habits	☐	☐	☐	☐
27. Has no friends among classmates	☐	☐	☐	☐
28. Cheats	☐	☐	☐	☐
29. Lies to avoid punishment or responsibility . .	☐	☐	☐	☐
30. Doesn't follow class rules	☐	☐	☐	☐

Sum of Marks in Each Column =				
Multiply Sum by	X 0	X 1	X 2	X 3
Add Products	0 +	+	+	+

RED LEVEL FORM A

TEST BOOKLET

Stanford Diagnostic Reading Test

Bjorn Karlsen
Richard Madden
Eric F. Gardner

HBJ HARCOURT BRACE JOVANOVICH, INC. New York

8-946808

1	○ Z	● S	○ B
2	○ G	○ C	○ O
3	○ T	○ L	○ I
4	○ V	○ Y	○ W

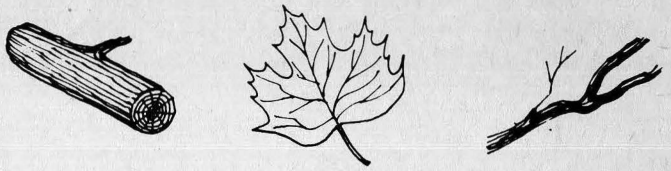
5	○ J	○ U	○ Q
6	○ K	○ N	○ Z
7	○ H	○ X	○ Q
8	○ A	○ W	○ F

9	○ S	○ B	○ D
10	○ F	○ V	○ L
11	○ x	○ c	○ s
12	○ y	○ l	○ i

13	○ o	○ u	○ q
14	○ h	○ a	○ k
15	○ w	○ m	○ u
16	○ p	○ d	○ g

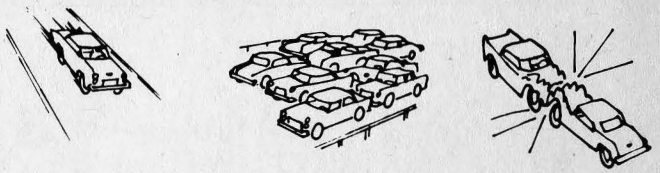
17	○ y	○ v	○ w
18	○ e	○ t	○ r
19	○ n	○ m	○ v
20	○ f	○ k	○ j

21



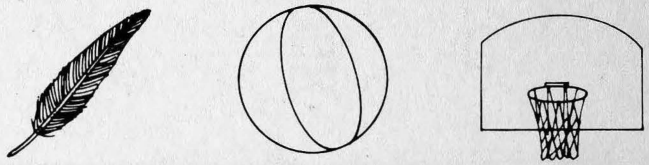
○ ○ ○

22



○ ○ ○

23



○ ○ ○

24 Bill lost one of his shoes.

○ ○ ○

25 They are building a snowman.

○ ○ ○

STOP!

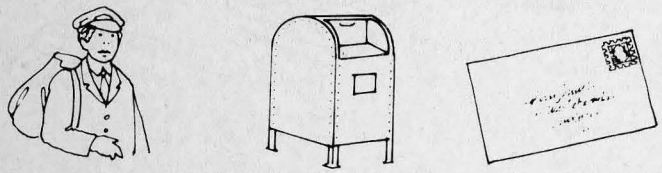
TEST 1: Auditory Vocabulary

SAMPLES

A

B

1



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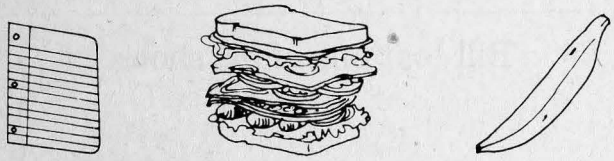
3



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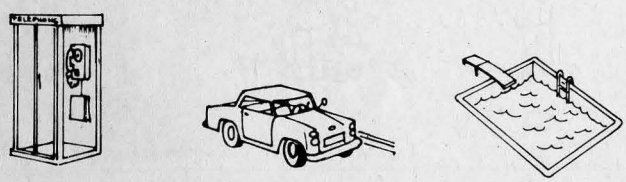

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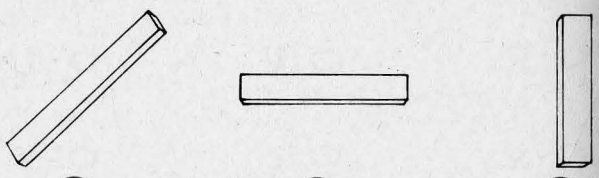
7

8

9



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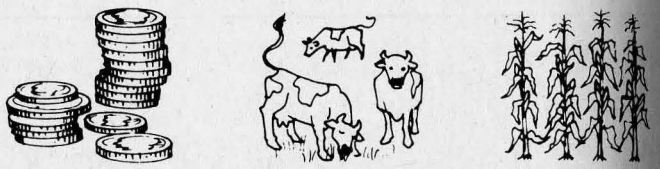
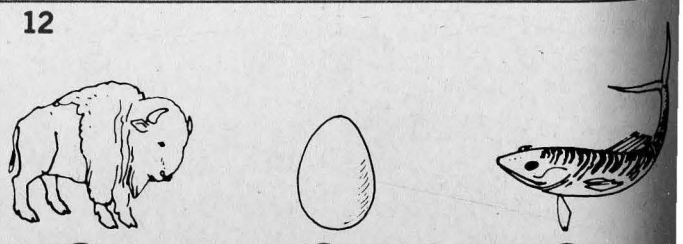


11

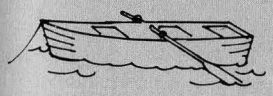
12



Vocabulary Part Score

TEST 3: Phonetic Analysis Part A

SAMPLE



- ○ s
- ● b
- ○ l
- ○ m

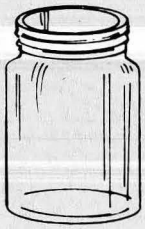
7

- ○ sl
- ○ sp
- ○ st
- ○ sc

14

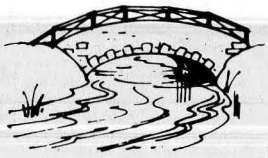
- ○ doc
- ○ dac
- ○ dic
- ○ duc

1



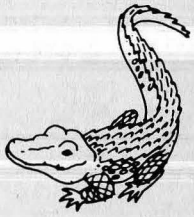
- ○ p
- ○ t
- ○ c
- ○ j

8



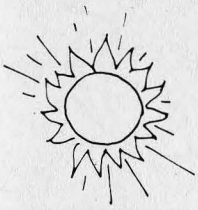
- ○ br
- ○ bl
- ○ dr
- ○ gl

15



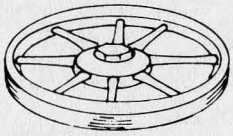
- ○ il
- ○ ul
- ○ al
- ○ ol

2



- ○ z
- ○ s
- ○ h
- ○ n

9

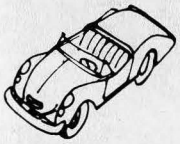


- ○ wh
- ○ gh
- ○ ph
- ○ ch

16

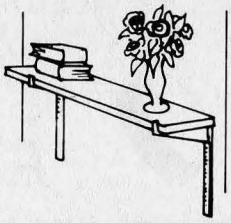
- ○ tul
- ○ tal
- ○ tel
- ○ tol

3



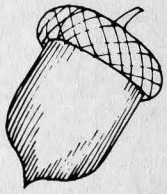
- ○ s
- ○ c
- ○ r
- ○ h

10



- ○ sc
- ○ sh
- ○ sw
- ○ th

17

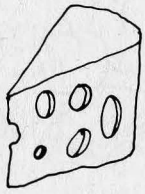


- ○ i
- ○ u
- ○ y
- ○ a

4

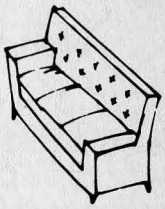
- ○ q
- ○ p
- ○ d
- ○ b

11



- ○ wh
- ○ sh
- ○ ch
- ○ cr

18



- ○ su
- ○ sa
- ○ so
- ○ sy

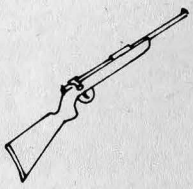
5

- ○ gr
- ○ pl
- ○ gl
- ○ pr

12

- ○ tr
- ○ ph
- ○ sh
- ○ th

19



- ○ ro
- ○ re
- ○ ra
- ○ ri

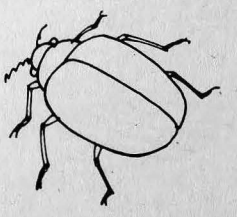
6

- ○ fr
- ○ fl
- ○ br
- ○ gl

13

- ○ tin
- ○ ten
- ○ tun
- ○ tan

20



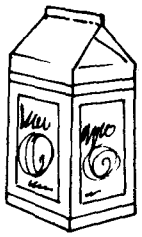
- ○ bee
- ○ boe
- ○ bue
- ○ bai

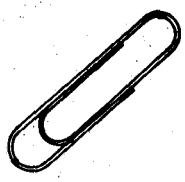
Consonant Sounds Part Score ☐ Vowel Sounds Part Score ☐ Phonetic Analysis Part Score ☐

STOP!

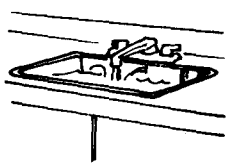
TEST 3: Phonetic Analysis Part B

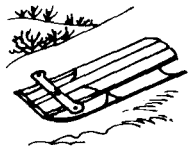
SAMPLE 
○ p
○ d
● h
○ t

7 
○ lm
○ lk
○ rk
○ nk

14 
○
○
○
○

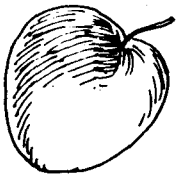
1 
○ l
○ s
○ r
○ c

8 
○ ng
○ st
○ nk
○ sk

15 
○
○
○
○

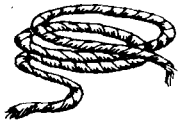
2 
○ v
○ t
○ l
○ f

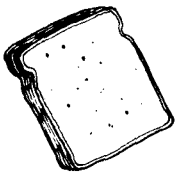
9 
○ rt
○ th
○ gh
○ ph

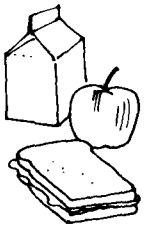
16 
○
○
○
○

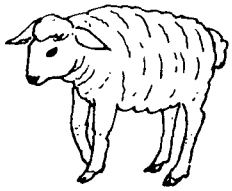
3 
○ p
○ g
○ q
○ j

10 
○ rs
○ ch
○ sh
○ ks

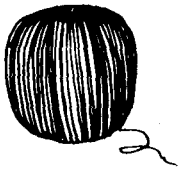
17 
○
○
○
○

4 
○ r
○ b
○ g
○ d

11 
○ sh
○ th
○ wh
○ ch

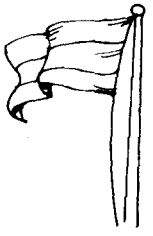
18 
○
○
○
○

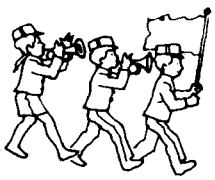
5 
○ mb
○ ng
○ nd
○ ld

12 
○ mp
○ rg
○ tr
○ ng

19 
○
○
○
○

6 
○ ft
○ th
○ st
○ rf

13 
○ ag
○ eg
○ ug
○ ig

20 
○
○
○
○

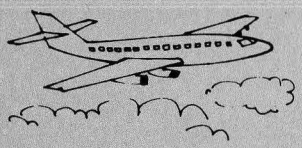
R/A	Consonant Sounds Part Score	Vowel Sounds Part Score	Phonetic Analysis Part Score	8	Consonant Sounds + Vowel Sounds = Phonetic Analys Score	Score	Score

