1973

Reading Readiness and First-Grade Reading Achievement of Selected Children in East Baton Rouge Parish.

Gary Sherriel Rush

Louisiana State University and Agricultural & Mechanical College

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READING READINESS AND FIRST GRADE READING ACHIEVEMENT OF SELECTED CHILDREN IN EAST BATON ROUGE PARISH

A Dissertation

Submitted to the Graduate Faculty of the Louisiana State University and Agricultural and Mechanical College in partial fulfillment of the requirements for the degree of

Doctor of Philosophy

in

The Department of Education

by

Gary Sherriel Rush
B. A., Louisiana College, 1961
M. Ed., Louisiana State University, 1966
August, 1973
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ABSTRACT

The purpose of the study was to determine if there were significant differences in first grade reading readiness and first grade reading achievement among children in relation to the type kindergarten program attended, socio-economic level of the patrons of the school attended, and in relation to attendance of children at a school of their opposite socio-economic level.

Specific questions answered were:

1. Was there a significant difference in reading readiness and reading achievement in the groups according to the type of kindergarten attended?

2. Was there a significant difference in reading readiness and reading achievement in the groups according to the socio-economic level of the school?

3. Was there a significant difference in reading readiness and reading achievement in the groups according to the socio-economic level of the child?

4. Was significant interaction present when combinations of independent variables were used to study reading readiness and reading achievement?
The sample consisted of a stratified, random sample of 1669 first grade children in selected schools. One-half of the schools were chosen representing advantaged and disadvantaged schools. Within each school, children were classified according to socio-economic level, either advantaged or disadvantaged. Further classification was made according to kindergarten attendance; nine month public school, six weeks public school, other nine months programs, or no kindergarten. The effects of these variables on reading readiness and reading achievement were studied using multiple bases of classification analysis of variance. Tests for significance were determined at the .05 level of confidence.

Harper and Row Publishers, Incorporated, Pre-Reading Test of Scholastic Ability to Determine Reading Readiness was used to determine reading readiness. The Metropolitan Achievement Test, Primary I Battery, Form A was used to determine first grade reading achievement.

Analyses of the data resulted in the following conclusions:

1. There was a significant difference in reading readiness and reading achievement favoring children who had attended kindergarten, regardless of type.
2. Children classified as advantaged achieved significantly higher reading readiness and reading achievement when compared to disadvantaged children.

3. Schools classified as advantaged produced significantly greater reading readiness and reading achievement scores than disadvantaged schools.

4. Interaction tests showed that for all children, regardless of type of school and socio-economic level of the child, some kindergarten training was more beneficial than no kindergarten when reading readiness and reading achievement were considered.

5. Interaction tests showed that when the two kinds of nine month kindergarten programs were compared with the six weeks summer program, the advantaged child in the advantaged school was the only one to benefit in reading readiness by attending nine months. The nine month kindergarten children had readiness scores not significantly different from the six weeks group in the groups of disadvantaged children in advantaged schools, advantaged children in disadvantaged schools, and disadvantaged children in disadvantaged schools.

6. Interaction tests showed that when nine months other kindergarten children were compared with nine month
public school kindergarten children on readiness tests, there was no significant difference in the two groups when the advantaged child in the advantaged school was considered. The other kindergarten nine month groups produced significantly higher readiness scores for the disadvantaged group in the advantaged school and the advantaged group in the disadvantaged school. However, the public school nine month kindergarten produced significantly higher readiness than other nine month programs when disadvantaged children in disadvantaged schools were studied.

7. Interaction tests using type of school, socio-economic level of the child and type of kindergarten attended as independent variables did not produce significant interaction when reading achievement in first grade was studied.
Chapter 1

INTRODUCTION

During the latter half of the 1960's and the early 1970's the public school personnel of East Baton Rouge Parish, Louisiana, were involved in a program to provide kindergarten experiences for every child prior to entrance into first grade. In the summer of 1965 the school system attempted to conduct a Head Start program, funded primarily with federal funds, for each child who was eligible for first grade entrance during the 1965-66 school year.

The school board terminated its cooperation in the Head Start program when problems arose between the local board and the federal government over certain administrative aspects of the program. Since the local board was already involved in promoting a tax election, funds for a local program of summer kindergarten were included. This tax was passed in February, 1966.

Many citizens desired to see the kindergarten program included in the regular term of the elementary schools rather than merely a summer program. Impetus was added to this goal
by the creation of the One Hundred Man Curriculum Study Committee of the State Department of Education. In its final report, the committee recommended "... extending the school program in the length of the school day and in the length of the school session, and the inclusion of the kindergarten in the present offerings" (Dodd, 1966:7).

These developments prompted the school board and staff of East Baton Rouge Parish to examine the possibility of establishing the kindergarten program on a nine-month basis. Subsequently, the school board adopted a plan to establish kindergarten classes in every elementary school as classroom space became available. Funds were included in a subsequent tax election for constructing additional structures to house kindergarten classes. This tax was passed on February 25, 1969, and after an extended court battle over its legality, the board issued contracts for additional kindergarten classrooms.

During and after the time in which tax elections were being held, and while facilities were being constructed, the school system continued to conduct kindergarten classes during the summer months. These classes were usually three hours in length for an eight-week period. Summer sessions were later reduced to a six-week period.

Since one group of schools conducted a non-compulsory
nine-month program and a second group conducted a non-compulsory six-week program during the 1970-71 school year, it was possible to identify the participants and make comparisons based on these two types of programs.

This arrangement for kindergarten education made it possible to divide first-grade children in the parish schools during 1971-72 into four groups according to kindergarten experience:

1. Children having a full nine-months public school kindergarten experience.

2. Children having experience in public schools during the summer.

3. Children having other kindergarten experience including Head Start, private kindergarten, parochial kindergarten, and other programs not supported by the local school board.

4. Children having no kindergarten experience.

The nature and extent of kindergarten education offered a wide variety of possibilities for study. Later school achievement, first grade readiness, social adjustment and general intelligence were some possibilities for studying kindergarten education in East Baton Rouge Parish.

Kindergarten education has provided a vital element in the educational enterprise. It has reached children when
they were ready to learn a vast array of skills and understandings essential to learning and living. The curriculum for today's kindergartens must be considered part of the continuous learning of children throughout their school experiences. The need to measure variables of influence in early childhood education has often been expressed. These variables have included concept learning, perception, attention, academic achievement and others in the cognitive and perception areas. Many people have felt that pre-school and kindergarten education must produce positive results in preparing the child for later school academic achievement to justify such a large expenditure of tax revenues. Although reading readiness and first grade reading achievement are only two areas in which the kindergarten leaders have attempted to promote learning, they have been viewed closely by interested educators and parents. Elected school officials often have been interested in seeing the academic contributions resulting from such a program in their districts. Thus, the present study related kindergarten education to reading readiness and reading achievement.

The available research on the relation of kindergarten to later academic success showed positive results in almost all cases dealing with readiness and achievement. Usually the research was done with a limited variety of
kindergarten experience groups. The present study was considered unique in that four distinct kindergarten experience groups were available. All of these groups were present in a single school system and most often a single class contained children in all four groups. This fact coupled with the large sample chosen made the study more meaningful than if all children in each classroom had experienced the same type kindergarten program. Thus, the first question was concerned with the differences between the four kindergarten experience groups and their reading readiness and first grade reading achievement.

It was recently said that the question of differences between an educational program for disadvantaged children and one for middle class children is as yet unresolved (Butler: 1970). The present study, which included several alternative types of kindergarten experiences examined two groups of children, advantaged and disadvantaged. Differences in reading readiness and reading achievement between the two groups were researched. Further questions were explored as to the effects of the varying kindergarten programs on children within a particular socio-economic level.

Another question which arose as the study developed concerned the readiness and achievement of children in one socio-economic group who attended a school of the opposite
socio-economic level. Much attention has been given to the disadvantaged children and many programs have been developed for them in their schools. Limited attention has been given to the disadvantaged child in the advantaged setting. Even less attention has been given to the advantaged child in the disadvantaged setting. This study was intended to lend some clarification to this question.

STATEMENT OF THE PROBLEM

This study was designed to answer the following question: Are there significant differences in first grade reading readiness and reading achievement among and between children in relation to the type kindergarten programs attended, in relation to the socio-economic level of the patrons of the school attended, and in relation to attendance at a school of their opposite socio-economic level?

PERTINENT QUESTIONS TO BE ANSWERED BY THE STUDY

1. Were there significant differences in achievement among and between the four kindergarten experience groups (nine-month public kindergarten, six-week public kindergarten, other non-public kindergarten and no kindergarten) in their performance on the Harper and Row Publishers, Incorporated, Pre-Reading Test of Scholastic Ability to Determine Reading Readiness?
2. Were there significant differences in achievement between the two socio-economic school groups (advantaged and disadvantaged) on the Pre-Reading Test of Scholastic Ability to Determine Reading Readiness?

3. Were there significant differences in achievement among and between children in the following categories on the Pre-Reading Test of Scholastic Ability to Determine Reading Readiness?
   b. Disadvantaged children in disadvantaged schools.
   c. Advantaged children in disadvantaged schools.
   d. Advantaged children in advantaged schools.

4. Did interaction exist between the independent variable groups and student performance on the reading readiness test? The independent variable groups were type of kindergarten attended, socio-economic level of school, and student classification according to socio-economic level.

5. Were there significant differences in achievement among and between the four kindergarten experience groups in their performance on the Metropolitan Achievement Test, Primary I Battery, Form A?

6. Were there significant differences in achievement between the two socio-economic school groups on the Metropolitan Achievement Test?
7. Were there significant differences in achievement among and between children in the various student groups in their performance on the Metropolitan Achievement Test?
   b. Disadvantaged children in disadvantaged schools.
   c. Advantaged children in disadvantaged schools.
   d. Advantaged children in advantaged schools.

8. Did interaction exist between the independent variable groups and student performance on the Metropolitan Achievement Test?

DELIMITATIONS

This study was restricted to a stratified, random sample of elementary schools in East Baton Rouge Parish. The sample was comprised of 18 schools that were classified as disadvantaged and 19 schools which were classified as advantaged. This sample included one-half of the schools in each classification.

DEFINITION OF TERMS

The following are definitions of terms used in this study:

Kindergarten: A non-compulsory program designed for
children during the year immediately preceding lawful or compulsory entry into first grade.

**Pre-school**: Any organized, educational program for children prior to entrance into kindergarten.

**Reading readiness**: The probability of a child's success in beginning reading as determined by the Harper and Row Publishers, Incorporated, Pre-Reading Test of Scholastic Ability to Determine Reading Readiness.

**Reading achievement**: A measure of a pupil's ability to read as measured by the Metropolitan Achievement Test, Primary I Battery, Form A.

**Disadvantaged school**: A school in which a sufficient percentage of poverty level students attended to permit the school to receive consideration for projects under the Elementary and Secondary Education Act, Title I, during the 1971-72 school year.

**Advantaged school**: A school which did not meet the requirements for consideration for projects under the Elementary and Secondary Education Act, Title I, during the 1971-72 school year.

**SOURCES OF DATA**

Cooperation of the personnel of the East Baton Rouge Parish School System was secured in order to collect readiness
test scores given in the fall of 1971 and to have an achievement test administered during April of 1972. First grade teachers in the selected schools aided in the collection of data by reviewing the information of each child's cumulative folder to determine his type of kindergarten experience. School lunch records were used by the researcher and first grade teachers to determine the child's socio-economic level. In addition, each teacher administered and scored the Metropolitan Achievement Tests. Schools were classified as advantaged or disadvantaged on the basis of records from the office of the Parish Director of Federal Funds.

METHOD OF PROCEDURE

1. Permission was secured from the superintendent and staff of the East Baton Rouge Parish School Board to conduct the study.

2. Forms were provided to each first grade teacher on which to record personal data on each child, including readiness test scores and socio-economic level as determined by lunch records.

3. Reading achievement tests were secured and administered during the week of April 17-21, 1972. Completed test information sheets were collected from each teacher on May 12, 1972.
4. On the basis of the completed forms, kindergarten experience groups and socio-economic groups were identified.