TEST 4: Word Reading

SAMPLES

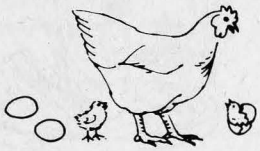
A	yes ○	cake ●	cow ○
B	dark ○	away ○	party ●
C	fun ●	hop ○	for ○

7	bank ○	bath ○	balloon ○
8	wing ○	wide ○	wash ○
9	stop ○	soap ○	song ○



D	why ○	penny ○	fly ○
E	ahead ○	airplane ○	pancake ○
F	going ○	giving ○	filling ○

10	walk ○	weak ○	tall ○
11	later ○	lost ○	log ○
12	again ○	across ○	three ○



1	ends ○	edges ○	eggs ○
2	hen ○	hill ○	hard ○
3	chin ○	chicken ○	chosen ○

13	last ○	read ○	come ○
14	brought ○	return ○	book ○
15	sending ○	baking ○	sitting ○

4	more ○	gold ○	girl ○
5	drum ○	ground ○	drop ○
6	bend ○	nose ○	beat ○

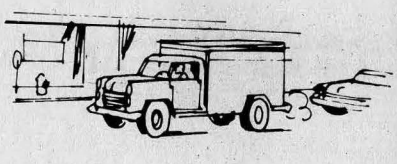
16	room ○	moon ○	much ○
17	shine ○	stamp ○	ship ○
18	nice ○	next ○	night ○

R/A

Word Reading Part Score

Go on to the next page ▶

19	beard	even	ear
20	hear	high	list
21	heat	listen	year



31	true	trim	truck
32	street	show	stem
33	dirt	draw	drive

22	has	fair	head
23	five	face	race
24	here	help	hair

34	most	mouth	spill
35	miles	teeth	tool
36	smile	likes	month

25	please	playing	painting
26	piano	pin	pilot
27	master	magic	music

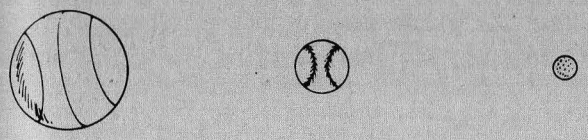
37	bother	feathers	fear
38	wet	will	were
39	sold	splash	spoon

28	people	plane	plant
29	row	pot	top
30	flower	father	faster

40	squirrel	curl	should
41	better	belong	bench
42	feed	fell	pink

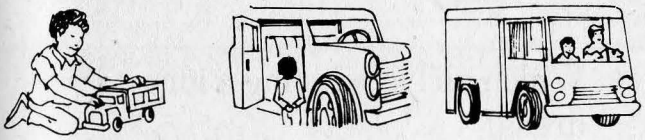
SAMPLES

A The ball is big.



B Who is riding?

1 Art's truck is a toy.



2 Which bottle has fallen over?

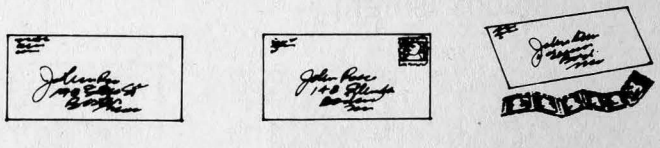
3 Paul and Linda are waiting for the bus.

4 The man is cleaning.

5 The house is small.

6 The baby isn't walking.

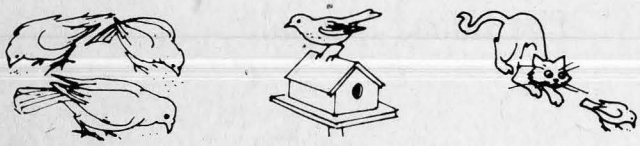
7 The stamp is on the letter.



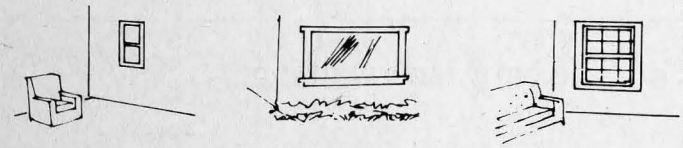
8 Susan is teaching her brother how to ride.

9 The rabbit is Terry's pet.

10 Will the bird get caught?



11 The room has one small window.



12 Ruth and Tom rode to school.

13 The box is light.

14 There is no one on the slide.

15 Harry is alone in the woods.

16 Ellen is giving the cat its dinner.

17 These animals are bears.

18 Which girl is wearing a long dress?

19 Jim is washing his dog.

20 The bed is low and wide.

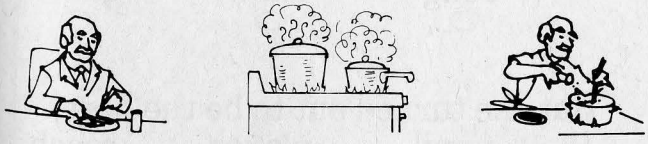
21 The water is deep.

22 He can't reach high enough.

23 The dog is outside.

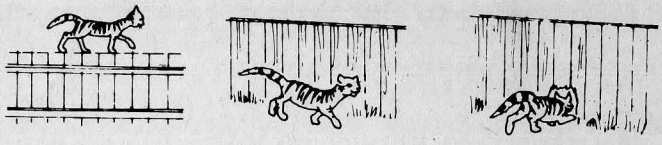
24 Tony is reading his brother a story.

25 Mr. Smith is a good cook.

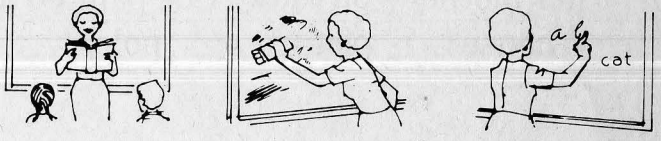


26 Which picture is hanging on the wall?

27 The cat climbed the fence.

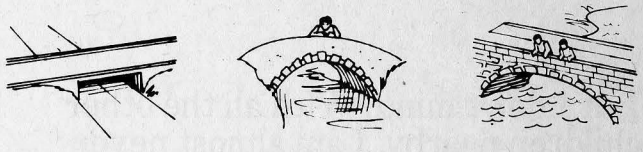


28 The teacher is writing.



29 The baby's dress is clean.

30 There is no one on the bridge.



31 School is over for the day.

32 Ellen is writing her friend a letter.

SAMPLE

Pedro goes to the library to get

A food ○ books ● flowers. ○

He's glad he knows how to

B ride ○ rest ○ read. ○

For her mother's birthday, Sue painted a

1 house ○ picture ○ pole. ○

Her mother liked it so much that she put it up on the

2 ceiling ○ roof ○ wall. ○

Many families on my street live in tall

3 trees ○ tents ○ buildings. ○

With so many neighbors, it sometimes gets

4 noisy ○ dark ○ cold. ○

But I don't mind. With all the other children nearby, I am almost never

5 sick ○ lonely ○ busy. ○

Bob wanted to scare his little sister. He pretended to be a

6 kitten ○ lamb ○ lion. ○

He let out a loud

7 laugh ○ roar ○ sigh, ○

but his sister was not

8 fooled ○ tired ○ disappointed. ○

One job I have at home is drying the

9 rug ○ windows ○ dishes. ○

Sometimes I get tired of doing this

10 chore ○ exercise ○ practice. ○

But my brother's job is even

11 slower ○ worse ○ brighter. ○

He has to take out the

12 family ○ garbage ○ water. ○

Ginny was playing baseball with the

13 boys ○ birds ○ cars. ○

They laughed at her for joining in the

14 song ○ show ○ game. ○

But she turned out to be the best

15 pupil ○ player ○ coach. ○

She could hit the ball the

16 slowest ○ kindest ○ farthest. ○

Stanford Diagnostic Reading Test

Red Level **Form A**

	TEST 2	TEST 3	TEST 1	TEST 4	TEST 5	TESTS 4 + 5
	Auditory Discrimination	Phonetic Analysis (Parts A + B)	Auditory Vocabulary	Word Reading	Reading Comprehension (Parts A + B)	Comprehension Total
Raw Score						
STANINE	9	9	9	9	9	9
	8	8	8	8	8	8
	7	7	7	7	7	7
	6	6	6	6	6	6
	5	5	5	5	5	5
	4	4	4	4	4	4
	3	3	3	3	3	3
	2	2	2	2	2	2
	1	1	1	1	1	1

Pupil Information Box

Name_____

Teacher_____ Grade_____

School_____

City_____ State_____

Today's Date_____
month day year

Date of Birth_____
month day year

Appendix C

TABLE C-1

Summary Table of One-Way ANOVAs of the Effects of Preschool Attendance

Variable	Source	df	SS	MS	F	Sig. of F
Reading Ach.						
Aud. Discrim.						
	Between	2	22.30	11.15	.65	.51
	Within	132	1131.43	16.91		
Aud. Vocab.						
	Between	2	28.81	14.40	.69	.49
	Within	132	2717.50	20.58		
Phonetic Anal.						
	Between	2	18.03	9.01	.41	.66
	Within	132	2868.89	21.73		
Word Read.						
	Between	2	283.11	141.55	1.84	.16
	Within	132	10151.43	76.90		
Reading Comp.						
	Between	2	24.67	12.33	.12	.88
	Within	132	13049.87	98.86		
Total Comp.						
	Between	2	474.25	237.12	.73	.48
	Within	132	42479.30	324.26		
Class Behav.						
	Between	2	215.20	107.60	.86	.42
	Within	132	16441.12	124.55		
Self-Concept						
	Between	2	24.06	12.03	1.63	.19
	Within	132	970.87	7.35		
Read. Attitude						
	Between	2	637.31	318.65	3.11	.04*
	Within	132	13521.45	102.43		

*$p \leq .05$

TABLE C-2

Summary Table of One-Way ANOVAs of the Effects of Type of Reading Program

Variable	Source	df	SS	MS	F	Sig. of F
Reading Ach.						
	Aud. Discrim.					
	Between	1	140.71	140.71	8.85	.00*
	Within	133	2113.01	15.88		
	Aud. Vocab.					
	Between	1	38.91	38.91	1.91	.16
	Within	133	2707.40	20.35		
	Phonetic Anal.					
	Between	1	45.13	45.13	2.11	.14
	Within	133	2841.79	21.36		
	Word Read.					
	Between	1	249.48	249.48	3.25	.07
	Within	133	10185.06	76.57		
	Reading Comp.					
	Between	1	35.64	35.64	.36	.54
	Within	133	13038.90	98.03		
	Total Comp.					
	Between	1	474.07	474.07	1.47	.22
	Within	132	42479.48	321.81		
Class Behav.						
	Between	1	2547.17	2547.17	24.01	.00*
	Within	133	14109.14	109.08		
Self-Concept						
	Joseph					
	Between	1	110.46	110.46	16.61	.00*
	Within	133	884.46	6.65		
Read Att.						
	Heathing.					
	Between	1	5.61	5.61	.05	.91
	Within	133	14153.15	106.41		

*$p \leq .05$

TABLE C-3

Summary Table of One-Way ANOVAs of the Effects of Gender

Variable	Source	df	SS	MS	F	Sig. of F
Reading Ach.						
	Aud. Discrim.					
	Between	1	6.94	6.94	.41	.52
	Within	133	2246.78	16.89		
	Aud. Vocab.					
	Between	1	.23	.23	.01	.91
	Within	133	2746.08	20.64		
	Phonetic Anal.					
	Between	1	1.17	1.17	.05	.81
	Within	133	2885.76	21.69		
	Word Read.					
	Between	1	76.91	76.91	.98	.32
	Within	133	10357.63	77.87		
	Reading Comp.					
	Between	1	180.03	180.03	1.85	.17
	Within	133	12894.51	96.95		
	Total Comp.					
	Between	1	491.90	492.90	1.53	.21
	Within	132	42460.65	321.67		
Class Behav.						
	Teacher Rat.					
	Between	1	163.00	163.00	1.31	.25
	Within	133	16493.31	124.00		
Self-Concept						
	Joseph					
	Between	1	1.17	.15	.69	.38
	Within	133	993.76	7.47		
Read Att.						
	Heathing.					
	Between	1	63.77	63.77	.60	.43
	Within	133	14094.99	105.97		

*$p \leq .05$

TABLE C-4

Summary Table of One-Way ANOVAs of the Effects of Socioeconomic Status

Variable	Source	df	SS	MS	F	Sig. of F
Reading Ach.						
	Aud. Discrim.					
	Between	2	81.21	40.60	2.75	.06
	Within	82	1206.73	14.71		
	Aud. Vocab.					
	Between	2	250.19	125.09	7.69	.00*
	Within	82	133.04	16.25		
	Phonetic Anal					
	Between	2	128.55	64.27	3.72	.02*
	Within	82	1413.79	17.24		
	Word Read.					
	Between	2	469.29	234.64	3.43	.03*
	Within	82	5602.11	68.31		
	Reading Comp.					
	Between	2	331.31	165.65	1.62	.20
	Within	82	8366.32	102.02		
	Total Comp.					
	Between	2	1536.23	768.11	2.51	.08
	Within	82	25083.17	305.89		
Class Behav.						
	Teacher Rat.					
	Between	2	453.60	226.80	8.29	.00*
	Within	82	2242.70	27.35		
Self-Concept						
	Joseph					
	Between	2	5.43	2.71	.33	.71
	Within	82	666.21	8.12		
Read Att.						
	Heathing.					
	Between	2	66.17	33.08	.37	.68
	Within	82	7202.25	87.83		

*$p \leq .05$

TABLE C-5

Summary Table of One-Way ANOVAs of the Effects of the Level of Intelligence

Variable	Source	df	SS	MS	F	Sig. of F
Reading Ach.						
	Aud. Discrim.					
	Between	2	133.00	66.50	4.13	.01*
	Within	132	2120.73	16.06		
	Phonetic Anal.					
	Between	2	203.98	101.96	5.01	.00*
	Within	132	2682.99	20.32		
	Word Read.					
	Between	2	865.87	432.93	5.97	.00*
	Within	132	9568.67	72.49		
	Reading Comp.					
	Between	2	1371.34	685.67	7.73	.00*
	Within	132	11703.19	88.66		
	Total Comp.					
	Between	2	4465.20	2232.60	7.59	.00*
	Within	131	38488.35	293.80		
Class. Behav.						
	Teacher Rat.					
	Between	2	1193.12	596.56	5.09	.00*
	Within	132	15463.20	117.14		
Self-Concept						
	Joseph					
	Between	2	23.97	11.98	1.62	.19
	Within	132	970.95	7.35		
Read Att.						
	Heathing.					
	Between	2	165.40	82.70	.78	.46
	Within	132	13993.36	106.01		

*$p \leq .05$

Appendix D

TABLE D-1

Summary Table of Factorial Analysis of Variance of Scores by Reading Program and Gender

Variable	Source	df	SS	MS	F	Sig. of F
Aud. Disc.[1]						
	Rdg. Pro.[2]	1	141.16	141.16	8.78	.00*
	Gender	1	7.39	7.39	.46	.49
	Rdg. Pro. by Gender	1	1.06	1.06	.06	.79
Aud. Voc.[3]						
	Rdg. Pro.	1	38.96	38.96	1.90	.17
	Gender	1	.28	.28	.01	.90
	Rdg. Pro. by Gender	1	28.41	28.41	1.39	.24
Ph. Anal.[4]						
	Rdg. Pro.	1	45.24	45.24	2.08	.15
	Gender	1	1.27	1.27	.05	.80
	Rdg. Pro. by Gender	1	1.79	1.79	.08	.77
Wd. Rdg.[5]						
	Rdg. Pro.	1	247.54	247.54	3.21	.07
	Gender	1	74.98	74.98	.97	.32
	Rdg. Pro. by Gender	1	13.48	13.48	.17	.67
Rdg. Comp.[6]						
	Rdg. Pro.	1	34.52	34.52	.35	.55
	Gender	1	178.92	178.92	1.82	.17
	Rdg. Pro. by Gender	1	6.09	6.09	.06	.80
Tot. Comp.[7]						
	Rdg. Pro.	1	474.07	474.07	1.46	.22
	Gender	1	492.90	492.90	1.52	.21
	Rdg. Pro. by Gender	1	35.09	35.09	.10	.74
Class Beh.[8]						
	Rdg. Pro.	1	3065.71	3065.71	23.60	.00*
	Gender	1	327.36	327.36	2.52	.11
	Rdg. Pro. by Gender	1	13.90	13.90	.10	.74
Self-Con.[9]						
	Rdg. Pro.	1	113.88	113.88	17.11	.00*
	Gender	1	1.65	1.65	.24	.61
	Rdg. Pro. by Gender	1	6.69	6.69	1.00	.31
Rdg. Att.[10]						
	Rdg. Pro.	1	5.12	5.12	.04	.82
	Gender	1	64.97	64.97	.61	.43
	Rdg. Pro. by Gender	1	56.52	56.52	.53	.46

TABLE D-1 (Cont.)

*p ≤ .05

[1] - Auditory Discrimination subtest
[2] - Reading Program
[3] - Auditory Vocabulary subtest
[4] - Phonetic Analysis subtest
[5] - Word Reading subtest
[6] - Reading Comprehension subtest
[7] - Total Comprehension Score
[8] - Classroom Behavior Rating Scale
[9] - Self-Concept Test
[10] - Reading Attitude Scale

TABLE D-2

Summary Table of Factorial Analysis of Variance of Scores by Socioeconomic Status and Level of Intelligence

Variable	Source	df	SS	MS	F	Sig. of F
Aud. Disc.[1]						
	SES[2]	2	81.21	40.60	2.92	.06
	IQ[3]	2	85.82	42.91	3.08	.05*
	SES by IQ	4	64.21	16.05	1.15	.33
Aud. Voc.[4]						
	SES	2	250.20	125.10	8.33	.00*
	IQ	2	161.07	80.53	5.36	.00*
	SES by IQ	4	31.36	7.84	.52	.72
Phon. Anal.[5]						
	SES	2	128.55	64.27	3.74	.02*
	IQ	2	68.99	34.49	2.00	.14
	SES by IQ	4	38.60	9.65	.56	.69
Wd. Read.[6]						
	SES	2	469.29	234.64	3.75	.02*
	IQ	2	555.21	277.60	4.44	.01*
	SES by IQ	4	298.21	74.55	1.19	.32
Rdg. Comp.[7]						
	SES	2	331.31	165.66	1.90	.15
	IQ	2	1125.73	562.86	6.50	.00*
	SES by IQ	4	667.85	166.96	1.93	.11
Tot. Comp.[8]						
	SES	2	1536.23	768.11	2.90	.06
	IQ	2	3250.45	1625.22	6.14	.00*
	SES by IQ	4	1723.34	430.83	1.62	.17
Class Behav.[9]						
	SES	2	2177.01	1088.51	9.05	.00*
	IQ	2	605.28	302.64	2.51	.08
	SES by IQ	4	1014.38	324.27	2.71	.05*
Self-Con.[10]						
	SES	2	5.43	2.71	.32	.72
	IQ	2	16.49	8.24	.97	.38
	SES by IQ	4	7.32	1.83	.21	.92
Rdg. Att.[11]						
	SES	2	66.17	33.08	.30	.69
	IQ	2	27.62	13.81	.15	.85
	SES by IQ	4	273.49	68.37	.75	.55

TABLE D-2 (Cont.)

*$p \leq .05$

[1] - Auditory Discrimination subtest
[2] - Socioeconomic Status
[3] - Level of Intelligence
[4] - Auditory Vocabulary subtest
[5] - Phonetic Analysis subtest
[6] - Word Reading subtest
[7] - Reading Comprehension subtest
[8] - Total Comprehension Score
[9] - Classroom Behavior Rating Scale
[10] - Self-Concept Test
[11] - Reading Attitude Scale

TABLE D-3

Summary Table of Factorial Analysis of Variance of Scores by Preschool Attendance and Level of Intelligence

Variable	Source	df	SS	MS	F	Sig. of F
Aud. Disc.[1]						
	P.S. Att.[2]	2	24.23	12.11	.73	.48
	IQ[3]	2	134.93	67.46	4.06	.01*
	P.S. Att. by IQ	4	6.19	1.54	.09	.98
Aud. Voc.[4]						
	P.S. Att.	2	15.44	7.72	.44	.64
	IQ	2	447.14	223.57	12.77	.00*
	P.S. Att. by IQ	4	64.59	16.15	.90	.45
Phon. Anal.[5]						
	P.S. Att.	2	15.74	7.87	.37	.68
	IQ	2	201.64	100.82	4.85	.00*
	P.S. Att. by IQ	4	49.80	12.45	.59	.66
Wd. Read.[6]						
	P.S. Att.	2	231.18	115.59	1.58	.20
	IQ	2	813.93	406.96	5.57	.00*
	P.S. Att. by IQ	4	144.71	36.17	.49	.73
Rdg. Comp.[7]						
	P.S. Att.	2	7.97	3.98	.04	.95
	IQ	2	1354.64	677.32	7.44	.00*
	P.S. Att. by IQ	4	227.82	56.95	.62	.64
Tot. Comp.[8]						
	P.S. Att.	2	296.27	148.13	.49	.61
	IQ	2	4287.22	2143.61	7.14	.00*
	P.S. Att. by IQ	4	672.11	168.02	.56	.69
Class Behav.[9]						
	P.S. Att.	2	179.44	89.72	.61	.54
	IQ	2	1607.52	803.76	5.53	.00*
	P.S. Att. by IQ	4	312.72	78.18	.53	.70
Self-Con.[10]						
	P.S. Att.	2	22.84	11.42	1.53	.22
	IQ	2	20.73	10.36	1.39	.25
	P.S. Att. by IQ	4	9.31	2.33	.31	.86
Rdg. Att.[11]						
	P.S. Att.	2	680.87	340.43	3.25	.04*
	IQ	2	224.38	112.19	1.07	.34
	P.S. Att. by IQ	4	37.10	9.27	.08	.98

TABLE D-3 (Cont.)