5. Tests for significant differences among and between the groups were made using the readiness scores and the achievement scores.

6. The null hypothesis was used to determine significance at the .05 level.

IMPORTANCE OF THE STUDY

Many questions exist about the value of providing the same kind of kindergarten program for every child. Most studies have concluded that there is much positive value in the kindergarten experience. However, in the important area of reading readiness and achievement, there is some question as to the best type of kindergarten program for differing types of children. Hittleman (1969) stated that concern began about ten years ago for educating that enigmatic child called the culturally disadvantaged. Since that time, research to identify the disadvantaged child has far outstripped investigations to determine how to educate him.

After studying first grade readiness programs and where they can best be taught Breon (1967) suggested that research, based on pupils from varying socio-economic back-grounds, is needed.
One study in the area of reading readiness suggested further research. Gunderson (1964:34) stated that "... children from culturally disadvantaged backgrounds frequently experience difficulty in reading. Emphasis should be placed on meeting the particular needs of these children and supplying the background essential if a foundation for reading is to be established. A study might attempt to discover how the needs of these children might best be met and the period of time necessary to meet them."

Investigations of varying lengths of kindergarten experience and relating them to readiness and achievement in a large scale within a school system were not found. East Baton Rouge Parish offered opportunities for study of these problems. In the implementation of a parish-wide nine-month program, several types of kindergarten experience were present among first graders during the 1971-72 school year.

Further possibilities for studying the student population by socio-economic levels was possible since various administrative procedures and records required the information necessary for such a classification.

Although the study was not designed to determine relationships between cost and effectiveness of the various programs, administrators can infer from the findings of
this study concerning the value of kindergarten experience for the particular socio-economic levels found in their districts. Questions are often raised as to the expenditure of vast sums of money to provide kindergarten experience for all children. Some of these questions were the basis of this study. Cutts (1963:24) expressed the need for effective programs:

School and preschool enrichment programs may never be able to compensate for deficiencies in the experience and training provided by the home. Nevertheless such programs can go a long way toward overcoming the handicap of a poor start, and without such enrichment, culturally disadvantaged children are certain to show irreparable gaps in their learning and to fall hopelessly behind the rest of society.
Chapter II

REVIEW OF RELATED LITERATURE

In order to effectively cover the vast amount of related literature, the following plan was used. In this chapter a historical survey of the kindergarten was presented followed by research related to first grade reading readiness and reading achievement among children having varying kindergarten experience. The references were arranged chronologically.

After this was done, research related to reading readiness and reading achievement among children from differing socio-economic levels was presented. This was followed by a review of the limited research related to reading readiness and reading achievement of children who attended schools of socio-economic levels different from their own.

After the above reviews were completed, a general summary was made which synthesized the studies directly related to the present study.
HISTORICAL REVIEW OF THE KINDERGARTEN

For many hundreds of years man has believed early schooling to be valuable to the individual. John Amos Comenius, during the seventeenth century, proposed that the first six years of a child's life be spent in what he called a "mother school." His idea was that the child's first educator should be a sensitive and well-informed mother who would help provide experiences which would lay a foundation for later life experiences. The mother provided simple lessons in naming objects, terminology for the parts of the body, color identification, geography of the child's surroundings, and reciting the Lord's Prayer.

The philosophy of the early nineteenth century educator, Friedrich Froebel, respected among many educators, stressed spontaneous free play as the basis of learning; the importance of self-activity and motor expression; the primacy of social cooperation as the heart of the curriculum; and the need for manipulation of objects to stimulate learning (Froebel: 1887).

Froebel's ideas made their way to the United States as did many other cultural and educational advances. By 1868 a training institute for kindergarten teachers was opened in Boston. Shortly thereafter a tax-supported, public kindergarten was established in St. Louis, Missouri.
Cultural deprivation was given attention in the works of Maria Montessori. She based her ideas of working with Italian slum children on the works of Pestalozzi, Froebel, and Seguin. Her schools were located in low-income neighborhoods and she evolved special methods and equipment which stressed sensory training, manual skills, and individualization of instruction. Montessori philosophy was revived in the United States in recent years.

By the 1930's early childhood education had achieved a place of sufficient status to assure its inclusion in the American system. Much of early childhood education in this era was not publicly supported. Therefore the middle-class profited most by this system.

As years have passed, public sentiment for inclusion of kindergarten programs and early childhood programs into the public schools has heightened. Usually the larger cities and most heavily populated areas have provided kindergarten programs. However, it is reasonable to assume that in a few years all children will have the opportunity for educational experience during the kindergarten year.

Just what values existed in such a program was the topic for this research. Thousands of studies have dealt with various facets of the kindergarten. Several have been concerned with the contributions of the kindergarten to
later school achievement. This study was designed to add to the present body of knowledge in this area. As expressed by Butler (1970), concern of future "pay off" in early childhood education will always be important. Therefore, continued efforts must be expended to determine amounts and kinds of "pay off."

RESEARCH RELATED TO READING READINESS AND READING ACHIEVEMENT AMONG CHILDREN HAVING VARYING KINDERGARTEN EXPERIENCE

Reading readiness and reading achievement have been researched from many approaches. The varied pre-school programs available to children have made the research very difficult to analyze and draw conclusions which are valid for the total population. However, every study examined has shown some positive result for the child who attended kindergarten. In a review of research on this particular topic, other writers have come to the same conclusion (Mindness and Keliher: 1967; Butler: 1970; Burgess: 1965).

In an early study of this problem, Theisen (1921) found that a group of kindergarteners tested in grades one and two scored well above a similar number of non-kindergarten attenders. However, in the third year the non-kindergarten group exceeded the kindergarten group on results obtained
from the Haggerty Achievement Tests. Median ages for both groups were the same.

In another early study (Risser and Elder: 1927), 293 children were studied for five years from grades one through five. One hundred thirty of these students had kindergarten experience. They were found to have superior reading ability at all grade levels which was the only factor studied.

Goetch (1926) assessed the progress of 1,936 school children. One half of the group had kindergarten experience and one half began first grade without kindergarten experience. A study of grade progress of the group showed that the kindergarten group was significantly higher than those without kindergarten.

Several other studies during the 1920's and 1930's also supported the kindergarten program as a factor in later school success (Morrison: 1938; Peters: 1928; McLatchey: 1928; Gard: 1924).

In a commonly cited study by Pratt (1949) 72 children had attended kindergarten, 128 had no previous school experience, and 26 were repeating first grade. Some of the findings indicated that pupils having previous experience in kindergarten were significantly superior to the non-kindergarten group in tests of reading readiness.
Kindergarten children were far superior to non-kindergarten children in reading achievement at the end of first grade as measured by the Gates Primary Reading Test.

Almy (1949) reported a positive relationship between success in first grade beginning reading and opportunities for reading such as looking at books, looking at magazines, being read to, and an interest in words, letters and numbers. Most of these activities were found in kindergartens included in Almy's sample.

Research studies continued to present advantages of kindergarten during the decade of the 1950's. Trusal (1956) matched 100 kindergarten children with 100 non-kindergarten children. He found that first grade children with kindergarten experience were superior to non-kindergarten children in achievement, social readiness, and academic readiness. The students had been matched on the basis of mental age and sex.

In the areas of number work, copying and language usage Bergami and Swanson (1954) found that kindergarten trained first graders achieved higher scores. A later study in this area (Haley, Dolan, Katz and Mackin: 1957) investigated differences among 936 children. Of these, 628 had attended kindergarten and 308 had no kindergarten experience. The kindergarten group was superior in matching
and naming capital letters, written letters of the alphabet, naming and sounding letters written, lower case letters, discriminating auditorily and learning rapidly.

Fast (1957) compared a group of first graders who had not been taught any formal reading in kindergarten with a group who had not attended kindergarten. A policy change had permitted certain children with November and December birthdays to attend first grade the next year. The kindergarten children were found to rank significantly higher in first grade on all reading tests.

McHugh (1959) made an extensive study of 709 kindergarten children and 620 non-kindergarten children. The kindergarten group was provided planned experiences in reading readiness, number concepts, science, social studies and motor skills development. All of these areas were significantly affected by the planned program. Verbal abilities, quantitative reasoning and phonetic ability of the kindergarten group were superior. In the third grade the kindergarten group was markedly superior in total achievement and seemed to have made a more satisfactory school adjustment.

During the past decade studies of various aspects of this problem continued. Brubaker (1960) showed a positive relationship between length of kindergarten and high academic achievement in grades two through six.
In another study (Olson: 1962) matched 68 kindergarten children with 68 non-kindergarten children; the kindergarten group was significantly higher in reading readiness, total readiness, and maturity as well as arithmetic readiness. Long range benefits of the kindergarten as determined at the end of first grade were citizenship, scholarship, and number achievement.

Grades and ratings of 44 kindergarten children were compared with a non-equated group of 44 non-kindergarten children by Meyers (1963). The researcher compared grades in reading, number work, spelling, writing, music, language, and social science. In addition to academic factors, social factors were compared. In the words of the research report, the kindergarten children did "decidedly better" than the non-kindergarten group.

The only research of the 1960's which did not support the positive values of the kindergarten experience, was done with a group of middle class primary children. The hypothesis that kindergarten attendance develops readiness and the hypothesis that kindergarten attendance aids achievement in the primary grades were not substantiated. The sample consisted of 179 children who had attended kindergarten and 115 who had not (Fox and Powell: 1964).

The question of relationships between kindergarten
attendance and later academic readiness and achievement continued into the seventies. An elementary school was divided into four groups according to kindergarten attendance. Traywick (1971) found that at the first grade level total readiness was higher for all kindergarten groups than those with no kindergarten experience. Carry over in achievement to other grades was not present.

The majority of the works cited in the present study supported the hypothesis that kindergarten attendance positively affects the readiness of elementary school children. Only in instances of longitudinal studies of achievement has there been a lack of positive relationship.

Another aspect of the problem under consideration concerned the disadvantaged child and the values of kindergarten for him. The major portion of cited research involved children from situations other than disadvantaged. During recent years, many studies of disadvantaged children have been done in the schools. Several of these studies related to the topic under consideration because of their consideration of readiness and achievement as affected by varying kindergarten attendance periods.

Boercker (1967) compared Head Start students with non-Head Start youngsters. Her conclusion was that the eight-week Head Start program yielded some benefit but was
too limited in duration to be of significant value to the disadvantaged child. As a result of this research the question was posed as to the critical time needed for such a program to make a significant and on-going change in the learning patterns of the culturally deprived child.

In a study of a group of first graders who had attended an eight-week Head Start program no significant differences were found in academic achievement at the end of the first semester between this group and an equated group of non-Head Start children. Further findings indicated no significant differences between mental age of both groups at the end of first grade, academic achievement at the end of first grade, mental age at the end of second grade, and academic achievement at the end of second grade (Muse: 1968).

Two other Head Start studies (Johnson, 1970; Adams, 1971) supported the hypothesis that achievement in first grade is not significantly related to Head Start attendance. The former study was done with full year Head Start children and the latter with an eight week program.

Although the length of preschool attendance was related to social growth, it was found not to be related to academic readiness nor total readiness in a group of kindergarten children studied by Pitts (1968). This study of disadvantaged kindergarten children drew the same general conclusion as the research on first grade children.
In summary, the research with disadvantaged children having varying lengths of pre-school and kindergarten indicated that programs for this group positively affected first grade readiness but not reading achievement.

RESEARCH RELATED TO READING READINESS AND READING ACHIEVEMENT AMONG CHILDREN FROM DIFFERING SOCIO-ECONOMIC LEVELS

Research concerned with differences in reading readiness and reading achievement between groups of children who attended schools classified as advantaged and disadvantaged and in terms of socio-economic levels of parents were compared. The assumption was made in the review that when speaking of a disadvantaged school a majority of the children in that school came from disadvantaged homes. Likewise, in an advantaged school a majority of the children came from advantaged homes. This study was limited to East Baton Rouge Parish, Louisiana, in which this situation was found.