*$p \leq .05$

[1] - Auditory Discrimination subtest
[2] - Preschool Attendance
[3] - Level of Intelligence
[4] - Auditory Vocabulary subtest
[5] - Phonetic Analysis subtest
[6] - Word Reading subtest
[7] - Reading Comprehension subtest
[8] - Total Comprehension Score
[9] - Classroom Behavior Rating Scale
[10] - Self-Concept Test
[11] - Reading Attitude Scale

TABLE D-4

Summary Table of Factorial Analysis of Variance of Scores by Reading Program, Preschool Attendance, and Socioeconomic Status

Variable	Source	df	SS	MS	F	Sig. of F
Aud. Disc.[1]						
	Rdg. Pro.[2]	1	60.00	60.00	4.86	.03
	P.S. Att.[3]	2	31.77	15.88	1.28	.28
	SES[4]	2	87.23	43.61	3.53	.03*
	Rdg. Pro. by P.S. Att.	2	44.20	22.10	1.79	.17
	Rdg. Pro. by SES	2	23.95	11.97	.97	.38
	P.S. Att. by SES	4	158.31	39.57	3.21	.01*
	Rdg. Pro. by P.S. Att. by SES	4	56.75	14.18	1.15	.34
Aud. Voc.[5]						
	Rdg. Pro.	1	6.42	6.42	.42	.52
	P.S. Att.	2	68.00	34.00	2.21	.11
	SES	2	225.68	112.84	7.34	.00*
	Rdg. Pro. by P.S. Att.	2	87.82	43.91	2.86	.06
	Rdg. Pro. by SES	2	67.88	33.94	2.21	.11
	P.S. Att. by SES	4	30.10	7.52	.49	.74
	Rdg. Pro. by P.S. Att. by SES	4	53.31	13.32	.86	.48
Ph. Anal.[6]						
	Rdg. Pro.	1	12.12	12.12	.73	.39
	P.S. Att.	2	21.89	10.94	.65	.52
	SES	2	122.98	61.49	3.70	.03*
	Rdg. Pro. by P.S. Att.	2	18.18	9.09	.54	.58
	Rdg. Pro. by SES	2	2.28	1.14	.06	.93
	P.S. Att. by SES	4	112.68	28.17	1.69	.16
	Rdg. Pro. by P.S. Att. by SES	4	139.60	34.90	2.10	.09

TABLE D-4 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Wd. Rdg.[7]						
	Rdg. Pro.	1	122.70	122.70	2.07	.15
	P.S. Att.	2	406.86	203.43	3.44	.03*
	SES	2	451.03	225.51	3.81	.02*
	Rdg. Pro. by P.S. Att.	2	45.16	22.58	.38	.68
	Rdg. Pro. by SES	2	11.74	5.87	.09	.90
	P.S. Att. by SES	4	522.20	130.55	2.20	.07
	Rdg. Pro. by P.S. Att. by SES	4	496.37	124.09	2.09	.09
Rdg. Comp.[8]						
	Rdg. Pro.	1	.00	.00	.00	.99
	P.S. Att.	2	236.76	118.38	1.18	.31
	SES	2	296.37	148.18	1.48	.23
	Rdg. Pro. by P.S. Att.	2	24.80	12.40	.12	.88
	Rdg. Pro. by SES	2	23.93	11.96	.12	.88
	P.S. Att. by SES	4	620.95	155.23	1.55	.19
	Rdg. Pro. by P.S. Att. by SES	4	770.99	192.74	1.92	.11
Tot. Comp.[9]						
	Rdg. Pro.	1	121.50	121.50	.42	.51
	P.S. Att.	2	1215.14	607.57	2.14	.12
	SES	2	1451.81	725.90	2.56	.08
	Rdg. Pro. by P.S. Att.	2	39.51	19.75	.07	.93
	Rdg. Pro. by SES	2	61.59	30.79	.10	.89
	P.S. Att. by SES	4	2243.00	560.75	1.97	.10
	Rdg. Pro. by P.S. Att. by SES	4	2420.08	605.02	2.13	.08
Class Beh.[10]						
	Rdg. Pro.	1	1329.94	1329.94	11.47	.00*
	P.S. Att.	2	203.10	101.55	.87	.42
	SES	2	1533.95	766.97	6.61	.00*

TABLE D-4 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Class Beh. (Cont.)						
	Rdg. Pro. by P.S. Att.	2	18.19	9.09	.07	.92
	Rdg. Pro. by SES	2	1204.07	602.03	5.19	.00*
	P.S. Att. by SES	4	247.25	61.81	.53	.71
	Rdg. Pro. by P.S. Att. by SES	4	153.07	38.26	.33	.85
Self-Con.[11]						
	Rdg. Pro.	1	79.42	79.42	10.79	.00*
	P.S. Att.	2	12.40	6.20	.84	.43
	SES	2	11.28	5.64	.76	.46
	Rdg. Pro. by P.S. Att.	2	5.57	2.78	.37	.68
	Rdg. Pro. by SES	2	2.06	1.03	.14	.86
	P.S. Att. by SES	4	29.35	7.33	.99	.41
	Rdg. Pro. by P.S. Att. by SES	4	37.14	9.28	1.26	.29
Rdg. Att.[12]						
	Rdg. Pro.	1	44.34	44.34	.49	.48
	P.S. Att.	2	256.96	128.48	1.43	.24
	SES	2	41.73	20.86	.23	.79
	Rdg. Pro. by P.S. Att.	2	127.70	63.85	.71	.49
	Rdg. Pro. by SES	2	7.67	3.83	.04	.95
	P.S. Att. by SES	4	627.40	156.85	1.75	.14
	Rdg. Pro. by P.S. Att. by SES	4	176.26	44.06	.49	.74

*p<.05

[1] - Auditory Discrimination
[2] - Reading Program
[3] - Preschool Attendance
[4] - Socioeconomic Status
[5] - Auditory Vocabulary subtest
[6] - Phonetic Analysis subtest

TABLE D-4 (Cont.)

[7] - Word Reading subtest
[8] - Reading Comprehension subtest
[9] - Total Comprehension Score
[10] - Classroom Behavior Rating Scale
[11] - Self-Concept Test
[12] - Reading Attitude Scale

TABLE D-5

Summary Table of Factorial Analysis of Variance of Scores by Frequency of Preschool Attendance, Gender, and Level of Intelligence

Variable	Source	df	SS	MS	F	Sig. of F
Aud. Disc.[1]						
	IQ[2]	2	129.47	64.73	3.78	.02*
	Gender	1	1.06	1.06	.06	.80
	P.S. Att.[3]	2	24.06	12.03	.70	.49
	IQ by Gender	2	54.70	27.35	1.59	.20
	IQ by P.S. Att.	4	7.28	1.82	.10	.98
	Gender by P.S. Att.	2	9.90	4.95	.28	.74
	IQ by Gender by P.S. Att.	4	21.60	5.40	.31	.86
Aud. Voc.[4]						
	IQ	2	451.72	225.86	12.75	.00*
	Gender	1	4.67	4.67	.26	.60
	P.S. Att.	2	15.72	7.86	.44	.64
	IQ by Gender	2	43.71	21.85	1.23	.29
	IQ by P.S. Att.	4	90.07	22.52	1.27	.28
	Gender by P.S. Att.	2	77.82	38.91	2.19	.11
	IQ by Gender by P.S. Att.	4	15.44	3.86	.21	.92
Ph. Anal.[5]						
	IQ	2	201.44	100.72	4.67	.01*
	Gender	1	.67	.67	.03	.86
	P.S. Att.	2	15.91	7.95	.37	.69
	IQ by Gender	2	64.62	32.31	1.50	.22
	IQ by P.S. Att.	4	37.45	9.36	.43	.78
	Gender by P.S. Att.	2	7.50	3.75	.17	.84
	IQ by Gender by P.S. Att.	4	26.63	6.65	.30	.87
Wd. Rdg.[6]						
	IQ	2	894.71	447.35	6.12	.00*
	Gender	1	171.54	171.54	2.34	.12
	P.S. Att.	2	246.74	123.37	1.68	.18
	IQ by Gender	2	209.72	104.86	1.43	.24

TABLE D-5 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
	IQ by P.S. Att.	4	102.86	25.71	.35	.84
	Gender by P.S. Att.	2	254.83	127.42	1.74	.17
	IQ by Gender by P.S. Att.	4	33.69	8.42	.11	.97
Rdg. Comp.[7]						
	IQ	2	1499.78	740.89	8.49	.00*
	Gender	1	331.76	331.76	3.76	.05*
	P.S. Att.	2	12.32	6.16	.07	.93
	IQ by Gender	2	309.82	154.91	1.75	.17
	IQ by P.S. Att.	4	142.17	35.54	.40	.80
	Gender by P.S. Att.	2	349.30	174.65	1.97	.14
	IQ by Gender by P.S. Att.	4	143.53	35.88	.40	.80
Tot. Comp.[8]						
	IQ	2	4700.21	2350.10	7.99	.00*
	Gender	1	962.83	962.83	3.27	.07
	P.S. Att.	2	350.98	175.49	.59	.55
	IQ by Gender	2	1057.23	528.61	1.79	.17
	IQ by P.S. Att.	4	400.89	100.22	.34	.85
	Gender by P.S. Att.	2	1167.56	583.78	1.98	.14
	IQ by Gender by P.S. Att.	4	288.02	72.00	.24	.91
Class Beh.[9]						
	IQ	2	1791.74	895.87	6.53	.00*
	Gender	1	523.64	523.64	3.82	.05*
	P.S. Att.	2	193.04	96.52	.70	.49
	IQ by Gender	2	71.93	35.96	.26	.77
	IQ by P.S. Att.	4	324.60	81.15	.59	.66
	Gender by P.S. Att.	2	503.75	251.87	1.83	.16
	IQ by Gender by P.S. Att.	4	1276.10	319.02	2.32	.06
Self-Con.[10]						
	IQ	2	20.48	10.24	1.37	.25
	Gender	1	1.20	1.20	.16	.68

TABLE D-5 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
P.S. Att.	2	22.62	11.31	1.52	.22	
	IQ by Gender	2	39.27	19.63	2.64	.07
	IQ by P.S. Att.	4	9.96	2.49	.33	.85
	Gender by P.S. Att.	2	6.74	3.37	.45	.63
	IQ by Gender by P.S. Att.	4	24.69	6.17	.83	.50
Rdg. Att.[11]						
	IQ	2	262.29	131.14	1.23	.29
	Gender	1	95.21	95.21	.89	.34
	P.S. Att.	2	676.82	338.41	3.18	.04*
	IQ by Gender	2	230.42	115.21	1.08	.34
	IQ by P.S. Att.	4	37.13	9.28	.08	.98
	Gender by P.S. Att.	2	330.06	165.03	1.55	.21
	IQ by Gender by P.S. Att.	4	82.56	20.64	.19	.94

*$p \leq .05$

1 - Auditory Discrimination subtest
2 - Level of Intelligence
3 - Preschool Attendance
4 - Auditory Vocabulary subtest
5 - Phonetic Analysis subtest
6 - Word Reading subtest
7 - Reading Comprehension subtest
8 - Total Comprehension Score
9 - Classroom Behavior Rating Scale
10 - Self-Concept Test
11 - Reading Attitude Scale

TABLE D-6

Summary Table of Factorial Analysis of Variance of Scores by Frequency of Preschool Attendance, Gender, and Socioeconomic Status

Variable	Source	df	SS	MS	F	Sig. of F
Aud. Disc.[1]						
	SES[2]	2	70.20	35.10	2.84	.06
	P.S. Att.[3]	2	36.61	18.30	1.48	.23
	Gender	1	.08	.08	.00	.93
	SES by P.S. Att.	4	238.26	59.56	4.82	.00*
	SES by Gender	2	31.04	15.52	1.25	.29
	P.S. Att. by Gender	2	68.32	34.16	2.76	.07
	SES by P.S. Att. by Gender	4	24.71	6.18	.50	.73
Aud. Voc.[4]						
	SES	2	217.73	108.86	7.49	.00*
	P.S. Att.	2	70.59	35.29	2.42	.09
	Gender	1	.45	.45	.03	.86
	SES by P.S. Att.	4	52.81	13.20	.90	.46
	SES by Gender	2	110.91	55.45	3.81	.02*
	P.S. Att. by Gender	2	32.20	16.10	1.10	.33
	SES by P.S. Att. by Gender	4	83.46	20.86	1.43	.23
Ph. Anal.[5]						
	SES	2	118.07	59.03	3.69	.03*
	P.S. Att.	2	24.24	12.12	.75	.47
	Gender	1	1.75	1.75	.11	.74
	SES by P.S. Att.	4	147.96	36.99	2.31	.06
	SES by Gender	2	31.08	15.54	.97	.38
	P.S. Att. by Gender	2	60.05	30.02	1.87	.16
	SES by P.S. Att. by Gender	4	95.26	23.81	1.48	.21
Wd. Rdg.[6]						
	SES	2	463.06	231.53	4.15	.02*
	P.S. Att.	2	431.34	215.67	3.86	.02*
	Gender	1	104.29	104.29	1.87	.17
	SES by P.S. Att.	4	651.39	162.84	2.92	.02*

TABLE D-6 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Wd. Rdg. (Cont.)						
	SES by Gender	2	39.95	19.97	.35	.70
	P.S. Att. by Gender	2	359.58	179.79	3.22	.04*
	SES by P.S. Att. by Gender	4	315.63	78.90	1.41	.23
Rdg. Comp.[7]						
	SES	2	338.06	169.03	1.83	.16
	P.S. Att.	2	237.57	118.78	1.29	.28
	Gender	1	94.59	94.59	1.02	.31
	SES by P.S. Att.	4	765.34	191.33	2.08	.09
	SES by Gender	2	65.92	32.96	.35	.70
	P.S. Att. by Gender	2	745.82	372.91	4.05	.02*
	SES by P.S. Att. by Gender	4	447.72	111.93	1.21	.31
Tot. Comp.[8]						
	SES	2	1551.34	775.67	3.01	.05*
	P.S. Att.	2	1246.58	623.29	2.42	.09
	Gender	1	397.55	397.55	1.54	.21
	SES by P.S. Att.	4	2717.05	679.26	2.64	.04*
	SES by Gender	2	201.54	100.77	.39	.67
	P.S. Att. by Gender	2	2138.77	1069.38	4.15	.02*
	SES by P.S. Att. by Gender	4	1511.74	377.93	1.47	.22
Class Beh.[9]						
	SES	2	2168.75	1084.37	8.11	.00*
	P.S. Att.	2	127.86	63.93	.47	.62
	Gender	1	183.36	183.36	1.37	.24
	SES by P.S. Att.	4	322.89	80.72	.60	.66
	SES by Gender	2	169.10	84.55	.63	.53
	P.S. Att. by Gender	2	822.15	411.07	3.07	.05*
	SES by P.S. Att. by Gender	4	291.36	72.84	.54	.70

TABLE D-6 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Self-Con.[10]						
	SES	2	3.08	1.54	.18	.83
	P.S. Att.	2	17.03	8.51	1.03	.36
	Gender	1	3.63	3.63	.44	.50
	SES by P.S. Att.	4	64.12	16.03	1.94	.11
	SES by Gender	2	8.46	4.23	.51	.60
	P.S. Att. by Gender	2	7.54	3.77	.45	.63
	SES by P.S. Att. by Gender	4	10.07	2.51	.30	.87
Rdg. Att.[11]						
	SES	2	49.81	24.90	.27	.76
	P.S. Att.	2	254.00	127.00	1.39	.25
	Gender	1	6.84	6.84	.07	.78
	SES by P.S. Att.	4	613.44	153.36	1.6	.16
	SES by Gender	2	64.07	32.03	.35	.70
	P.S. Att. by Gender	2	48.06	24.03	.26	.76
	SES by P.S. Att. by Gender	4	156.31	39.07	.42	.78

*$p \leq .05$

1 - Auditory Discrimination
2 - Socioeconomic Status
3 - Preschool Attendance
4 - Auditory Vocabulary subtest
5 - Phonetic Analysis subtest
6 - Word Reading subtest
7 - Reading Comprehension subtest
8 - Total Comprehension Score
9 - Classroom Behavior Rating Scale
10 - Self-Concept Test
11 - Reading Attitude Scale

TABLE D-7

Summary Table of Factorial Analysis of Variance of Scores by Reading Program, Preschool Attendance, and Level of Intelligence

Variable	Source	df	SS	MS	F	Sig. of F
Aud. Disc.[1]						
	Rdg. Pro.[2]	1	204.43	204.43	13.77	.00*
	P.S. Att.[3]	2	18.47	9.23	.62	.53
	IQ[4]	2	204.48	102.24	6.88	.00*
	Rdg. Pro. by P.S. Att.	2	10.28	5.14	.34	.70
	Rdg. Pro. by IQ	2	34.68	17.34	1.16	.31
	P.S. Att. by IQ	4	31.97	7.99	.53	.70
	Rdg. Pro. by P.S. Att. by IQ	4	82.85	20.71	1.39	.24
Aud. Voc.[5]						
	Rdg. Pro.	1	113.53	113.53	7.01	.00*
	P.S. Att.	2	15.50	7.75	.47	.62
	IQ	2	521.60	260.80	16.10	.00*
	Rdg. Pro. by P.S. Att.	2	170.21	85.10	5.25	.00*
	Rdg. Pro. by IQ	2	28.42	14.21	.87	.41
	P.S. Att. by IQ	4	38.13	9.53	.58	.67
	Rdg. Pro. by P.S. Att. by IQ	4	24.11	6.03	.37	.82
Ph. Anal.[6]						
	Rdg. Pro.	1	90.94	90.94	4.58	.03*
	P.S. Att.	2	11.44	5.72	.28	.75
	IQ	2	250.75	125.37	6.32	.00*
	Rdg. Pro. by P.S. Att.	2	24.36	12.18	.61	.54
	Rdg. Pro. by IQ	2	23.25	11.62	.58	.55
	P.S. Att. by IQ	4	72.41	18.10	.91	.45
	Rdg. Pro. by P.S. Att. by IQ	4	130.92	32.73	1.65	.16
Wd. Rdg.[7]						
	Rdg. Pro.	1	444.07	444.07	6.44	.01*

TABLE D-7 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Wd. Rdg. (Cont.)						
	P.S. Att.	2	189.22	94.61	1.37	.25
	IQ	2	1035.55	517.77	7.51	.00*
	Rdg. Pro. by P.S. Att.	2	66.61	33.30	.48	.61
	Rdg. Pro. by IQ	2	31.61	15.80	.22	.79
	P.S. Att. by IQ	4	139.41	34.85	.50	.73
	Rdg. Pro. by P.S. Att. by IQ	4	553.97	138.49	2.01	.09
Rdg. Comp.[8]						
	Rdg. Pro.	1	178.49	178.49	1.97	.16
	P.S. Att.	2	3.62	1.81	.02	.98
	IQ	2	1500.09	750.04	8.28	.00*
	Rdg. Pro. by P.S. Att.	2	121.03	60.51	.66	.51
	Rdg. Pro. by IQ	2	105.28	52.64	.58	.56
	P.S. Att. by IQ	4	321.52	80.38	.88	.47
	Rdg. Pro. by P.S. Att. by IQ	4	422.41	105.60	1.16	.32
Tot. Comp.[9]						
	Rdg. Pro.	1	1170.93	1170.93	4.02	.04*
	P.S. Att.	2	229.46	114.73	.39	.67
	IQ	2	5023.23	2511.62	8.62	.00*
	Rdg. Pro. by P.S. Att.	2	275.58	137.79	.47	.62
	Rdg. Pro. by IQ	2	241.46	120.73	.41	.66
	P.S. Att. by IQ	4	808.22	202.05	.69	.59
	Rdg. Pro. by P.S. Att. by IQ	4	1865.58	466.39	1.60	.17
Class Beh.[10]						
	Rdg. Pro.	1	2428.38	2428.38	19.58	.00*
	P.S. Att.	2	258.94	129.47	1.04	.35
	IQ	2	869.38	434.69	3.50	.03*

TABLE D-7 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Class Beh. (Cont.)						
	Rdg. Pro. by P.S. Att.	2	74.86	37.43	.30	.74
	Rdg. Pro. by IQ	2	1101.47	550.73	4.44	.01*
	P.S. Att. by IQ	4	279.45	69.86	.56	.69
	Rdg. Pro. by P.S. Att. by IQ	4	249.63	62.40	.50	.73
Self-Con.[11]						
	Rdg. Pro.	1	125.86	125.86	18.43	.00*
	P.S. Att.	2	17.75	8.87	1.30	.27
	IQ	2	38.22	19.11	2.79	.06
	Rdg. Pro. by P.S. Att.	2	5.29	2.64	.38	.68
	Rdg. Pro. by IQ	2	3.90	1.95	.28	.75
	P.S. Att. by IQ	4	18.23	4.55	.66	.61
	Rdg. Pro. by P.S. Att. by IQ	4	1.93	.48	.07	.99
Rdg. Att.[12]						
	Rdg. Pro.	1	22.33	22.33	.22	.64
	P.S. Att.	2	681.61	340.80	3.35	.03*
	IQ	2	243.12	121.56	1.19	.30
	Rdg. Pro. by P.S. Att.	2	287.58	143.79	1.41	.24
	Rdg. Pro. by IQ	2	185.84	92.92	.91	.40
	P.S. Att. by IQ	4	44.93	11.23	.11	.97
	Rdg. Pro. by P.S. Att. by IQ	4	765.33	191.33	1.88	.11

*$p \leq .05$

[1] - Auditory Discrimination subtest
[2] - Reading Program
[3] - Preschool Attendance
[4] - Level of Intelligence
[5] - Auditory Vocabulary subtest

TABLE D-6 (Cont.)

[6] - Phonetic Analysis subtest
[7] - Word Reading subtest
[8] - Reading Comprehension subtest
[9] - Total Comprehension Score
[10] - Classroom Behavior Rating Scale
[11] - Self-Concept Test
[12] - Reading Attitude Scale

TABLE D-8

Summary Table of Factorial Analysis of Variance of Scores by reschool Attendance, Level of Intelligence, and Socioeconomic Status

Variable	Source	df	SS	MS	F	Sig. of F
Aud. Disc.[1]						
	IQ[2]	2	77.19	38.59	3.24	.04*
	SES[3]	2	24.62	12.31	1.03	.36
	P.S. Att.[4]	2	27.98	13.99	1.17	.31
	IQ by SES	4	54.93	13.73	1.15	.34
	IQ by P.S. Att.	4	53.32	13.33	1.12	.35
	SES by P.S. Att.	4	149.61	37.40	3.14	.02*
	SES by IQ by P.S. Att.	6	61.79	10.29	.89	.52
Aud. Voc.[5]						
	IQ	2	149.61	74.80	4.63	.01*
	SES	2	101.91	50.95	3.15	.05*
	P.S. Att.	2	59.12	29.56	1.83	.16
	IQ by SES	4	25.65	6.41	.39	.81
	IQ by P.S. Att.	4	36.41	9.10	.56	.69
	SES by P.S. Att.	4	5.18	1.29	.08	.98
	SES by IQ by P.S. Att.	6	59.51	9.91	.61	.71
Ph. Anal.[6]						
	IQ	2	65.48	32.74	1.74	.18
	SES	2	58.78	29.39	1.56	.21
	P.S. Att.	2	20.75	10.37	.55	.57
	IQ by SES	4	22.29	5.57	.29	.87
	IQ by P.S. Att.	4	40.01	10.00	.53	.71
	SES by P.S. Att.	4	58.55	14.63	.78	.54
	SES by IQ by P.S. Att.	6	41.65	6.94	.37	.89
Wd. Rdg.[7]						
	IQ	2	508.06	254.03	4.27	.01*
	SES	2	193.82	96.91	1.63	.20
	P.S. Att.	2	384.35	192.17	3.23	.04*
	IQ by SES	4	107.99	26.99	.45	.76
	IQ by P.S. Att.	4	71.85	17.96	.30	.87