The hypothesis of differences in vocabulary scores was supported in a study of advantaged and disadvantaged children by Kunz and Moyer (1969).

Clark and Richards (1966) assessed auditory discrimination ability in economically disadvantaged and non-disadvantaged children by using the Wepman Test of
Auditory Discrimination. The results indicated a significant deficiency in auditory discrimination in the economically disadvantaged group.

Stanchfield (1971) devised an experimental program of reading readiness for kindergarten pupils. Seventeen experimental schools were selected to provide a cross-section of socio-economic levels and ethnic groups. A similar group of control schools was selected. Formal readiness activities were given in the experimental group. The results showed that the experimental group always scored highest. Black children scored lowest within the experimental group with Mexican-American children second and white children highest. Assuming that the three ethnic groups were equated with socio-economic levels the hypothesis of differences in socio-economic levels was supported.

In another study (Henderson and Long: 1968) the same assumption was made in interpreting data which showed that Negro first graders obtained significantly lower scores on tests of readiness when compared to white children. In addition, the study affirmed the value of pre-school experience for reading readiness among all groups: Negro, white, male and female.

In the research pursued with Head Start participants, related to the present study Himley (1967), compared three
groups. The first group was a deprived group which had attended Head Start. The second was a like group which had not attended Head Start. The third group was a randomly chosen cross section of kindergarten classes in which the non-disadvantaged group predominated. Reading readiness in the random sample group was significantly higher than the other groups. One other finding which needs further exploration stated that no significant differences in vocabulary were found among the groups.

Having studied the results of Elementary and Secondary Education Act, Title I programs in eight New York school districts, DiLorenzo (1968) concluded that the programs were beneficial for disadvantaged children but not for advantaged children. Certain language programs were most helpful and the white disadvantaged children benefitted more than the non-white disadvantaged.

A group of Durham, North Carolina, deprived children were compared with non-deprived children by Butts (1969). The non-deprived group scored highest on intelligence measures and were at all times superior in mean intelligence and achievement but not in creativity.

Hilliard and Troxell (1937) used informational background as a factor in reading readiness and reading progress. A group of children classified as "rich"
background made more rapid strides than a "meager" background group. They were six months ahead of the "meager" group and five months ahead of grade standard at the end of grade two. Although this study was done thirty-five years ago, it emphasized the need for studying children from differing socio-economic levels and using the findings to guide curriculum planning.

Related studies indicated the relationship of reading achievement and reading readiness to some occupational or social factor of the parent. In attempting to discover some aspects of experience associated with reading readiness, Sutton (1955) found a high correlation between readiness and the occupation of the father. The Metropolitan Readiness Test was used in this study. Deutsch and Brown (1966) studied 543 urban children stratified by race, grade level, and social class as to the development of intellective functions. Their research showed a linear relationship between socio-economic status and performance level for both Negro and white groups, and within this linear relationship the absolute increase in intelligence quotient was greater for the white group than it was for the Negro.

Oakland (1969) studied 60 first graders of three socio-economic levels. The research indicated a positive relationship between reading achievement and higher socio-economic status levels.
In a study of 1,500 children Mortenson (1968) found that performance on pre-reading discrimination tasks was closely associated with socio-economic level in beginning first graders. Even with intelligence held constant the higher socio-economic level children performed significantly better. A further conclusion was that no single pre-reading program was appropriate for children from all socio-economic levels.

Barton (1963) presented the hypothesis that higher socio-economic status correlated positively with achievement. The study revealed that in classrooms where children came from working class families, reading grade levels were generally below actual grade levels in an increasingly greater percentage throughout the first six grades. The lower working class had a mean percentage of 33 who were reading one or more years below actual grade level. Barton (1963, p. 174) concluded that "the most important single factor in progress in reading in school is socio-economic class."

As a predictor of first year reading success, Boyer (1969) concluded that children whose fathers had higher occupational status tended to score higher on the Metropolitan Achievement Test, Primary I Battery.

In summary, from the available research on the topic
it was concluded that socio-economic status was a good indicator of reading readiness and reading achievement. Those children whose parents were higher in socio-economic status performed better on measures of readiness and achievement.

RESEARCH RELATED TO READING READINESS AND READING ACHIEVEMENT AMONG CHILDREN WHO ATTEND SCHOOLS OF SOCIO-ECONOMIC LEVELS OPPOSITE FROM THEIR OWN

The nation first gave attention to the present topic when Coleman (1966) presented his report. Basically, the report dealt with the topic of quality education. To some people, quality education can best be provided in racially or socio-economically segregated environments. To others quality education for children, either of advantaged or disadvantaged backgrounds, really depends upon experience with persons unlike themselves (Hubert, 1972). One of the purposes of this study was to explore the reading readiness and reading achievement of various groups in relation to the socio-economic group from which they came and the socio-economic level of the school they attended.

Most often the studies which were examined used black students and white students as the groups for study. An unstated assumption was made throughout the literature that
the disadvantage predominated in the predominately black schools and the advantaged predominated in the predominately white schools. City schools are often equated with dis­advantaged and suburban schools with advantaged. Thus, this review was done with this assumption considered.

Miami, Florida, schools were integrated during the school year 1970-71. A study of the results of that move indicated that black elementary school students gained a little less if they moved from all-black or nearly all-black schools to schools with 50 or 60 per cent white students. Similarly, white elementary students gained a little less if they were shifted to schools with significant percentages of blacks.

Mondale (1972) conducted a study in Hartford, Connecticut, beginning in 1966 which showed that fifth graders who had been bused from the city to the suburbs for two years were five months ahead of those who had only been in the suburban schools for one year. Those who had attended suburban schools for three years were a full year ahead of the one year attenders. Again an unstated assumption in this study was that the suburban school was advantaged, whereas, the city school was disadvantaged. Accepting this assumption, the writers concluded that the disadvantaged
child profited academically from being placed in the advantaged school.

The schools of McKeesport, Pennsylvania, were studied by Faulk (1972). He found that black students achieved better in an integrated school than in a racially segregated school. This study was another among many which had a small percentage of black children in the public schools.

St. John and Lewis (1971) partially explored the question of disadvantaged and advantaged relative to achievement. They found that for white children there was a statistically significant positive relationship between school percentage white and achievement in arithmetic and reading. For blacks there were significant positive relationships for arithmetic but not for reading. Various measures of social class with measures of racial mix, on one hand, and with achievement, on the other hand, indicated that for either race any apparent relation between racial mix and achievement may be spurious and due to the influence of social class, not race.

Of concern to many educators and parents was the question of whether the advantaged child suffered academically when the disadvantaged were in attendance in the school attended. A Denver, Colorado, study by Scudder and
Jurs (1971) concluded that the presence of Negro children who were bused did not have a significant effect on the academic achievement of non-Negro children. All groups in this study contained less than ten percent Negro children.

Although a limited amount of research was available on students who attended a school in socio-economic levels opposite from their own, few conclusions were made. However, the evidence seemed to indicate that disadvantaged students profited by attending advantaged schools and advantaged children did not lose academically by attending schools with disadvantaged students as long as the disadvantaged did not constitute a major percentage of the student population.

**SUMMARY**

Research comparing children of varying kindergarten experience was generally limited to those who had attended some type of kindergarten program versus those who had attended no kindergarten. In general, there was a positive effect on reading readiness and reading achievement where the child attended kindergarten. Research using more than two groups was limited and the results showed that any amount of kindergarten attendance was better than no kindergarten experience when reading readiness and reading achievement were considered.
A further look at the effects of varying lengths of kindergarten was taken using the numerous studies of disadvantaged children. The research showed that kindergarten of any length positively affected reading readiness but did not affect reading achievement in first grade.

A summary of the research on differences in reading readiness and reading achievement between two groups, advantaged and disadvantaged, showed that socio-economic status is a good indicator of readiness and achievement. Children from schools of lower socio-economic status scored lower on tests of readiness and achievement than did children from schools of higher socio-economic status.

Finally, research indicated a positive effect on disadvantaged children attending advantaged schools. No negative effects in achievement were found among advantaged children who attended schools with disadvantaged children as long as the advantaged predominated. Conclusive research into advantaged children attending disadvantaged schools was not found.
Chapter III

DESIGN OF THE STUDY

SETTING AND POPULATION

The study was conducted in the public schools of East Baton Rouge Parish, Louisiana, during the 1971-1972 academic year. The students who were in first grade during that year comprised the population under consideration.

With the aid of an assistant, a stratified random sample was drawn from the list of schools selected for the study. One-half of the parish elementary schools were drawn from these two classifications, advantaged and disadvantaged.

Of the 18 schools selected to represent the disadvantaged schools, testing data were obtained from 15. Two schools classified as disadvantaged were excused from the parish testing program by administrative directive and one school failed to give the tests at the scheduled time. Results from that school were not used in the sample.

A similar situation developed in the schools which were classified as advantaged. Nineteen schools were drawn in the sample. Two schools in this classification did not
give tests as directed in the parishwide testing program. In another school vandals destroyed the tests. Therefore, test data were obtained from 16 schools which were classified as advantaged.

In some cases, data submitted were eliminated from the study including: students who were repeating first grade, students who were not present for the entire testing period, and transfer students. One other group which was eliminated from the study were those children who had attended a nine-month non-public kindergarten and the six-weeks public summer kindergarten. In all of these cases it was felt that the study would be more valid if such were eliminated.

Results of this study are based on the sample presented in Table 1. Data were presented to show the sample in two school classifications, advantaged and disadvantaged, as well as the number of subjects in the different kindergarten groups. A total of 1,669 students were included in the study. Of this total, 998 were in schools classified as advantaged schools and 671 were in schools classified as disadvantaged. Furthermore, there were 443 students who attended the nine month public school kindergarten program; 406 had attended the six-weeks summer program; 612 had attended other non-public nine month programs such as Head
TABLE 1

DISTRIBUTION OF THE STUDENTS IN THE STUDY BY TYPE OF KINDERGARTEN ATTENDED WITHIN SCHOOL TYPE

<table>
<thead>
<tr>
<th>Type School</th>
<th>Nine Month Kindergarten</th>
<th>Six Week Kindergarten</th>
<th>Other Non-Public Kindergarten</th>
<th>No Kindergarten</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advantaged</td>
<td>230</td>
<td>229</td>
<td>434</td>
<td>105</td>
<td>998</td>
</tr>
<tr>
<td>Disadvantaged</td>
<td>213</td>
<td>177</td>
<td>178</td>
<td>103</td>
<td>671</td>
</tr>
<tr>
<td>Total</td>
<td>443</td>
<td>406</td>
<td>612</td>
<td>208</td>
<td>1669</td>
</tr>
</tbody>
</table>
Start and church kindergartens; and 208 had attended no kindergarten.

The size of the sample and the efforts made to eliminate data on certain students were done to increase validation in the study. Popham (1967:134) stated that "the size of the sample is extremely important as a determinant of the significance of the difference between means. With increased sample size, means tend to become more stable representations of group performance. The larger the sample, the greater confidence one can place in a relatively minor difference between the means."

**SELECTION OF THE TESTS**

Since this study was intended to investigate differences as related to reading readiness and to first year reading achievement, tests for each of the characteristics were utilized.

**Reading Readiness**

The test selected for use in determining reading readiness was the Pre-Reading Test of Scholastic Ability to Determine Reading Readiness. Since the majority of the schools considered used the basic textbook series from Harper and Row Publishers, Incorporated, the school system provided this readiness test to all schools. The test
items were divided into six sections: Test 1, Visual Discrimination; Test 2, Auditory Similarities (Rhyming Words); Test 3, Relationships; Test 4, Auditory Similarities (Initial Sounds); Test 5, Concepts; and Test 6, Story Interpretation.

Since the purpose for administering the test is to discover when the student is ready to learn to read, the test was administered near the time of entrance into school. None of the schools used in the study administered the tests at the end of the kindergarten year.

Items on the Pre-Reading Test of Scholastic Ability to Determine Reading Readiness helped teachers in placing students at a particular starting point in the basal reader program. In addition a total score was obtained for the test and a total performance level was established.

Technically, the test was checked for reliability by correlating scores on equivalent forms of the test. The reliability coefficient was .88 for the total test. Also intercorrelation of subtests was determined to suggest the degree to which each subtest measured some unique element in readiness (Harper and Row, Publishers, Incorporated: 1966).

Validity was determined by correlating the scores of Form A and Form B of the Pre-Reading Test of Scholastic Ability to Determine Reading Readiness with the scores on the Gates
Primary Paragraph Reading Test. The coefficients were as follows: Form A, .67; and Form B, .64.

Achievement Test

The Metropolitan Achievement Test, Primary I Battery, Form A, was chosen to test achievement near the end of first grade. The test was chosen because a large number of the first grade teachers were already familiar with its use. In addition the test was easily administered and easily hand scored.

The reading section of this test was the only section used in this study. The three tests of the Primary I Battery measured the following achievement goals: word knowledge measured the student's sight vocabulary, or word-recognition ability; word discrimination measured his ability to select an orally-presented word from among a group of printed words with similar sound elements; and the reading section measured ability to comprehend sentences and materials of paragraph length. From these three sections of the test, a combined reading score was obtained, a standard score derived, and finally, a grade equivalent established.

As to the validity of the Metropolitan test, the test of word knowledge was a representative sample of the words used in widely circulated reading series, which were shown to discriminate effectively between students of good and poor
vocabulary. Likewise, the other two sections of the reading test were felt to be valid for the purpose of this study according to information presented by the publisher (Durost, 1962).

Reliability of the tests was determined by using the split-halves method to obtain a reliability coefficient. The three sections of the reading test yielded correlations as follows: Word knowledge, .90; word discrimination, .87; and reading, .92. These values were great enough to assure reliability on all three sub-tests.

The type and amount of information needed to adequately study the question at hand were available in the two tests selected. According to Smith and Adams (1972) tests should be selected on the basis of reliability, validity, and usability. The tests chosen were deemed appropriate in all three categories.

EXPERIMENTAL DESIGN

The present study was intended to measure the effectiveness of four types of kindergarten experience on reading readiness and reading achievement of children based on their socio-economic levels and the socio-economic classification of the school attended. The design selected for the study is described by Hill and Kerber (1967) as Analysis of Variance
Multiple Bases of Classification. Hill and Kerber (1967: 375) stated that:

"when the research problem is concerned with the influence of two or more independent variables (factors) on a dependent variable, a more complicated application of the analysis of variance than that used for a single variable of classification is necessary."

Popham (1967:198) said that:

"since education is one of the most complex behavioral fields, educational investigations must employ data analysis techniques that take into consideration not only more than one variable at a time but also extremely subtle interactions between variables. Multiple classification analysis of variance procedures provide such analytic techniques."

COLLECTION OF DATA

Collection of data for treatment was done according to the procedures discussed in this section.

Data Sheet

A sheet was developed on which to record information for each first grade child. This sheet was used to provide the necessary computer input data including the child's name, his school and its socio-economic classification, the child's socio-economic level according to lunch records and cumulative records, the child's kindergarten experience, and test results from the readiness and achievement tests.

School Visits

The investigator visited each school principal during
the early fall of 1972 and described the purpose and methods to be employed in the study. Questions concerning the study were discussed and required activities of teachers were described. Schedules for testing and collecting data were established. The investigator was available to assist if his services were required.

**Testing**

Since the readiness tests were administered during the third week of school, the teachers were able to complete that part of the data sheet immediately along with information concerning the child's socio-economic level. Teachers were also able to utilize the cumulative records to complete the information on kindergarten experience.

The reading achievement test was administered during the week of April 17, 1972. These were scored and converted to give a total reading achievement score for each child. These data were recorded on the individual data sheets.

On May 12, 1972, the investigator visited each school to collect tests and data sheets. These were checked for completion and random checks were made to determine the degree of accuracy of information transfer from test booklet to data sheet.
TREATMENT OF DATA

The data sheet for each student was completed and used to prepare scan sheets for computer assimilation. A code was developed and the completed sheets were used to keypunch computer cards.

The computer center at Louisiana State University was used to analyze data after a program was developed which produced the necessary frequency distributions and F-ratios using analysis of variance.

Since the two tests were used to provide a longitudinal look at progress, the same treatment was given each test. The two tests were in no way compared for correlation or differences.

SUMMARY

In planning, collecting data, and compiling data the investigation followed a systematic plan. When planning the study, the following activities were conducted: (a) permission obtained to conduct the study; (b) selection of tests to be used; (c) selection of sample; (d) communication with schools involved; (e) development of schedules; (f) development of data information sheet; and (g) distribution of materials for testing.

Collection of data to analyze included these steps:
(a) administration of tests by teachers; (b) scoring and recording results; (c) completing data sheets on each child; and (d) checking for possible errors in scoring and recording.

In order to analyze data in a way which would be useful to answer the questions posed by the study, the following procedures were utilized: (a) a computer program was developed to produce the needed frequency distributions and F-ratios using analysis of variance; (b) data cards were punched after information had been taken from the data sheets completed by the teachers; and (c) each test, readiness and achievement, was treated in the same manner.

For each test, differences among and between groups were established. For each dependent variable, adjusted means, degrees of freedom, sums of squares, means squares, and F values were computed. F-ratios were computed for interaction effects of socio-economic level of school, socio-economic level of child, and type of kindergarten attended. The null hypothesis at the .05 level of confidence was used in testing each F-ratio for significance.
Chapter IV

PRESENTATION AND ANALYSIS OF DATA

The study was designed to answer the following question: Were there significant differences in first grade reading readiness and first grade reading achievement among and between children in relation to the type kindergarten program attended, in relation to the socio-economic level of the patrons of the school attended, and in relation to attendance of children at a school of their opposite socio-economic level?

From this general statement of the problem came eight specific, pertinent questions to be answered. They were as follows:

1. Were there significant differences in reading readiness among and between the four kindergarten experience groups?

2. Were there significant differences in reading readiness between the two socio-economic school groups?

3. Were there significant differences in reading readiness among and between children as follows:
b. Disadvantaged children in disadvantaged schools.
c. Advantaged children in disadvantaged schools.
d. Advantaged children in advantaged schools.

4. Did interaction exist between the independent variables and the dependent variable, reading readiness?

5. Were there significant differences in first grade reading achievement among and between the four kindergarten experience groups?

6. Were there significant differences in first grade reading achievement between the two socio-economic school groups?

7. Were there significant differences in first grade reading achievement among and between the four groups described in the number three above?

8. Did interaction exist between the independent variables and the dependent variable reading achievement?

In all of these questions the null hypothesis or the hypothesis of no difference was tested.

Analysis of variance was used for comparisons and the F-ratio was tested for significance at the .05 level. Tables were prepared to indicate analysis of variance, means, and interactions.
The chapter is divided into two parts. The first part is the analysis of variance for the data obtained in the Harper and Row Pre-Reading Test of Scholastic Ability to Determine Reading Readiness. The second part is the analysis of the results obtained on the Metropolitan Achievement Test, Primary I Battery, Form A.

READING READINESS

The following discussion of the statistical analysis deals with the data collected from the Harper and Row Pre-Reading Test to Determine Reading Readiness.

Differences in the four kindergarten groups on reading readiness

The four groups of first grade children classified according to kindergarten experience were those with nine months public school kindergarten, those with six weeks public school kindergarten, those with nine months other kindergarten experience, and those with no kindergarten experience. A study of data in Table 1 revealed the number of subjects in each category. The nine month public school program provided kindergarten training for 443 pupils in the sample. The six weeks public school program held in the summer was the only formal kindergarten experience for 406 of the boys and girls. The largest group classified according to kindergarten experience
TABLE 2
SUMMARY OF RESULTS OF READINESS AND ACHIEVEMENT TESTS

<table>
<thead>
<tr>
<th>Test</th>
<th>Sum</th>
<th>Mean</th>
<th>Corrected Sum of Squares</th>
<th>Variance</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harper and Row Publishers, Incorporated, Pre-reading Test of Scholastic Ability to Determine Reading Readiness</td>
<td>163380</td>
<td>97.89</td>
<td>1244042.15</td>
<td>745.83</td>
<td>27.31</td>
</tr>
<tr>
<td>Metropolitan Achievement Test, Primary I Battery, Form A</td>
<td>3045.50</td>
<td>1.82</td>
<td>546.51</td>
<td>.32</td>
<td>.57</td>
</tr>
</tbody>
</table>
was the 612 students who attended other nine month programs. These included private, parochial, and federally sponsored kindergartens. The smallest number, 208, had no kindergarten experience prior to entering first grade.

Means for the four kindergarten experience groups adjusted to compensate for unequal numbers showed that the nine month public school group exceeded the six week public school group 95.87 to 90.48. The adjusted mean for children from other non-public kindergarten programs yielded the highest total, 101.07. Those subjects having no kindergarten experience achieved least on the readiness test. Data in Table 4 showed that the adjusted mean for this group was 83.88.

Applying the least squares analysis of variance to the data obtained from the Harper and Row Pre-Reading Test of Scholastic Ability to Determine Reading Readiness, it was determined that significant differences did exist between the four kindergarten experience groups. An F-ratio of 19.97 was judged to be significant. The probability of this value occurring by chance was .0001. Using the .05 level test for significance, the null hypothesis was rejected, as seen in the data in Table 3.

Differences in the two socio-economic school groups on reading readiness

Two groups of schools were established for study.
<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Degrees of Freedom</th>
<th>Sum of Squares</th>
<th>F-ratio</th>
<th>Probability-F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of School</td>
<td>1</td>
<td>84365.32</td>
<td>205.64</td>
<td>.0001**</td>
</tr>
<tr>
<td>Socio-economic status</td>
<td>1</td>
<td>22218.31</td>
<td>54.16</td>
<td>.0001**</td>
</tr>
<tr>
<td>Kindergarten Group</td>
<td>3</td>
<td>24579.22</td>
<td>19.97</td>
<td>.0001**</td>
</tr>
<tr>
<td>Type School X Socio-economic Status</td>
<td>1</td>
<td>645.77</td>
<td>1.57</td>
<td>.2070</td>
</tr>
<tr>
<td>Type School X Kindergarten Group</td>
<td>3</td>
<td>4022.06</td>
<td>3.27</td>
<td>.0202*</td>
</tr>
<tr>
<td>Socio-economic Status X Kindergarten Group</td>
<td>3</td>
<td>682.42</td>
<td>.55</td>
<td>.6496</td>
</tr>
<tr>
<td>Type School X Socio-economic Status X</td>
<td>3</td>
<td>4956.11</td>
<td>4.03</td>
<td>.0075**</td>
</tr>
</tbody>
</table>

**Significant at the .01 level of confidence
*Significant at the .05 level of confidence
TABLE 4
ADJUSTED MEANS FOR 1669 STUDENTS CLASSIFIED ACCORDING TO TYPE OF KINDERGARTEN ATTENDED

<table>
<thead>
<tr>
<th>Type of Kindergarten</th>
<th>N</th>
<th>Reading Readiness Test Means</th>
<th>Reading Achievement Test Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nine Month Public School</td>
<td>443</td>
<td>95.87</td>
<td>1.72</td>
</tr>
<tr>
<td>Six Week Public School</td>
<td>406</td>
<td>90.48</td>
<td>1.71</td>
</tr>
<tr>
<td>Other Nine Month</td>
<td>612</td>
<td>101.07</td>
<td>1.88</td>
</tr>
<tr>
<td>No Kindergarten</td>
<td>208</td>
<td>83.88</td>
<td>1.61</td>
</tr>
<tr>
<td>1669</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The schools were divided according to designation as advantaged or disadvantaged. The determination of this classification was made by the percentage of children attending each school who were classified as underprivileged, deprived, or as is used in this setting, disadvantaged. Guidelines established by the United States Department of Health, Education, and Welfare were used. Schools with approximately 22 percent of the student body classified by lunch records, housing, and other criteria as disadvantaged were classified as disadvantaged schools during the school year 1971-72.