TABLE D-8 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Wd. Rdg. (Cont.)						
	SES by P.S. Att.	4	288.36	72.09	1.21	.31
	SES by IQ by P.S. Att.	6	251.91	41.98	.70	.64
Rdg. Comp.[8]						
	IQ	2	1036.23	518.11	5.80	.00*
	SES	2	35.76	17.88	.20	.81
	P.S. Att.	2	147.28	73.64	.82	.44
	IQ by SES	4	384.27	96.06	1.07	.37
	IQ by P.S. Att.	4	162.27	40.57	.45	.76
	SES by P.S. Att.	4	227.81	56.95	.63	.63
	SES by IQ by P.S. Att.	6	602.60	100.43	1.12	.35
Tot. Comp.[9]						
	IQ	2	2977.73	1488.86	5.72	.00*
	SES	2	384.66	192.33	.73	.48
	P.S. Att.	2	972.56	486.28	1.86	.16
	IQ by SES	4	854.07	213.51	.82	.51
	IQ by P.S. Att.	4	413.09	103.27	.39	.81
	SES by P.S. Att.	4	1013.02	253.25	.97	.42
	SES by IQ by P.S. Att.	6	1567.56	261.26	1.00	.43
Class. Beh.[10]						
	IQ	2	609.02	304.51	2.12	.12
	SES	2	1291.21	645.60	4.49	.01*
	P.S. Att.	2	133.71	66.85	.46	.63
	IQ by SES	4	1011.81	252.95	1.76	.14
	IQ by P.S. Att.	4	125.44	31.36	.21	.92
	SES by P.S. Att.	4	94.93	23.73	.16	.95
	SES by IQ by P.S. Att.	6	210.59	35.10	.24	.96
Self-Con.[11]						
	IQ	2	12.85	6.42	.76	.47
	SES	2	2.34	1.17	.13	.87
	P.S. Att.	2	13.29	6.64	.78	.46

TABLE D-8 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Self-Con.	(Cont.)					
	IQ by SES	4	20.88	5.22	.61	.65
	IQ by P.S. Att.	4	12.90	3.22	.38	.82
	SES by P.S. Att.	4	65.17	16.29	1.92	.11
	SES by IQ by P.S. Att.	6	39.14	6.52	.77	.59
Rdg. Att.[12]						
	IQ	2	2.53	1.26	.01	.98
	SES	2	39.00	19.50	.22	.80
	P.S. Att.	2	229.15	114.57	1.29	.28
	IQ by SES	4	273.77	68.44	.77	.54
	IQ by P.S. Att.	4	300.08	75.02	.84	.50
	SES by P.S. Att.	4	593.57	148.39	1.67	.16
	SES by IQ by P.S. Att.	6	459.61	76.60	.86	.52

*$p \leq .05$

[1] - Auditory Discrimination subtest
[2] - Level of Intelligence
[3] - Socioeconomic Status
[4] - Preschool Attendance
[5] - Auditory Vocabulary subtest
[6] - Phonetic Analysis subtest
[7] - Word Reading subtest
[8] - Reading Comprehension subtest
[9] - Total Comprehension Score
[10] - Classroom Behavior Rating Scale
[11] - Self-Concept Test
[12] - Reading Attitude Scale

TABLE D-9

Summary Table of Factorial Analysis of Variance of Scores by Reading Program, Gender, Level of Intelligence, and Socioeconomic Status

Variable	Source	df	SS	MS	F	Sig. of F
Aud. Disc.[1]						
	IQ[2]	2	102.28	51.14	3.90	.02*
	SES[3]	2	34.49	17.25	1.31	.27
	Rdg. Pro.[4]	1	80.67	80.67	6.15	.01*
	Gender	1	4.08	4.08	.31	.57
	IQ by SES	4	42.11	10.52	.80	.52
	IQ by Rdg. Pro.	2	13.61	6.80	.51	.59
	IQ by Gender	2	19.66	9.83	.75	.47
	SES by Rdg. Pro.	2	23.50	11.75	.89	.41
	SES by Gender	2	22.29	11.14	.85	.43
	Rdg. Pro. by Gender	1	2.09	2.09	.16	.69
Higher order interactions suppressed due to empty cells						
Aud. Voc.[5]						
	IQ	2	167.32	83.66	6.45	.00*
	SES	2	123.73	61.86	4.77	.01*
	Rdg. Pro.	1	15.25	15.25	1.77	.28
	Gender	1	.66	.66	.05	.82
	IQ by SES	4	36.07	9.07	.69	.59
	IQ by Rdg. Pro.	2	74.28	37.14	2.86	.06
	IQ by Gender	2	29.70	14.85	1.14	.32
	SES by Rdg. Pro.	2	39.47	19.73	1.52	.22
	SES by Gender	2	127.07	63.53	4.89	.01*
	Rdg. Pro. by Gender	1	9.98	9.98	.77	.38
Higher order interactions suppressed due to empty cells						
Ph. Anal.[6]						
	IQ	2	78.28	39.14	2.51	.08
	SES	2	73.38	36.69	2.35	.10
	Rdg. Pro.	1	22.01	22.01	1.41	.23
	Gender	1	7.41	7.41	.47	.49
	IQ by SES	4	70.02	17.50	1.12	.35
	IQ by Rdg. Pro.	2	54.64	27.32	1.75	.18
	IQ by Gender	2	110.86	55.43	3.55	.03*

TABLE D-9 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Ph. Anal.	(Cont.)					
	SES by Rdg. Pro.	2	1.39	.69	.04	.95
	SES by Gender	2	110.18	55.09	3.53	.03*
	Rdg. Pro. by Gender	1	14.41	14.41	.92	.34
Higher order interactions suppressed due to empty cells						
Wd. Rdg.[7]						
	IQ	2	650.26	325.13	5.99	.00*
	SES	2	251.42	125.71	2.31	.10
	Rdg. Pro.	1	229.88	229.88	4.24	.04*
	Gender	1	189.29	189.29	3.49	.06
	IQ by SES	4	528.34	132.08	2.43	.05*
	IQ by Rdg. Pro.	2	166.02	83.01	1.53	.22
	IQ by Gender	2	270.34	135.17	2.49	.09
	SES by Rdg. Pro.	2	72.79	36.39	.67	.51
	SES by Gender	2	371.30	185.65	3.42	.03*
	Rdg. Pro. by Gender	1	1.11	1.11	.02	.88
Higher order interactions suppressed due to empty cells						
Rd. Comp.[8]						
	IQ	2	1213.69	606.85	7.09	.00*
	SES	2	44.68	22.34	.26	.77
	Rdg. Pro.	1	16.06	16.06	.18	.66
	Gender	1	177.15	177.15	2.07	.15
	IQ by SES	4	923.82	230.95	2.70	.03*
	IQ by Rdg. Pro.	2	269.25	134.62	1.57	.21
	IQ by Gender	2	306.85	153.43	1.79	.17
	SES by Rdg. Pro.	2	52.79	26.39	.30	.73
	SES by Gender	2	244.02	122.01	1.42	.24
	Rdg. Pro. by Gender	1	.62	.62	.00	.93
Higher order interactions suppressed due to empty cells						
Tot. Comp.[9]						
	IQ	2	3637.51	1818.75	7.47	.00*
	SES	2	501.51	250.75	1.03	.36
	Rdg. Pro.	1	367.49	367.49	1.51	.22

TABLE D-9 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Tot. Comp. (Cont.)						
	Gender	1	732.68	732.68	3.01	.08
	IQ by SES	4	2707.73	676.93	2.78	.03*
	IQ by Rdg. Pro.	2	855.50	427.75	1.75	.18
	IQ by Gender	2	1150.41	575.20	2.36	.10
	SES by Rdg. Pro.	2	178.68	89.34	.36	.69
	SES by Gender	2	1216.69	608.34	2.49	.09
	Gender	1	.07	.07	.00	.98
Higher order interactions suppressed due to empty cells						
Class Beh.[10]						
	IQ	2	543.45	271.72	2.76	.07
	SES	2	1167.23	583.61	5.93	.00*
	Rdg. Pro.	1	1101.85	1101.85	11.20	.00*
	Gender	1	98.21	98.21	.99	.32
	IQ by SES	4	783.04	195.76	1.99	.10
	IQ by Rdg. Pro.	2	189.97	94.98	.96	.38
	IQ by Gender	2	199.42	99.71	1.01	.36
	SES by Rdg. Pro.	2	545.89	272.94	2.77	.07
	SES by Gender	2	153.87	76.93	.78	.46
	Rdg. Pro. by Gender	1	39.84	39.84	.40	.52
Higher order interactions suppressed due to empty cells						
Self-Con.[11]						
	IQ	2	17.03	8.51	1.10	.33
	SES	2	8.37	4.18	.54	.58
	Rdg. Pro.	1	79.76	79.76	10.30	.00*
	Gender	1	1.68	1.68	.21	.64
	IQ by SES	4	1.73	.43	.05	.99
	IQ by Rdg. Pro.	2	3.36	1.68	.21	.80
	IQ by Gender	2	31.68	15.84	2.04	.13
	SES by Rdg. Pro.	2	7.88	3.94	.50	.60
	SES by Gender	2	.31	.15	.02	.98
	Rdg. Pro. by Gender	1	11.43	11.43	1.47	.22
Higher order interactions suppressed due to empty cells						

TABLE D-9 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Rdg. Att.[12]						
	IQ	2	17.59	8.79	.09	.91
	SES	2	29.36	13.18	.14	.87
	Rdg. Pro.	1	39.90	39.90	.42	.51
	Gender	1	5.83	5.83	.06	.80
	IQ by SES	4	316.24	79.06	.83	.50
	IQ by Rdg. Pro.	2	476.81	238.40	2.52	.08
	IQ by Gender	2	357.31	178.65	1.89	.15
	SES by Rdg. Pro.	2	1.99	.99	.01	.98
	SES by Gender	2	166.84	83.42	.88	.41
	Rdg. Pro. by Gender	1	211.55	211.55	2.24	.13

Higher order interactions suppressed due to empty cells

*$p \leq .05$

[1] - Auditory Discrimination subtest
[2] - Level of Intelligence
[3] - Socioeconomic Status
[4] - Reading Program
[5] - Auditory Vocabulary subtest
[6] - Phonetic Analysis subtest
[7] - Word Reading subtest
[8] - Reading Comprehension subtest
[9] - Total Comprehension Score
[10] - Classroom Behavior Rating Scale
[11] - Self-Concept Test
[12] - Reading Attitude Scale

TABLE D-10

Summary Table of Factorial Analysis of Variance of Scores by Preschool Attendance, Gender, Level of Intelligence, and Socioeconomic Status

Variable	Source	df	SS	MS	F	Sig. of F
Aud. Disc.[1]						
	IQ[2]	2	77.85	38.92	3.18	.04*
	SES[3]	2	25.22	12.61	1.03	.36
	P.S. Att.[4]	2	27.80	13.90	1.13	.32
	Gender	1	.74	.74	.06	.80
	IQ by SES	4	51.17	12.79	1.04	.39
	IQ by P.S. Att.	4	20.89	5.22	.42	.78
	IQ by Gender	2	15.47	7.73	.63	.53
	SES by P.S. Att.	4	166.94	41.73	3.41	.01*
	SES by Gender	2	11.04	5.52	.45	.63
	P.S. Att. by Gender	2	34.94	17.47	1.43	.24
Higher order interactions suppressed due to empty cells						
Aud. Voc.[5]						
	IQ	2	149.18	74.59	4.96	.01*
	SES	2	101.76	50.88	3.38	.04*
	P.S. Att.	2	59.02	29.51	1.96	.14
	Gender	1	.02	.02	.00	.96
	IQ by SES	4	20.50	5.12	.34	.84
	IQ by P.S. Att.	4	17.84	4.46	.29	.87
	IQ by Gender	2	54.09	27.04	1.80	.17
	SES by P.S. Att.	4	8.36	2.09	.13	.96
	SES by Gender	2	86.79	43.39	2.89	.06
	P.S. Att. by Gender	2	2.58	1.29	.08	.91
Higher order interactions suppressed due to empty cells						
Ph. Anal.[6]						
	IQ	2	68.25	34.12	2.02	.14
	SES	2	61.39	30.70	1.82	.17
	P.S. Att.	2	20.51	10.25	.60	.54
	Gender	1	4.52	4.52	.26	.60
	IQ by SES	4	46.99	11.74	.69	.59
	IQ by P.S. Att.	4	47.33	11.83	.70	.59
	IQ by Gender	2	91.33	45.66	2.71	.07