Data in Table 5 showed the number of students attending each of the two types of schools. In advantaged schools 998 students were studied. In disadvantaged schools 671 students were tested. The mean for students in advantaged schools was 103.80 as compared to a mean of 82.12 for children in disadvantaged schools.

In analyzing this difference and testing for significance, an F-ratio of 205.64 was yielded. From a study of data in Table 3, the probability of this value occurring by chance was determined to be less than the .05 level established for significance. Thus, the null hypothesis was rejected. The difference in the two socio-economic school types was significant. Children in the advantaged schools achieved significantly higher on the Harper and Row Pre-Reading
TABLE 5

ADJUSTED MEANS FOR 1669 STUDENTS CLASSIFIED ACCORDING TO TYPE OF SCHOOL ATTENDED

<table>
<thead>
<tr>
<th>Type of School Attended</th>
<th>N</th>
<th>Reading Readiness Test Means</th>
<th>Reading Achievement Test Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advantaged School</td>
<td>998</td>
<td>103.80</td>
<td>1.89</td>
</tr>
<tr>
<td>Disadvantaged School</td>
<td>671</td>
<td>82.12</td>
<td>1.58</td>
</tr>
</tbody>
</table>

1669
Test of Scholastic Ability To Determine Reading Readiness than did children in disadvantaged schools.

Differences in reading readiness in relation to attendance of differing socio-economic groups at differing socio-economic level schools

All children in the sample were classified as advantaged or disadvantaged for study. Lunch records were used to determine in which classification to place a child. This was a necessary step in order to answer the question concerning attendance at a school of a particular child's opposite socio-economic level.

A study of data in Table 6 indicated that 1,088 students were classified as advantaged and 581 were classified as disadvantaged. On the Harper and Row Pre-Reading Test to Determine Reading Readiness, the advantaged group of students yielded a mean of 98.91. The disadvantaged group showed a mean of 86.59 on the same test.

Applying the analysis of variance to this difference, it was found that the F-ratio of 54.16 was significant at the .05 level. There was a difference in favor of the advantaged students on the readiness test data as shown in Table 3.

In order to answer the question of readiness in students attending schools of the opposite socio-economic
<table>
<thead>
<tr>
<th>Socio-economic Level</th>
<th>N</th>
<th>Reading Readiness Test Means</th>
<th>Reading Achievement Test Means</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advantaged Students</td>
<td>1088</td>
<td>98.91</td>
<td>1.85</td>
</tr>
<tr>
<td>Disadvantaged Students</td>
<td>581</td>
<td>86.59</td>
<td>1.60</td>
</tr>
<tr>
<td></td>
<td>1669</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
level from their own. A study of data from Table 7 showed that 860 advantaged students attended advantaged schools and 138 disadvantaged students attended advantaged schools. From the disadvantaged schools, there were 228 advantaged students in the sample and 443 disadvantaged students.

From an inspection of data in Table 8, the group having the greatest adjusted mean score on the test was the advantaged in the advantaged schools with 108.49. The disadvantaged students in the advantaged schools yielded a mean of 98.17. Advantaged students in disadvantaged schools performed at a mean level of 90.07 as compared to 74.93 for the disadvantaged students in the disadvantaged schools.

The question posed to specifically answer this question was as follows: Were there significant differences among and between children in the following categories on the reading readiness test?

b. Disadvantaged children in advantaged schools.
c. Advantaged children in disadvantaged schools.
d. Advantaged children in advantaged schools.

In order to answer the question, data in Table 3 revealed that an interaction effect of the analysis of variance applied to type of school by socio-economic status of the child yielded an F-ratio of 1.57. The computed
<table>
<thead>
<tr>
<th></th>
<th>Nine Month Public</th>
<th>Six Week Public</th>
<th>Other Nine Month</th>
<th>No Kindergarten</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Advantaged</td>
<td>Disadvantaged</td>
<td>Advantaged</td>
<td>Disadvantaged</td>
</tr>
<tr>
<td>Advantaged Schools</td>
<td>159</td>
<td>71</td>
<td>210</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>420</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>71</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>34</td>
</tr>
<tr>
<td>Disadvantaged Schools</td>
<td>73</td>
<td>140</td>
<td>44</td>
<td>133</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>80</td>
<td>98</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>31</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>72</td>
</tr>
</tbody>
</table>

TABLE 7

DISTRIBUTION OF 1669 SUBJECTS ACCORDING TO TYPE OF KINDERGARTEN ATTENDED, SOCIO-ECONOMIC LEVEL OF CHILD, AND SOCIO-ECONOMIC LEVEL OF SCHOOL
<table>
<thead>
<tr>
<th></th>
<th>Advantaged Schools</th>
<th>Disadvantaged Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reading</td>
<td>Reading</td>
</tr>
<tr>
<td></td>
<td>Readiness</td>
<td>Achievement</td>
</tr>
<tr>
<td>Advantaged Students</td>
<td>108.49</td>
<td>2.00</td>
</tr>
<tr>
<td>Disadvantaged Students</td>
<td>98.17</td>
<td>1.71</td>
</tr>
</tbody>
</table>
probability of .2070 exceeded the .05 level of significance. Thus, the difference was not significant. The null hypothesis was accepted.

As was seen in a previous question, children in the advantaged schools achieved higher in reading readiness than did those attending disadvantaged schools. This difference was consistent among and between categories. No significant interaction effect was present. Mean differences in the advantaged schools took the same pattern as those in the disadvantaged schools. The difference was relatively stable. The two advantaged student groups showed a difference of 18.42 on the readiness test and the disadvantaged groups a difference of 13.24.

Interaction between type of kindergarten and socio-economic status related to reading readiness

Another interaction was computed with groups classified according to type of kindergarten attended and further classified according to socio-economic level of each child. A study of data in Table 9 revealed these differences.

Children attending nine month public kindergarten totaled 232 in the advantaged category and 211 in the disadvantaged group. The advantaged group had a mean of 102.82 on the readiness test compared to a mean of 88.75 for the disadvantaged group.
### TABLE 9

**ADJUSTED MEANS FOR 1669 STUDENTS CLASSIFIED ACCORDING TO TYPE OF KINDERGARTEN ATTENDED X SOCIO-ECONOMIC LEVEL**

<table>
<thead>
<tr>
<th></th>
<th>Nine Month Public</th>
<th>Six Week Public</th>
<th>Other Nine Month Public</th>
<th>No Kindergarten</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reading Readiness</td>
<td>Reading Achieve-ment</td>
<td>Reading Readiness</td>
<td>Reading Achieve-ment</td>
</tr>
<tr>
<td>Advantaged</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students</td>
<td>102.82</td>
<td>1.85</td>
<td>93.30</td>
<td>1.73</td>
</tr>
<tr>
<td></td>
<td>107.20</td>
<td>2.03</td>
<td>91.44</td>
<td>1.73</td>
</tr>
<tr>
<td>Disadvantaged</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students</td>
<td>88.75</td>
<td>1.58</td>
<td>88.60</td>
<td>1.68</td>
</tr>
<tr>
<td></td>
<td>92.06</td>
<td>1.64</td>
<td>76.34</td>
<td>1.49</td>
</tr>
</tbody>
</table>
Children attending six weeks public kindergarten numbered 254 advantaged and 152 disadvantaged with means of 93.30 and 88.60 respectively.

Children attending other nine months kindergarten programs total 500 in the advantaged group and 112 in the disadvantaged group. The means were 107.20 for the advantaged as opposed to 92.06 for the disadvantaged.

Those boys and girls attending no kindergarten from advantaged families numbered 102 with a readiness test mean of 91.44. The same classification of disadvantaged children totaled 106 with a mean of 76.34.

The analysis of variance with these factors yielded an F-ratio of .55 with three degrees of freedom. A study of data in Table 3 showed the probability of F to be .6469, not significant at the .05 level. The null hypothesis was accepted. There was no significant interaction present. All four kindergarten groups showed a similar pattern comparing advantaged and disadvantaged students. The same general pattern is followed regardless of the type of kindergarten attended. In each, the advantaged student scored higher with the differences being judged not significant from one group to another.

Interaction of type of school by kindergarten experience group

Data in Table 10 disclosed the means of groups of
TABLE 10

ADJUSTED MEANS FOR 1669 STUDENTS CLASSIFIED ACCORDING TO TYPE OF KINDERGARTEN ATTENDED X SOCIO-ECONOMIC LEVEL OF SCHOOL

<table>
<thead>
<tr>
<th></th>
<th>Nine Month Public</th>
<th>Six Week Public</th>
<th>Other Nine Month</th>
<th>No Kindergarten</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reading Readiness</td>
<td>Reading Achievement</td>
<td>Reading Readiness</td>
<td>Reading Achievement</td>
</tr>
<tr>
<td>Advantaged Schools</td>
<td>105.84 1.85</td>
<td>99.40 1.89</td>
<td>114.83 2.05</td>
<td>93.74 1.69</td>
</tr>
<tr>
<td>Disadvantaged Schools</td>
<td>85.69 1.59</td>
<td>82.42 1.52</td>
<td>86.76 1.67</td>
<td>74.02 1.53</td>
</tr>
</tbody>
</table>
students in both advantaged and disadvantaged schools classified according to kindergarten experience. Children in the advantaged schools who had nine months public kindergarten numbered 230 with a mean of 105.84 on the readiness test. Advantaged six week public kindergarten children totaled 229 with a mean of 99.40. With 434 students in the advantaged schools having nine months non-public kindergarten a mean of 114.83 was obtained and 105 with no kindergarten showed a mean of 93.74.

Turning to those in disadvantaged schools it was found that 213 children had attended the nine month public kindergarten and scored a mean of 85.69. The six week public group numbered 177 and performed at a mean level of 82.42 on the readiness test. The highest total achieved in the disadvantaged schools was by the 178 nine month other kindergarten students who had a mean score of 86.76. Those 103 children who had no kindergarten experience in the disadvantaged schools showed the lowest mean score, 74.02.

This two by four analysis of variance yielded an F-ratio of 3.27 which was determined to be significant. The probability of this F value was computed to be .02 which led to the rejection of the null hypothesis as seen in Table 3. Further examination of differences was made in the succeeding section of the present chapter.
Interaction effects of type school by socio-economic status by kindergarten experience group

The interaction of three factors, (1) school attended, (2) socio-economic level of student, and (3) type of kindergarten attended, were viewed as possible variables which might interact to significantly account for differences in reading readiness. A study of data in Table 11 showed the three independent variables by which a child was classified, and the readiness test mean for each group.

Applying the least squares analysis of variance to these data, it was shown that there existed a sum of squares of 4956.12 with an F-ratio of 4.03. The probability of this value being obtained by chance was .0075 which led to the rejection of the null hypothesis. There was a significant difference in the means of the groups classified by type of school, socio-economic status, and by type of kindergarten attended at the .05 level as observed in data from Table 3.

Since a significant interaction was present, further analysis was made to discover where the differences were. Three possible combinations were considered. First, those children with no kindergarten were compared to those having had kindergarten, regardless of the type. Second, those having six weeks kindergarten were compared to those having nine months, either public or non-public. Third, the public nine month group was compared to the other nine month group.
## TABLE 11

READING READINESS TEST MEANS FOR 1669 STUDENTS CLASSIFIED ACCORDING TO TYPE KINDERGARTEN ATTENDED, SOCIO-ECONOMIC LEVEL OF CHILD, AND SOCIO-ECONOMIC LEVEL OF SCHOOL

<table>
<thead>
<tr>
<th></th>
<th>Nine Month Public</th>
<th>Six Week Public</th>
<th>Other Nine Month</th>
<th>No Kindergarten</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Advantaged</td>
<td>Disadvantaged</td>
<td>Advantaged</td>
<td>Disadvantaged</td>
</tr>
<tr>
<td>Advantaged Schools</td>
<td>113.36</td>
<td>97.06</td>
<td>104.25</td>
<td>95.26</td>
</tr>
<tr>
<td>Disadvantaged Schools</td>
<td>89.86</td>
<td>81.58</td>
<td>88.45</td>
<td>78.05</td>
</tr>
</tbody>
</table>
All three comparisons were made with groups established by classifying the subjects by type of school attended and by socio-economic status. This was seen in Table 10. It included the data on advantaged children in advantaged schools, advantaged children in disadvantaged schools, disadvantaged children in advantaged schools, and disadvantaged children in disadvantaged schools.

Advantaged children in advantaged schools. In the first comparison made with advantaged children in advantaged schools, the nine month public kindergarten group achieved at a mean level of 113.36 on the readiness test. The six week public kindergarten group averaged 104.25, the nine month non-public group 114.98 and the no kindergarten group, 100.77. These means were computed using a harmonic average for group size to compensate for unequal numbers in the groups.

Applying the analysis of variance to these data, the comparison of children with no kindergarten experience to children with some kindergarten experience yielded a sum of squares of 11078.96 and an F-ratio of 27.00. This ratio was judged to be significant with one and 1600 degrees of freedom since it exceeded the table value of 3.85 required for significance at the .05 level. The null hypothesis was
rejected. Thus, the advantaged child in the advantaged kindergarten who had attended some kindergarten performed significantly better on the readiness test than did the child who had not attended kindergarten at all as shown in a study of Table 12.

For further examination, children having six weeks kindergarten were compared to those having either type of nine month program. The analysis yielded a sum of squares of 9512.61 and an F-ratio of 23.19. This value was found to be significant at the .05 level. The null hypothesis was rejected. Since the nine month groups had higher mean scores, there was a significant difference in favor of the children attending nine month programs, either public or private.

The question of advantaged children in advantaged schools and their attendance at other nine month kindergartens versus attendance at public school nine month kindergarten yielded a sum of squares of 190.27. The F test resulted in a value of .46 which when compared to the table value of 3.85 for one and 1600 degrees of freedom led to the acceptance of the null hypothesis. Therefore the advantaged child in the advantaged school showed no significant advantage in having either private or public kindergarten experience as far as readiness tests were concerned.
TABLE 12
ANALYSIS OF VARIANCE ON READING READINESS FOR ADVANTAGED CHILDREN IN ADVANTAGED SCHOOLS

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>F Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Kindergarten vs. Some Kindergarten</td>
<td>11078.96</td>
<td>27.00**</td>
</tr>
<tr>
<td>Six Weeks Public Kindergarten vs. All Nine Month Kindergartens</td>
<td>9512.61</td>
<td>23.19**</td>
</tr>
<tr>
<td>Public School Nine Month Kindergarten vs. Other Nine Month Kindergartens</td>
<td>190.27</td>
<td>0.46</td>
</tr>
</tbody>
</table>

**Significant at the .01 level of confidence with one and 1600 degrees of freedom
It was shown that for advantaged children in advantaged schools, those who had attended kindergarten scored significantly higher in reading readiness than those who had not attended. Those who attended any nine month program were significantly more ready to read than those who had attended only the six weeks program. Finally, it was shown that public school and other kindergarten programs of nine months duration made no significant difference in readiness to read.

Disadvantaged children in advantaged schools. It has already been shown that students in advantaged schools performed better on reading readiness and the disadvantaged child performed significantly lower than the advantaged child in any type school. A group formed by considering disadvantaged children in advantaged schools yielded means for kindergarten experience groups as shown in data found in Table 10; 97.06 for the nine month public kindergarten group, 95.26 for the six weeks public kindergarten group, 110.79 for the other nine month kindergarten group, and 86.26 for children having no kindergarten.

Results of analysis with disadvantaged children in advantaged schools showed a slightly different pattern than the advantaged in advantaged schools as is seen in a study.
of data from Table 13. The group who had attended kindergarten again scored significantly higher than those who had not attended. A sum of squares of 3930.31 yielded an F-ratio of 9.58. This led to the rejection of the null hypothesis at the .05 level.

A sum of squares of 1201.31 was yielded when considering children having six weeks of kindergarten compared with those having nine months. This resulted in an F-ratio of 2.93 which was not sufficient to reject the null hypothesis. Since the null hypothesis was accepted, it was concluded that for disadvantaged children in advantaged schools there was no significant difference in performance on the reading readiness test regardless of their attendance at either the six weeks program or a nine month program.

Comparing the nine month public kindergarten group with the nine month other kindergarten group, a sum of squares of 2262.15 was obtained. The F-ratio was 5.51 which led to the rejection of the null hypothesis at the .05 level. Disadvantaged children in advantaged schools who had attended other nine month kindergarten programs performed significantly better on reading readiness than did those who had attended the public school nine month programs. The study did not determine specifically where these students received their kindergarten training.
### TABLE 13

**ANALYSIS OF VARIANCE ON READING READINESS FOR DISADVANTAGED CHILDREN IN ADVANTAGED SCHOOLS**

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>F Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Kindergarten vs. Some Kindergarten</td>
<td>3930.31</td>
<td>9.58**</td>
</tr>
<tr>
<td>Six Weeks Public Kindergarten vs. All Nine Month Kindergartens</td>
<td>1201.31</td>
<td>2.93</td>
</tr>
<tr>
<td>Public School Nine Month Kindergarten vs. Other Nine Month Kindergartens</td>
<td>2262.15</td>
<td>5.51*</td>
</tr>
</tbody>
</table>

*Significant at .05 level with one and 1600 degrees of freedom

**Significant at .01 level with one and 1600 degrees of freedom
**Advantaged children in disadvantaged schools.** Advantaged children in disadvantaged schools achieved at the following mean levels on the reading readiness test: nine month public school kindergarten, 89.86; six months public school kindergarten, 88.45; nine months non-public kindergarten, 100.75; and those having no kindergarten experience, 83.26, as seen from data in Table 11. The pattern of achievement was the same as for the disadvantaged in the advantaged school when analysis of variance was made on the three combinations.

The null hypothesis was rejected when children with some kindergarten were compared with those having no kindergarten experience. From Table 14 the data showed that a sum of squares for this comparison totaled 3500.67. The F-ratio was 8.53. Children who had attended kindergarten achieved significantly higher in reading readiness.

Children who had attended the six weeks program were compared with those who had attended nine months. The resulting sum of squares was 1535.04 with an F-ratio of 3.74. This ratio approaches significance but was not sufficient to reject the null hypothesis since a table value of 3.85 was necessary for rejection. The advantaged children who attended disadvantaged schools showed no significant differences in readiness regardless of their attendance at a nine month
### TABLE 14

**ANALYSIS OF VARIANCE ON READING READINESS FOR ADVANTAGED CHILDREN IN DISADVANTAGED SCHOOLS**

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>F Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Kindergarten vs. Some Kindergarten</td>
<td>3500.68</td>
<td>8.53**</td>
</tr>
<tr>
<td>Six Weeks Public Kindergarten vs. All Nine Month Kindergartens</td>
<td>1535.04</td>
<td>3.74</td>
</tr>
<tr>
<td>Public School Nine Month Kindergarten vs. Other Nine Month Kindergartens</td>
<td>2905.50</td>
<td>7.08**</td>
</tr>
</tbody>
</table>

**Significant at .01 level of confidence with one and 1600 degrees of freedom**
or a six weeks kindergarten program.

Other nine month programs were found to be significantly superior to the public nine month program for the advantaged child in the disadvantaged school. The null hypothesis was rejected since a sum of squares of 2905.50 was determined and an F-ratio of 7.08 was calculated.

Looking at the advantaged child in the disadvantaged school, it was shown that some kindergarten was better than no kindergarten. No difference was present in the nine month programs and the six weeks programs. Programs of nine months duration offered by agencies other than the public schools produced students with significantly higher readiness scores than did the public school kindergartens.

Disadvantaged children in disadvantaged schools. Children from disadvantaged homes who attended schools classified as disadvantaged were distributed across kindergarten experience groups with means as seen in data from Table 11. The nine month public school kindergarten group achieved at a level of 81.58 on the readiness test. The six weeks public school kindergarten group showed a mean of 78.05. The nine month other programs group averaged 73.39 and those with no kindergarten were the lowest group established for comparisons at 65.89.
In order to make conclusions about these groups, the same comparisons were made as with the other groups. Those children having had some kindergarten were compared with those who had no kindergarten. Again, some kindergarten was significantly more beneficial on the readiness test than no kindergarten. As reported in Table 15, the sum of squares of 1,725.93 with an F-ratio of 26.14 was enough to reject the null hypothesis at the .05 level.

Six weeks programs for these disadvantaged children when compared with all nine month groups revealed no significant differences. A sum of squares of 21.92 resulted in an F-ratio of .05 which was less than the table value for significance. Thus the null hypothesis was accepted. For the disadvantaged child in the disadvantaged school nine months kindergarten proved to be no better than six weeks kindergarten for reading readiness.

In this classification of socio-economic level of child by socio-economic level of school was found the only nine month school group which performed better than the nine month other kindergarten groups. The sum of squares when looking at this difference was 3454.42. The F-ratio was 8.42, far exceeding the 3.85 needed for significance. The null hypothesis was rejected at the .05 level, indicating significance. Disadvantaged children in disadvantaged
TABLE 15

ANALYSIS OF VARIANCE ON READING READINESS FOR DISADVANTAGED CHILDREN IN DISADVANTAGED SCHOOLS

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>F Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Kindergarten vs. Some Kindergarten</td>
<td>10725.93</td>
<td>26.14**</td>
</tr>
<tr>
<td>Six Weeks Public Kindergarten vs. All Nine Month Kindergartens</td>
<td>21.92</td>
<td>.05</td>
</tr>
<tr>
<td>Public School Nine Month Kindergarten vs. Other Nine Month Kindergartens</td>
<td>3454.42</td>
<td>8.42**</td>
</tr>
</tbody>
</table>

**Significant at the .01 level of confidence with one and 1600 degrees of freedom
schools scored higher on reading readiness when they had the advantage of the nine months public school kindergarten program as compared to those from other nine month programs.

In conclusion, the disadvantaged child in the disadvantaged school fared significantly better if he had some kindergarten or if he had been to the nine month public kindergarten as opposed to other nine months programs. It was inconsequential, as far as readiness was concerned, whether or not he attended six weeks or nine months.

READING ACHIEVEMENT

The following discussion of the statistical analysis dealt with the data collected from the Metropolitan Achievement Test, Primary I Battery, Form A.

Differences in the four kindergarten groups on reading achievement

The four groups of first grade children classified according to kindergarten experience were those with nine months public school kindergarten, those with six weeks public school kindergarten, those with other nine months kindergarten experience, and those with no kindergarten experience. A study of data from Table 1 showed the number in each category. The nine month public school program provided kindergarten experience for 443 pupils in the sample. The
six weeks public school program held in the summer provided kindergarten experience for 406 of the children. Attending other nine months kindergartens were 612 students. A total of 206 children had no kindergarten experience.

As was done in the case of reading readiness, adjusted means were used in the analysis to compensate for unequal group sizes.

The four kindergarten experience groups yielded means as follows: nine month public school group, 1.72; six weeks public school group, 1.71; other nine months programs group, 1.88; and no kindergarten experience group, 1.61.

Applying the least squares analysis of variance to the data obtained on the Metropolitan Achievement Test, Primary I Battery, Form A, a significant difference was found in the groups. A sum of squares of 3.57 yielded an F-ration of 5.14. The computed probability of F was .0019 which led to the rejection of the null hypothesis as shown in information from Table 16.