TABLE D-10 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Ph. Anal.	(Cont.)					
	SES by P.S. Att.	4	59.32	14.83	.88	.48
	SES by Gender	2	94.44	47.22	2.80	.06
	P.S. Att. by Gender	2	9.68	4.84	.28	.75
Higher order interactions suppressed due to empty cells						
Wd. Rdg.[7]						
	IQ	2	536.05	268.02	4.81	.01*
	SES	2	227.46	113.73	2.04	.13
	P.S. Att.	2	371.54	185.77	3.33	.04*
	Gender	1	132.28	132.28	2.37	.12
	IQ by SES	4	154.10	38.52	.69	.60
	IQ by P.S. Att.	4	76.71	19.17	.34	.84
	IQ by Gender	2	254.32	127.16	2.28	.11
	SES by P.S. Att.	4	224.44	56.11	1.00	.41
	SES by Gender	2	130.28	65.14	1.17	.31
	P.S. Att. by Gender	2	69.42	34.71	.62	.53
Higher order interactions suppressed due to empty cells						
Rdg. Comp.[8]						
	IQ	2	1096.39	548.19	6.12	.00*
	SES	2	48.54	24.27	.27	.76
	P.S. Att.	2	134.97	67.48	.75	.47
	Gender	1	154.76	154.76	1.72	.19
	IQ by SES	4	424.25	106.06	1.18	.32
	IQ by P.S. Att.	4	142.39	35.59	.39	.81
	IQ by Gender	2	264.47	132.23	1.47	.23
	SES by P.S. Att.	4	204.77	51.19	.57	.68
	SES by Gender	2	106.56	53.28	.59	.55
	P.S. Att. by Gender	2	94.09	47.04	.52	.59
Higher order interactions suppressed due to empty cells						
Tot. Comp.[9]						
	IQ	2	3153.39	1576.69	6.29	.00*
	SES	2	480.56	240.28	.95	.38

TABLE D-10 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
	P.S. Att.	2	922.19	461.09	1.84	.16
	Gender	1	573.22	573.22	2.28	.13
	IQ by SES	4	1027.18	256.79	1.02	.40
	IQ by P.S. Att.	4	400.11	100.03	.39	.80
	IQ by Gender	2	1036.41	518.20	2.06	.13
	SES by P.S. Att.	4	838.34	209.58	.83	.50
	SES by Gender	2	472.08	236.04	.94	.39
	P.S. Att. by Gender	2	319.41	159.70	.63	.53
Higher order interactions suppressed due to empty cells						
Class Beh.[10]						
	IQ	2	633.65	316.82	2.41	.09
	SES	2	1300.00	650.00	4.95	.01*
	P.S. Att.	2	147.27	73.63	.56	.57
	Gender	1	207.98	207.98	1.58	.21
	IQ by SES	4	1128.88	282.22	2.15	.08
	IQ by P.S. Att.	4	122.52	30.63	.23	.91
	IQ by Gender	2	135.76	67.88	.51	.59
	SES by P.S. Att.	4	249.45	62.36	.47	.75
	SES by Gender	2	229.45	114.72	.87	.42
	P.S. Att. by Gender	2	321.49	160.74	1.22	.30
Higher order interactions suppressed due to empty cells						
Self-Con.[11]						
	IQ	2	14.20	7.10	.92	.40
	SES	2	2.05	1.02	.13	.87
	P.S. Att.	2	12.64	6.32	.82	.44
	Gender	1	4.98	4.98	.64	.42
	IQ by SES	4	23.86	5.96	.77	.54
	IQ by P.S. Att.	4	20.03	5.00	.65	.62
	IQ by Gender	2	49.26	24.63	3.19	.04*
	SES by P.S. Att.	4	91.64	22.91	2.97	.02*
	SES by Gender	2	2.93	1.46	.19	.82
	P.S. Att. by Gender	2	8.09	4.04	.52	.59
Higher order interactions suppressed due to empty cells						

TABLE D-10 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Rdg. Att.[12]						
	IQ	2	1.23	.61	.00	.99
	SES	2	37.81	18.90	.20	.81
	P.S. Att.	2	231.87	115.93	1.22	.30
	Gender	1	5.54	5.54	.05	.80
	IQ by SES	4	201.39	50.34	.53	.71
	IQ by P.S. Att.	4	308.00	77.00	.81	.52
	IQ by Gender	2	125.50	62.75	.66	.51
	SES by P.S. Att.	4	539.20	134.80	1.42	.23
	SES by Gender	2	44.56	22.28	.23	.79
	P.S. Att. by Gender	2	14.24	7.12	.07	.92

Higher order interactions suppressed due to empty cells

*$p \leq .05$

[1] - Auditory Discrimination
[2] - Level of Intelligence
[3] - Socioeconomic Status
[4] - Preschool Attendance
[5] - Auditory Vocabulary subtest
[6] - Phonetic Analysis subtest
[7] - Word Reading subtest
[8] - Reading Comprehension subtest
[9] - Total Comprehension Score
[10] - Classroom Behavior Rating Scale
[11] - Self-Concept Test
[12] - Reading Attitude Scale

TABLE D-11

Summary Table of Factorial Analysis of Variance of Scores by Level of Intelligence, Socioeconomic Status, Preschool Attendance, and Reading Program

Variable	Source	df	SS	MS	F	Sig. of F
Aud. Disc.[1]						
	IQ[2]	2	57.41	28.70	2.56	.08
	SES[3]	2	92.94	46.43	4.15	.02*
	P.S. Att.[4]	2	66.68	33.34	2.98	.05*
	Rdg. Pro.[5]	1	19.11	19.11	1.71	.19
	IQ by SES	4	46.30	11.57	1.03	.39
	IQ by P.S. Att.	4	45.07	11.26	1.00	.41
	IQ by Rdg. Pro.	2	16.99	8.49	.76	.47
	SES by P.S. Att.	4	93.42	23.35	2.09	.09
	SES by Rdg. Pro.	2	20.52	10.26	.91	.40
	P.S. Att. by Rdg. Pro.	2	39.65	19.83	1.77	.17
Aud. Voc.[6]						
	IQ	2	130.62	65.31	4.78	.01*
	SES	2	67.09	33.54	2.45	.09
	P.S. Att.	2	58.97	29.48	2.16	.12
	Rdg. Pro.	1	.68	.68	.05	.82
	IQ by SES	4	26.03	6.50	.47	.75
	IQ by P.S. Att.	4	46.81	11.70	.85	.49
	IQ by Rdg. Pro.	2	79.41	39.70	2.91	.06
	SES by P.S. Att.	4	14.57	3.64	.26	.89
	SES by Rdg. Pro.	2	38.83	19.41	1.42	.24
	P.S. Att. by Rdg. Pro.	2	74.94	37.47	2.74	.07

Higher order interactions suppressed due to empty cells

Ph. Anal.[7]						
	IQ	2	68.15	34.07	1.82	.17
	SES	2	31.86	15.93	.85	.43
	P.S. Att.	2	10.82	5.41	.29	.74
	Rdg. Pro.	1	2.34	2.34	.12	.72
	IQ by SES	4	30.93	7.73	.41	.79

TABLE D-11 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Ph. Anal.	(Cont.)					
	IQ by P.S. Att.	4	38.96	9.74	.52	.72
	IQ by Rdg. Pro.	2	41.34	20.67	1.10	.33
	SES by P.S. Att.	4	30.28	7.57	.40	.80
	SES by Rdg. Pro.	2	1.88	.94	.05	.95
	P.S. Att. by Rdg. Pro.	2	6.97	3.48	.18	.83
Higher order interactions suppressed due to empty cells						
Wd. Rdg.[8]						
	IQ	2	578.95	289.47	4.87	.01*
	SES	2	105.25	52.62	.88	.41
	P.S. Att.	2	127.46	63.73	1.07	.34
	Rdg. Pro.	1	40.52	40.52	.66	.41
	IQ by SES	4	160.67	40.17	.67	.61
	IQ by P.S. Att.	4	8.88	22.22	.37	.82
	IQ by Rdg. Pro.	2	169.38	84.69	1.42	.24
	SES by P.S. Att.	4	174.10	43.52	.73	.57
	SES by Rdg. Pro.	2	3.28	1.64	.02	.97
	P.S. Att. by Rdg. Pro.	2	4.58	2.29	.03	.96
Higher order interactions suppressed due to empty cells						
Rdg. Comp.[9]						
	IQ	2	1161.94	580.97	6.22	.00*
	SES	2	8.78	4.39	.04	.95
	P.S. Att.	2	70.53	35.26	.37	.68
	Rdg. Pro.	1	7.48	7.48	.08	.77
	IQ by SES	4	470.92	117.73	1.26	.29
	IQ by P.S. Att.	4	230.51	57.62	.61	.65
	IQ by Rdg. Pro.	2	216.44	108.22	1.15	.32

TABLE D-11 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Rdg. Comp. (Cont.)						
	SES by P.S. Att.	4	151.41	37.85	.40	.80
	SES by Rdg. Pro.	2	9.69	4.84	.05	.94
	P.S. Att. by Rdg. Pro.	2	143.30	71.65	.76	.46
Higher order interactions suppressed due to empty cells						
Tot. Comp.[10]						
	IQ	2	3355.98	1677.99	6.22	.00*
	SES	2	129.69	64.84	.24	.78
	P.S. Att.	2	337.75	168.87	.62	.53
	Rdg. Pro.	1	82.84	82.84	.30	.58
	IQ by SES	4	1167.28	291.82	1.08	.37
	IQ by P.S. Att.	4	558.77	139.69	.51	.72
	IQ by Rdg. Pro.	2	742.56	371.28	1.37	.26
	SES by P.S. Att.	4	637.49	159.37	.59	.67
	SES by Rdg. Pro.	2	8.77	4.38	.01	.98
	P.S. Att. by Rdg. Pro.	2	176.22	88.11	.32	.72
Higher order interactions suppressed due to empty cells						
Class Beh.[11]						
	IQ	2	332.20	166.10	1.50	.23
	SES	2	12.15	6.01	.05	.94
	P.S. Att.	2	152.90	76.45	.69	.50
	Rdg. Pro.	1	724.41	724.41	6.56	.01*
	IQ by SES	4	527.54	131.88	1.19	.32
	IQ by P.S. Att.	4	72.66	18.16	.16	.95
	IQ by Rdg. Pro.	2	430.64	215.32	1.95	.15
	SES by P.S. Att.	4	252.48	63.12	.55	.68
	SES by Rdg. Pro.	2	475.05	237.52	2.15	.12
	P.S. Att. by Rdg. Pro.	2	104.08	52.04	.47	.62
Higher order interactions suppressed due to empty cells						

TABLE D-11 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Self-Con.[12]						
	IQ	2	17.72	8.86	1.06	.35
	SES	2	9.65	4.82	.58	.56
	P.S. Att.	2	2.87	1.43	.17	.84
	Rdg. Pro.	1	9.23	49.23	5.91	.01*
	IQ by SES	4	9.23	2.30	.27	.89
	IQ by P.S. Att.	4	11.93	2.98	.35	.83
	IQ by Rdg. Pro.	2	4.36	2.18	.26	.77
	SES by P.S. Att.	4	38.11	9.52	1.14	.34
	SES by Rdg. Pro.	2	.24	.12	.01	.98
	P.S. Att. by Rdg. Pro.	2	2.69	1.34	.16	.85

Higher order interactions suppressed due to empty cells

Rdg. Att.[13]						
	IQ	2	58.92	29.46	.32	.72
	SES	2	9.56	4.78	.05	.94
	P.S. Att.	2	353.34	176.67	1.93	.15
	Rdg. Pro.	1	19.94	19.94	.21	.64
	IQ by SES	4	327.31	81.82	.89	.47
	IQ by P.S. Att.	4	258.25	64.56	.70	.59
	IQ by Rdg. Pro.	2	175.79	87.89	.96	.38
	SES by P.S. Att.	4	603.91	150.97	1.65	.17
	SES by Rdg. Pro.	2	9.64	4.82	.05	.94
	P.S. Att. by Rdg. Pro.	2	204.19	102.09	1.17	.33

Higher order interactions suppressed due to empty cells

*$p \leq .05$

[1] - Auditory Discrimination
[2] - Level of Intelligence
[3] - Socioeconomic Status
[4] - Preschool Attendance
[5] - Reading Program

TABLE D-11 (Cont.)

6 - Auditory Vocabulary
7 - Phonetic Analysis
8 - Word Reading
9 - Reading Comprehension
10 - Total Comprehension
11 - Classroom Behavior
12 - Self-Concept
13 - Reading Attitude

TABLE D-12

Summary Table of Factorial Analysis of Variance of Scores by Preschool Attendance, Reading Program, Gender, Socioeconomic Status, and Level of Intelligence

Variable	Source	df	SS	MS	F	Sig. of F
Aud. Disc.[1]						
	Rdg. Pro.[2]	1	77.51	77.51	6.56	.01*
	Gender	1	4.08	4.08	.34	.55
	P.S. Att.[3]	2	20.74	10.37	.87	.42
	IQ[4]	2	85.82	42.91	3.63	.03*
	SES[5]	2	81.21	40.60	3.43	.04*
	Rdg. Pro. by Gender	1	1.53	1.53	.13	.72
	Rdg. Pro. by P.S. Att.	2	23.68	11.84	1.00	.37
	Rdg. Pro. by IQ	2	10.45	5.22	.44	.64
	Rdg. Pro. by SES	2	21.78	10.89	.92	.40
	Gender by P.S. Att.	2	36.41	18.20	1.54	.22
	Gender by IQ	2	11.81	5.90	.50	.60
	Gender by SES	2	11.55	5.77	.48	.61
	P.S. Att. by IQ	4	24.78	6.19	.52	.71
	P.S. Att. by SES	4	96.81	24.20	2.04	.10
	IQ by SES	4	27.77	6.94	.58	.67
Higher order interactions suppressed due to empty cells						
Aud. Voc.[6]						
	Rdg. Pro.	1	14.72	14.72	1.10	.29
	Gender	1	.66	.66	.05	.82
	P.S. Att.	2	54.80	27.40	2.05	.13
	IQ	2	161.07	80.53	6.02	.00*
	SES	2	250.20	125.10	9.36	.00*
	Rdg. Pro. by Gender	1	12.49	12.49	.93	.33
	Rdg. Pro. by P.S. Att.	2	61.23	30.61	2.29	.11
	Rdg. Pro. by IQ	2	32.09	16.04	1.20	.30
	Rdg. Pro. by SES	2	34.03	17.01	1.27	.28
	Gender by P.S. Att.	2	3.96	1.98	.14	.86
	Gender by IQ	2	32.19	16.09	1.20	.30

TABLE D-12 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Aud. Voc. (Cont.)						
	Gender by SES	2	103.94	51.97	3.88	.02*
	P.S. Att. by IQ	4	27.23	6.80	.51	.72
	P.S. Att. by SES	4	9.59	2.39	.18	.94
	IQ by SES	4	22.20	5.55	.41	.79
Higher order interactions suppressed due to empty cells						
Ph. Anal.[7]						
	Rdg. Pro.	1	19.36	19.36	1.08	.30
	Gender	1	7.41	7.41	.41	.52
	P.S. Att.	2	17.10	8.55	.47	.62
	IQ	2	68.99	34.49	1.92	.15
	SES	1	128.55	64.27	3.58	.03*
	Rdg. Pro. by Gender	1	.03	.03	.00	.96
	Rdg. Pro. by P.S. Att.	2	1.82	.91	.05	.95
	Rdg. Pro. by IQ	2	44.23	22.11	1.23	.29
	Rdg. Pro. by SES	1	.18	.09	.00	.99
	Gender by P.S. Att.	2	15.10	7.55	.42	.65
	Gender by IQ	2	98.55	49.27	2.75	.07
	Gender by SES	2	106.12	53.06	2.96	.06
	P.S. Att. by IQ	4	45.82	11.45	.64	.63
	P.S. Att. by SES	4	25.74	6.43	.35	.83
	IQ by SES	2	54.86	13.71	.76	.55
Higher order interactions suppressed due to empty cells						
Wd. Rdg.[8]						
	Rdg. Pro.	1	185.69	185.69	3.29	.07
	Gender	1	189.29	189.29	3.36	.07
	P.S. Att.	2	331.95	165.97	2.94	.06
	IQ	2	555.21	277.60	4.92	.01*
	SES	2	469.29	234.64	4.16	.02*
	Rdg. Pro. by Gender	1	17.69	17.69	.31	.57
	Rdg. Pro. by P.S. Att.	2	4.49	2.24	.04	.96

TABLE D-12 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Wd. Rdg. (Cont.)						
	Rdg. Pro. by IQ	2	121.68	60.84	1.08	.34
	Rdg. Pro. by SES	2	24.28	12.14	.21	.80
	Gender by P.S. Att.	2	73.23	36.61	.65	.52
	Gender by IQ	2	313.07	156.53	2.77	.07
	Gender by SES	2	195.43	97.71	1.73	.18
	P.S. Att. by IQ	4	117.55	29.38	.52	.72
	P.S. Att. by SES	4	86.10	21.52	.38	.82
	IQ by SES	4	247.08	61.77	1.09	.36
Higher order interactions suppressed due to empty cells						
Rdg. Comp.[9]						
	Rdg. Pro.	1	5.99	5.99	.06	.80
	Gender	1	177.15	177.15	1.84	.18
	P.S. Att.	2	130.80	65.40	.68	.51
	IQ	2	1125.73	562.86	5.87	.00*
	SES	2	331.31	165.66	1.72	.18
	Rdg. Pro. by Gender	1	9.84	9.84	.10	.75
	Rdg. Pro. by P.S. Att.	2	100.95	50.47	.52	.59
	Rdg. Pro. by IQ	2	200.49	100.25	1.04	.35
	Rdg. Pro. by SES	2	3.73	1.86	.01	.98
	Gender by P.S. Att.	2	59.24	29.62	.30	.73
	Gender by IQ	2	309.69	154.84	1.61	.20
	Gender by SES	2	148.87	74.43	.77	.46
	P.S. Att. by IQ	4	265.68	66.42	.69	.60
	P.S. Att. by SES	4	92.55	23.13	.24	.91
	IQ by SES	4	559.01	139.75	1.45	.22
Higher order interactions suppressed due to empty cells						
Tot. Comp.[10]						
	Rdg. Pro.	1	258.40	258.40	.98	.32
	Gender	1	732.68	732.68	2.78	.10
	P.S. Att.	2	852.08	426.04	1.62	.20

TABLE D-12 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Tot. Comp. (Cont.)						
	IQ	2	3250.45	1625.22	6.18	.00*
	SES	2	1536.23	768.11	2.92	.06
	Rdg. Pro. by Gender	1	53.93	53.93	.20	.65
	Rdg. Pro. by P.S. Att.	2	88.85	44.42	.16	.84
	Rdg. Pro. by IQ	2	629.94	314.97	1.19	.31
	Rdg. Pro. by SES	2	40.12	20.06	.07	.92
	Gender by P.S. Att.	2	263.64	131.82	.50	.60
	Gender by IQ	2	1245.43	622.71	2.36	.10
	Gender by SES	2	677.74	338.87	1.28	.28
	P.S. Att. by IQ	4	709.59	177.39	.67	.61
	P.S. Att. by SES	4	346.63	86.65	.33	.85
	IQ by SES	4	1515.57	378.89	1.44	.23
Higher order interactions suppressed due to empty cells						
Class Beh..[11]						
	Rdg. Pro.	1	1198.06	1198.06	10.73	.00*
	Gender	1	98.21	98.21	.88	.35
	P.S. Att.	2	197.47	98.73	.88	.41
	IQ	2	605.28	302.64	2.71	.07
	SES	2	2177.01	1088.51	9.75	.00*
	Rdg. Pro. by Gender	1	59.44	59.44	.53	.46
	Rdg. Pro. by P.S. Att.	2	70.49	35.24	.31	.73
	Rdg. Pro. by IQ	2	292.06	146.03	1.30	.27
	Rdg. Pro. by SES	2	327.72	163.86	1.46	.24
	Gender by P.S. Att.	2	258.31	129.15	1.15	.32
	Gender by IQ	2	117.90	38.95	.52	.59
	Gender by SES	2	108.42	54.21	.48	.61
	P.S. Att. by IQ	4	69.30	17.32	.15	.96
	P.S. Att. by SES	4	349.62	87.40	.78	.54
	IQ by SES	4	547.63	136.90	1.22	.31

TABLE D-12 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
Higher order interactions suppressed due to empty cells						
Self-Con.[12]						
	Rdg. Pro.	1	83.71	83.71	10.37	.00*
	Gender	1	1.68	1.68	.20	.65
	P.S. Att.	2	9.79	4.89	.60	.54
	IQ	2	16.49	8.24	1.02	.36
	SES	2	5.43	2.71	.33	.71
	Rdg. Pro. by Gender	1	15.21	15.21	1.88	.17
	Rdg. Pro. by P.S. Att.	2	7.89	3.94	.48	.61
	Rdg. Pro. by IQ	2	8.68	4.34	.53	.58
	Rdg. Pro. by SES	2	.06	.03	.00	.99
	Gender by P.S. Att.	2	12.58	6.29	.78	.46
	Gender by IQ	2	24.79	12.39	1.53	.22
	Gender by SES	2	3.06	1.53	.19	.82
	P.S. Att. by IQ	4	20.70	5.17	.64	.65
	P.S. Att. by SES	4	50.48	12.62	1.56	.19
	IQ by SES	4	10.63	2.65	.33	.85
Higher order interactions suppressed due to empty cells						
Rdg. Att.[13]						
	Rdg. Pro.	1	36.88	36.88	.39	.53
	Gender	1	5.83	5.83	.06	.80
	P.S. Att.	2	239.43	119.71	1.26	.29
	IQ	2	27.62	13.81	.14	.86
	SES	2	66.17	33.08	.35	.70
	Rdg. Pro. by Gender	1	243.88	243.88	2.57	.11
	Rdg. Pro. by P.S. Att.	2	223.44	111.72	1.18	.31
	Rdg. Pro. by IQ	2	426.06	213.03	2.25	.11
	Rdg. Pro. by SES	2	7.37	3.68	.03	.96
	Gender by P.S. Att.	2	29.86	14.93	.15	.85
	Gender by IQ	2	348.11	174.05	1.83	.16

TABLE D-12 (Cont.)

Variable	Source	df	SS	MS	F	Sig. of F
	Gender by SES	2	141.53	70.77	.74	.47
	P.S. Att. by IQ	4	264.89	66.22	.70	.59
	P.S. Att. by SES	4	565.15	141.29	1.49	.21
	IQ by SES	4	257.44	64.36	.68	.60

*$p \leq .05$

[1] - Auditory Discrimination subtest
[2] - Reading Program
[3] - Preschool Attendance
[4] - Level of Intelligence
[5] - Socioeconomic Status
[6] - Auditory Vocabulary subtest
[7] - Phonetic Analysis subtest
[8] - Word Reading subtest
[9] - Reading Comprehension subtest
[10] - Total Comprehension Score
[11] - Classroom Behavior Rating Scale
[12] - Self-Concept Test
[13] - Reading Attitude Scale

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The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval by the Committee with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Ed. D.

April 2, 1987
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