**Differences in the two socio-economic school groups on reading achievement**

Advantaged and disadvantaged schools were identified for purposes of the study. These two types of schools were compared as to reading achievement. A study of data in
### Table 16

**Summary of Analysis of Variance for 1669 Students on the Metropolitan Achievement Test, Primary I Battery, Form A.**

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Degrees of Freedom</th>
<th>Sum of Squares</th>
<th>F-ratio</th>
<th>Probability-F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of School</td>
<td>1</td>
<td>12.83</td>
<td>55.36</td>
<td>.0001**</td>
</tr>
<tr>
<td>Socio-economic Status</td>
<td>1</td>
<td>5.59</td>
<td>24.15</td>
<td>.0001**</td>
</tr>
<tr>
<td>Kindergarten Group</td>
<td>3</td>
<td>3.57</td>
<td>5.14</td>
<td>.0019**</td>
</tr>
<tr>
<td>Type School X Socio-economic Status</td>
<td>1</td>
<td>.09</td>
<td>.39</td>
<td>.5389</td>
</tr>
<tr>
<td>Type School X Kindergarten Group</td>
<td>3</td>
<td>.37</td>
<td>.54</td>
<td>.6589</td>
</tr>
<tr>
<td>Socio-economic Status X Kindergarten Group</td>
<td>3</td>
<td>1.26</td>
<td>1.82</td>
<td>.1404</td>
</tr>
<tr>
<td>Type School X Socio-economic Status X Kindergarten Group</td>
<td>3</td>
<td>.15</td>
<td>.22</td>
<td>.8808</td>
</tr>
</tbody>
</table>

**Significant at the .01 level of confidence**

*Significant at the .05 level of confidence
Table 5 showed the number of students in the sample in both types of schools as well as the reading achievement means. The 998 students in the advantaged schools achieved at a mean level of 1.89. The disadvantaged schools had a mean level of reading achievement of 1.58.

In order to determine whether or not this difference was significant, an analysis was made which yielded a sum of squares of 12.83 and an F-ratio of 55.36. Table 16 data revealed this to be probable at the .0001 level. Since this figure was far below the .05 level, the null hypothesis was rejected. Significant differences were present. The advantaged schools showed significantly better reading achievement than did disadvantaged schools when the Metropolitan Achievement Test, Primary I Battery, Form A was used.

### Differences in reading achievement in relation to attendance of differing socio-economic groups at differing socio-economic level schools

In order to answer the question of differences in achievement of children attending schools of different socio-economic levels from their own, two analyses were done. First, an analysis of the difference in two socio-economic groups of children was made. Then an interaction effect of the type of school, advantaged or disadvantaged, by the socio-economic level of the child was made.
A study of data from Table 6 showed that 1088 advantaged students achieved at a mean level of 1.85 compared with 581 disadvantaged students who achieved a mean level of 1.60 on the Metropolitan Achievement Test, Primary I Battery, Form A. A study of data in Table 16 showed that the analysis done comparing the two student groups, advantaged and disadvantaged, produced a sum of squares of 5.59 and an F-ratio of 24.15. This F-ratio was judged to be significant and the null hypothesis was rejected. Advantaged children did significantly better on the reading achievement test than disadvantaged children.

Interaction effects of the four groups were shown in data from Table 8, which indicated that 860 advantaged students attending advantaged schools had a reading achievement test mean of 2.00. A mean of 1.71 was obtained from the scores of 138 disadvantaged children in advantaged schools. The 228 advantaged children in disadvantaged schools had a reading achievement mean of 1.69. The lowest mean, 1.49, was obtained from the scores of 443 disadvantaged children who attended disadvantaged schools.

The analysis of variance done on this combination of variables, type school and socio-economic status of child, yielded a sum of squares of .09 and an F-ratio of .39. The probability of this occurring by chance was computed to be
82. The null hypothesis was accepted since this value exceeded the selected .05 level. No interaction of variables was significant as seen in data from Table 16.

The acceptance of the null hypothesis for the interaction of type of school by socio-economic level of the child led to further confirm the conclusion that advantaged children did better than disadvantaged children and students in advantaged schools did better on reading achievement than did those in disadvantaged schools. Even though there were achievement differences in the two advantaged groups and the two disadvantaged groups, these differences were fairly constant. The pattern was the same in all cases; the advantaged child achieved higher and the advantaged school produced higher achievement. The disadvantaged child achieved higher in the advantaged school than in the disadvantaged school whereas the advantaged child achieved less in the disadvantaged school than in the advantaged school.

Interaction between type of kindergarten and socio-economic status related to reading achievement

The interaction effect of the type of kindergarten attended by the socio-economic status of the child was based on the mean reading achievement scores of students as seen in Table 9.

Two hundred thirty-two nine month public school
kindergarten children who were classified as advantaged showed a mean score of 1.85 as compared to a mean of 1.58 for 211 disadvantaged with the same experience.

Children attending six weeks public school programs who were classified as advantaged scored at a mean level of 1.73. This figure was based on the scores of 254 students compared to the scores of 152 disadvantaged students in six weeks programs who performed at a level of 1.68.

The nine month programs other than public school provided training for 612 students, 500 advantaged children and 112 disadvantaged children. The advantaged group achieved at a reading level of 2.03 compared to 1.64 for the disadvantaged.

Some children who were studied attended no kindergarten. Of 208 who did not attend, 102 were advantaged and 106 were disadvantaged. The children from advantaged homes had mean achievement scores of 1.73 and those from disadvantaged homes 1.49.

When the statistical analysis was applied to these data, a sum of squares of 1.26 was obtained. The corresponding F-ratio was 1.82 with a computed probability of this value set at .1404. Since this probability value exceeded .05, the null hypothesis was accepted. No significant interaction of the effects of the child's socio-
economic status and the type of kindergarten attended was found from data in Table 16.

**Interaction of type of school by kindergarten experience group**

The children tested in the course of this research were categorized according to the type of school attended, advantaged or disadvantaged. The four types of kindergarten experience groups were studied in relation to the type of school. This yielded data as recorded in Table 10.

Reading achievement for 443 children who had attended the nine months public school kindergarten was determined to be at a mean of 1.85 for 230 students in the advantaged schools and 1.59 for those in the disadvantaged schools.

Children attending the six weeks public school program numbered 229 in the advantaged schools and 177 in the disadvantaged schools. The advantaged schools group showed a mean of 1.89 and the disadvantaged group 1.52.

For those children having other nine months programs, the table showed that 434 students in advantaged schools had a mean reading achievement level of 2.05 while 178 in the disadvantaged schools achieved at the 1.67 level.

Finally the 208 children who had not been to kindergarten were divided according to type of school. Those who attended the advantaged schools numbered 105 with a mean
score of 1.69 and 103 who attended disadvantaged schools scored 1.53 on the average.

When this data was analyzed using the analysis of variance technique, a sum of squares of .37 was yielded. The F-ratio was .54 and the probability of F was computed at .6589. Since this F value would occur by chance far more often than the .05 level established at the outset, the null hypothesis was accepted. No significant interaction was found when type of school attended was combined with the classifications of kindergarten experience as shown in data from Table 16.

**Interaction effects of type school by socio-economic status by kindergarten experience**

A study of data in Table 17 gave the sixteen possible classifications of students included in the study. These data showed the means for groups classified according to type of school attended, advantaged or disadvantaged; socio-economic level of the child, advantaged or disadvantaged; and the type of kindergarten attended, nine months public school, six weeks public school, other nine months programs, or no kindergarten experience.

In order to determine whether or not a significant interaction was present, the analysis of variance was
TABLE 17

READING ACHIEVEMENT TEST MEANS FOR 1669 STUDENTS
CLASSIFIED ACCORDING TO TYPE OF KINDERGARTEN
ATTENDED, SOCIO-ECONOMIC LEVEL OF CHILD,
AND SOCIO-ECONOMIC LEVEL OF SCHOOL

<table>
<thead>
<tr>
<th></th>
<th>Nine Month Public</th>
<th>Six Week Public</th>
<th>Other Nine Month</th>
<th>No Kindergarten</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Advantaged</td>
<td>Disadvantaged</td>
<td>Advantaged</td>
<td>Disadvantaged</td>
</tr>
<tr>
<td>Advantaged Schools</td>
<td>2.01</td>
<td>1.64</td>
<td>1.92</td>
<td>2.17</td>
</tr>
<tr>
<td>Disadvantaged Schools</td>
<td>1.68</td>
<td>1.51</td>
<td>1.52</td>
<td>1.87</td>
</tr>
</tbody>
</table>
computed using all three independent variables. The sum of squares obtained from the data on the achievement test amounted to .15. An F-ratio of .22 was computed and recorded in Table 16, with a probability of .8808. The null hypothesis was accepted since the probability exceeded the .05 level established for significance.

Since no significant interaction was present, the conclusion was made that no combination of variables worked together to significantly alter the findings of the analysis on the variables taken singly.
Chapter V

SUMMARY AND CONCLUSION

The purpose of this study was to determine the effects of four types of kindergarten experience on the reading readiness and reading achievement of first grade children in East Baton Rouge Parish Schools during the year 1971-72. In addition to this, the study was designed to study the children by groups according to the type of homes, advantaged or disadvantaged, from which they came. They were further grouped according to the type of school attended, advantaged or disadvantaged. Attempts were made to determine whether combinations of these variables produced greater means in reading readiness and reading achievement.

SUMMARY

East Baton Rouge Parish was unique during the 1971-72 school year since the first grade children that year had received a wide variety of kindergarten training prior to first grade entry. Some attended a nine months public school program where classroom space was available. The remainder could choose a six weeks summer program in schools where
classroom space was not available for a nine months program. A large number of parents chose to send their children to other nine months programs such as Head Start, parochial kindergartens, and private kindergartens. Still another group chose not to have their children attend any kindergarten program.

Analysis of variance was chosen to determine significant differences in groups classified according to three variables; type of kindergarten program attended, type of school attended, and socio-economic level of the student. Several questions were posed in the study:

1. Was there a significant difference in reading readiness and reading achievement in the groups according to the type of kindergarten attended?

2. Was there a significant difference in reading readiness and reading achievement in the groups according to the socio-economic level of the school?

3. Was there a significant difference in reading readiness and reading achievement in the groups according to the socio-economic level of the child?

4. Was significant interaction present when combinations of independent variables were used to study reading readiness and reading achievement?

The sample used was a stratified random sample of first
grade children in East Baton Rouge Parish Schools during the year of 1971-72. A total of 1669 students were included in the study.

In order to study reading readiness, the Harper and Row, Publishers Incorporated, Pre-Reading Test of Scholastic Ability to Determine Reading Readiness was used. This test consisted of six subtests in the area of visual discrimination, auditory similarities (rhyming words), relationships, auditory similarities (initial sounds), concepts, and story interpretation. From these subtests a total score was recorded. This score was used for analysis in the study. F-ratios were computed for type of kindergarten, type of schools, and socioeconomic status of the child. Interaction of the three was also studied using an F-ratio to determine significance. The test for significance was made at the .05 level of confidence using the null hypothesis.

The Metropolitan Achievement Test, Primary I Battery, Form A was used to evaluate reading achievement. The test consisted of four parts; word knowledge, word discrimination, reading, and arithmetic concepts and skills. The reading section was used for analysis. A raw score was obtained from which a standard score was derived. From this a grade equivalent was established upon which the analysis was done.
F-ratios were computed just as was done with reading readiness and the .05 confidence level was used for significance.

Analysis of the readiness data revealed that significant differences did exist in the four kinds of kindergarten experience groups. The group having the best readiness test mean was the nine month non-public school group. This group was followed by the nine month public school group. A further examination of group means showed that the six weeks summer program produced the third highest total and the lowest mean score was obtained from the data on those children who had not attended kindergarten.

A significant difference was noted when two types of schools were analyzed. The advantaged schools showed a marked difference in mean readiness over the disadvantaged group of schools.

When studying the results of grouping the children by their own socio-economic status, it was found that a significant difference was present favoring the advantaged children over the disadvantaged group.

Interaction was tested and found to be not significant when testing for the effects of type of school and socio-economic status of the child. Likewise, there was no significant interaction when socio-economic status of the child and the four kindergarten groups were combined.
Positive interaction was recorded when type of school and kindergarten experience were combined. Significant interaction was also present when all three independent variables were measured together. In order to explore these differences, each possible combination of children, advantaged and disadvantaged, was studied in relation to attendance at a particular type school, advantaged or disadvantaged. Further, the question of some kindergarten versus no kindergarten, the question of nine months kindergarten versus six weeks kindergarten, and the question of other nine month kindergartens versus public nine month kindergartens were explored.

The advantaged child in the advantaged school who had attended kindergarten was found to be superior in reading readiness to those having no kindergarten training. For this same group, either type of nine month program was judged to be more beneficial than the six weeks program. As far as a comparison of the effects of the two nine month programs, no significant difference was found. The advantaged child in the advantaged school benefitted from either program and showed readiness test results not significantly different.

The disadvantaged child in the advantaged school proved to score differently than the advantaged child in the advantaged school. Some kindergarten, either of six weeks or nine months, was better than not attending
kindergarten when reading readiness was measured. However, the nine month programs produced no higher reading readiness than did the six weeks programs. With the disadvantaged child who attended an advantaged school, nine month kindergarten in other schools was better than nine months in public school kindergarten.

In disadvantaged schools, it was found that advantaged children fared better in reading readiness when they had some kindergarten experience than if they had none. No significant difference was found in nine months training and six weeks training. The private, parochial, and governmental programs produced higher means on reading readiness than did the public school nine month group.

The disadvantaged child in the disadvantaged school showed a greater mean score when he had attended kindergarten. Those who had attended no program scored significantly lower. For the disadvantaged child there was no difference found in the nine month programs and the six weeks program. However, contrary to other groups, it was found that the public school nine month programs produced greater readiness scores than did the nine month private programs.

Analysis of reading achievement data showed that significant differences were present in the four kindergarten experience groups. The greatest mean occurred in the group
who had attended nine month programs other than public school.
The nine month and six week public school groups achieved at
approximately the same level followed by the group who had
not attended kindergarten.

Advantaged and disadvantaged schools were compared.
As was the case with readiness, the advantaged school pro-
duced higher mean scores than the disadvantaged.

Advantaged and disadvantaged children were compared.
It was found that a significant difference favoring the ad-
vantaged child was present.

Interaction was tested using type of school and
socio-economic level of the child. No interaction was found
when these two variables were used.

Interaction of type of kindergarten by socio-economic
level of the child was tested. In reading achievement, no
interaction of these two variables produced significant
differences.

Another two variable interaction was tested, type of
school by kindergarten experience. This combination of
variables also showed no significant ratio. Interaction of
these variables was not present.

In order to fully explore possible interaction of
variables and their effect on reading achievement, a three
factor interaction was tested. These variables were type
of school by socio-economic level of the child by kindergarten experience. As was the case in the two factor analyses, no interaction was present.

CONCLUSIONS

The following conclusions seem to be warranted from the data presented in this study:

1. There was a significant difference in reading readiness and first grade reading achievement favoring the children who had attended kindergarten as opposed to those who had not attended kindergarten.

2. Children classified as advantaged achieved significantly higher reading readiness and reading achievement scores than did disadvantaged children.

3. Schools classified as advantaged produced significantly greater reading readiness and reading achievement scores than did schools classified as disadvantaged.

4. No interaction of socio-economic level of school and socio-economic level of groups of children was present for reading readiness and reading achievement. The advantaged child and the advantaged school always produced higher mean scores. The disadvantaged child and the disadvantaged school always produced lower mean scores.
5. No interaction was found when the type of kindergarten attended was measured adding the possible effects of socio-economic status of the child. Advantaged children achieved higher mean scores than did disadvantaged children and the two nine months kindergarten programs produced greater reading readiness and reading achievement than six weeks programs and those having no kindergarten experience.

6. The interaction effects of the type of school attended by the type of kindergarten program attended produced significant differences when reading readiness was considered but not when reading achievement was considered.

7. When type of school, kindergarten group, and socio-economic status of the child were considered together, a significant interaction effect was present for reading readiness but not for reading achievement.

A. Advantaged children attending advantaged schools showed significantly higher readiness scores when they had attended any type of kindergarten compared with those who had no kindergarten experience. The group who attended either type of nine month program achieved significantly higher than those attending the six weeks program. There was no significant difference found in the readiness to read between the public nine month program and the private nine month programs for the
advantaged child in the advantaged school.

B. For the disadvantaged child in the advantaged school some kindergarten experience produced higher readiness scores than having no kindergarten experience. However, no difference was found in the effect of the six week programs and the nine month programs. The nine month programs of other agencies produced significantly higher readiness scores than did the public nine month programs.

C. The advantaged child in the disadvantaged school achieved higher reading readiness scores when he had attended kindergarten of any type, but the six week program was as beneficial as either type of nine month program, public or private. However, the nine month programs sponsored by other agencies produced groups with higher scores than the public school nine month groups.

D. For the disadvantaged child in the disadvantaged school, as was found with all others, some kindergarten was better for the child than no kindergarten. The public nine month programs groups fared better in reading readiness than did the children coming from private and other nine month programs. No difference existed in six weeks and nine month programs for the disadvantaged child in the disadvantaged school.
Implications of this study include the following:

1. Kindergarten training should be a part of the educational experience of all children in order to promote reading readiness and achievement in the first grade.

2. In reading readiness and reading achievement, nine month programs other than those of the public schools produced higher means. Emphasis on readiness activities for reading may have been greater in the other nine month programs. The public programs may have stressed other factors not explored in this study such as social adjustment and physical development.

3. Since advantaged schools and advantaged student groups produced higher readiness and achievement scores, efforts should be made to find ways to provide experiences for disadvantaged children and disadvantaged schools which help increase reading readiness and reading achievement.

4. Apparently, six weeks of kindergarten in the public schools produced readiness scores that were as high as any nine month program for all groups except the advantaged group in the advantaged schools.

5. Further study should be made using the same independent variables to research reading achievement in succeeding years. Achievement in mathematics should also be
studied since some kindergarten time is spent in mathematics awareness and readiness.
REFERENCES CITED

A. BOOKS


B. PERIODICALS


100


C. MONOGRAPHS


D. GOVERNMENT DOCUMENTS


E. MULTIVOLUME WORKS AND SERIES

Almy, Millie Corrine. *Children's Experiences Prior to First Grade and Success in Beginning Reading,* Contributions to Education, Number 954 (New York: Columbus University, Teachers College, Bureau of Publications, 1949), p. 124.


F. UNPUBLISHED WORKS


Boercker, Marguerite J. "The Effect of an Eight-Week Head Start Program on Reading Achievement As Measured At the End of First Grade." Unpublished Doctor's dissertation, University of Kentucky, 1967.


G. OTHER WORKS


3956 Charles Street  
Baton Rouge, Louisiana  
March 18, 1972  

Mr. Robert J. Aertker  
Superintendent of Schools  
East Baton Rouge Parish School Board  
Baton Rouge, Louisiana 70821  

Dear Mr. Aertker;  

I am presently engaged in graduate studies at Louisiana State University. I am interested in doing research using a sample of approximately half of the first grade children of East Baton Rouge Parish to determine the relationship of type of kindergarten experience to the reading readiness and reading achievement of the children. This would further be studied by socio-economic levels of the schools and the socio-economic levels of students within the schools.  

In doing this study for the writing of a dissertation, this procedure would need to be followed in the parish schools:  

1. A form completed consisting of the child's name, the school name, 5 or 6 blanks to check, and the readiness score of each child.  

2. An achievement test administered and scored in approximately half the first grade classes in the system.  

3. A check made of cumulative records, lunch records, and census records to determine the socio-economic level of the child. Where necessary, this work would be done by the researcher.
The researcher would meet with all teachers in the sample schools as needed to aid in every way possible the collection of the above data.

I request your permission to collect the above data and to use it in a dissertation. All schools and individuals will remain anonymous and all information derived will be readily available for school board and staff use. Publication of information beyond the dissertation will be submitted to the school board staff for approval.

Thank you for your assistance in this matter.

Sincerely,

Gary S. Rush
March 24, 1972

Mr. Gary S. Rush  
3956 Charles Street  
Baton Rouge, Louisiana  

Dear Mr. Rush:

In response to your letter of March 18, 1972, please let this serve to confirm the approval of this office for you to conduct your research project in East Baton Rouge Parish in conjunction with your graduate studies at L. S. U.

I will ask you to communicate directly with Dr. Hoover who will establish the guidelines under which this survey will be made and the method in which the information will be utilized after it has been developed.

Sincerely yours,

Robert J. Aertker  
Superintendent

RJA/mml

cc: Dr. Donald Hoover
MEMO TO: Elementary Principals of Selected Schools
FROM: Mr. E. George Thom, Elementary Coordinator
RE: Research Project

A research project is being planned by one of our principals, Mr. Gary Rush, who is presently on leave working on an advanced degree. This project will involve approximately half of the first grade students in East Baton Rouge Parish. Information obtained in the study will be of much use to our school system as well as other school systems. The findings will be used in a dissertation and will be available for each of you to use.

Mr. Rush has staff permission to conduct the study. He will visit your school in the near future to discuss your role as well as the role of each first grade teacher in the project. Please make every effort to cooperate with him since this study is much needed in our parish.

E. George Thom
DIRECTIONS TO TEACHERS

Administer Metropolitan Achievement Tests during the week of April 17 - 21.

Score each child's test and complete the back sheet of the test booklet as follows:

A. Fill in data at the top except for City, State, Date of Testing, and Age. Please include date of birth.

B. Fill in only the Raw Score, Standard Score, and Grade Equivalent at the bottom of the back page.

C. Tear off this sheet and destroy used test booklets.

Complete a green colored sheet on each child to return with the back sheet of the test booklet.

A. In the blank for Harper and Row Pre-Reading Readiness Score, place the total score. This test was given earlier in the school year.

B. Leave blank the space for the Metropolitan Achievement Test Score. It is most important that all questions on the page are completed except this one.

Place all completed back sheets and green sheets together in the test box or envelope. They will be picked up on May 12.

If you have questions or need help in any way, please call Gary Rush at 357-3040.
**SCHOOL:**

**CHILD'S NAME:**

**TYPE KINDERGARTEN ATTENDED:**

<table>
<thead>
<tr>
<th>9 mo. Public School</th>
<th>6 wk. Public School</th>
<th>Other Non-Public*</th>
<th>No Kindergarten</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DOES THE CHILD RECEIVE FREE LUNCH?**

<table>
<thead>
<tr>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
</table>

**HARPER AND ROW PRE-READING READINESS SCORE**

<table>
<thead>
<tr>
<th>Score</th>
</tr>
</thead>
</table>

**METROPOLITAN ACHIEVEMENT TEST SCORE**

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*Other includes Head Start, private kindergarten, parochial kindergarten, etc. not supported by School Board funds.
TO:       ELEMENTARY SCHOOL PRINCIPALS AND FIRST GRADE TEACHERS

FROM: E. GEORGE THOM, ELEMENTARY COORDINATOR

RE: RESEARCH PROJECT

Please be reminded that the tests and information sheets which were distributed by Mr. Gary Rush during April will be collected on Friday, May 12.

Please have the materials in the school office on that date so that Mr. Rush will be able to collect from all the schools in one day.

E. George Thom
VITA

Gary Sherriel Rush was born on February 10, 1937 at Deville, Louisiana, in Rapides Parish, to Mr. and Mrs. Oliver Dewey Rush. He has four sisters and one brother.

He was graduated from Buckeye High School in 1955 after which he attended Louisiana College from which he received a Bachelor of Arts degree in 1961. The Master of Education degree was conferred on him by Louisiana State University in 1966.

He taught in the public schools of East Baton Rouge Parish from the fall of 1960 to the spring of 1967 at which time he was appointed to a principalship. He continues to serve in that capacity at Howell Park Elementary School.

He is married to Nancy Magee Rush. They are the parents of three children; Gary Robert, Craig Oliver and Nancy Sherriel.
Candidate: Gary Sherriel Rush

Major Field: Education

Title of Thesis: READING READINESS AND FIRST GRADE READING ACHIEVEMENT OF SELECTED CHILDREN IN EAST BATON ROUGE PARISH

Approved:

[Signatures]

Major Professor and Chairman

Dean of the Graduate School

EXAMINING COMMITTEE:

[Signatures]

Date of Examination:

July 20, 1973