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THE RELATIONSHIP BETWEEN PUPIL MOBILITY AND READING ACHIEVEMENT
IN HIGH-MOBILITY-LOW-INCOME ELEMENTARY SCHOOLS

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
The Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By
Frank Simms Black, Jr., B.S., M.A.

The Ohio State University
1972

Approved by
Robert Banger
Adviser
College of Education
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Do not ever commit the sin of failing to teach a child to read.

—Leonora Carrington Lane, Professor, Central State University, Wilberforce, Ohio

We should immediately set for ourselves the goal of assuring that by the end of the 1970's the right to read shall be a reality for all—that no one shall be leaving our schools without the skill and the desire necessary to read to the full limits of his capability.

—James E. Allen, Jr., U.S. Commissioner of Education
"Education makes a people
easy to lead but difficult
to drive; easy to govern,
but impossible to enslave."

---Lord Brougham

To my mother, father, and brother who have always
been with me.

To Charles Peck and Garrett Tyler who never let
me set a limit on my aspirations.

To Dr. Warren James, Dr. Howard Merriman, and
Dr. James Gunnell who believe in me.

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Gary Thompson.

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encourage and help -- Dr. Robert Bargar, Dr. James Gunnell,
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To Brenda.
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Studies in Research. Professors Robert Bargar, James Gunnell, John Kennedy, and Desmond Cook

Studies in Change. Professor Charles Glatt

Studies in Curriculum. Professor Keith Tyler
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CHAPTER I

INTRODUCTION

The 1970 census has indicated that America continues to undergo massive shifts in the location of its population. The population of many cities is increasing while in others it is rapidly decreasing numerically. For example, the United States Census Bureau in a report published in March, 1970, revealed that of the 199.0 million persons one-year-old and over, 36.5 million or 18.1+ per cent had changed their addresses since March, 1969. Of the 36.5 million persons who moved, 23.2 million had moved within counties, 6.3 million within the same state and 7.1 million between states.¹

Mobility patterns may also vary according to the type of community or statistical area observed.

The population living in standard metropolitan statistical areas (SMSA's) in 1970 had a higher local mobility rate, but a lower migration rate than the population living in non-metropolitan areas. Central cities of SMSA's had a higher local mobility rate, but a lower migration rate than the mostly suburban ring areas of SMSA's outside the central cities. These statistics demonstrate the lesser amount of long-distance mobility.

movement but the somewhat greater local residential turnover of population in metropolitan areas, particularly in central cities of metropolitan areas.\(^2\)

In another report published in August, 1969, the United States Census Bureau announced that each year one American in every five moves. Two-thirds of this movement was identified as movement from block to block or across town. One-sixth moved from one county to another and the remaining one-sixth moved to a different state.\(^3\)

As a result of the physical re-location of their parents, millions of school-age children must change schools annually and in many cases multiple times throughout the school year. Dodson noted that our most stable communities have an approximate enrollment turnover rate of 10 per cent.\(^4\) The education system in any given community is not impervious to the influence of a community which is constantly changing.\(^5\)

\(^{2}\)Ibid.


RATIONALE FOR THE MOBILITY CATEGORIES

Mobility as it relates to education seems to be concentrated in the elementary grades of our school systems. Considering that this is the level of our system at which the basic skills of literacy are taught, the question of the effects of pupil mobility on the achievement of pupils becomes very important. Teachers often find themselves concerned about their ability to teach pupils who are not in one school long enough to pick-up sufficient skills in any of the academic areas. This is especially true with respect to the academic area of reading because it is considered a primary tool for success in our school system, as well as a key to future learning.

Studies which focus on mobility and reading achievement commonly concern themselves with the following pupil variables: sex, I.Q., and number of moves (the number of times pupils transfer from one school to another). They ordinarily fail to include any data concerning movement history (the types of schools pupils had

---


attended), pattern of movement (whether or not pupils were transferring in and out of the same schools), and time of movement (the grade level during which the school transfers took place).

**Movement history.** -- Schools vary in a number of ways (experience of staffs, academic achievement of pupils, and the socio-economic status of their pupils to name a few) which may affect the academic achievement of their pupils. Likewise, schools with varying degrees of pupil mobility also have pupil social and academic adjustment characteristics which may be particular to specific types (high-mobility-low income or non-high-mobility-low income) of schools. Consequently, when investigated the types of schools attended by mobile pupils may reveal that the reading achievement of mobile pupils varies according to the particular movement history of these pupils.

**Pattern of movement.** -- Analysis of the pattern of movement may result in the identification of variations in reading achievement among mobile pupils as a result of their movement pattern. For example, pupils who have movement patterns which indicate that they are in fact transferring in and out of the same schools as opposed to distinctly different schools may have higher reading achievement scores. The higher achievement of these pupils may be a result of their prior experiences in those schools in which transfers occur. In the former case, pupils are not likely to encounter as serious social and academic adjustment problems as those pupils in the latter case.
Time of movement.—Another mobility variable which has potential for affecting the reading achievement of mobile pupils is the time of movement. If mobility takes place during the primary grades, the pupils' ability to cope with future academic tasks may be impaired. Social and academic adjustment factors associated with school transiency by pupils could interfere with their learning of basic reading skills which in turn may negatively affect their achievement in social studies, mathematics, science, and other academic areas. Consequently, lower reading achievement may result among these pupils than if their mobility were concentrated at the intermediate level or mixed levels (some movement occurring during the primary as well as the intermediate grades).

The assumptions made here are that (1) reading is closely associated with success in other academic areas and (2) many of the basic skills in reading are taught during the primary grades. Although reading continues to be taught into the intermediate grades, pupils who fail to acquire basic skills during the earlier grades often find themselves retrogressing with respect to reading achievement. 8

Problems of mobility and reading achievement seem to have a common reference point in elementary schools with high enrollments

8 A Report to the Columbus Board of Education, (Columbus, Ohio: The Ohio State University, 1968), p. 265.
of pupils who receive Aid to Dependent Children (ADC), a form of welfare. Given this apparent association between the variables of mobility, reading achievement, and elementary schools with high rates of ADC pupils enrolled, what may be termed high-mobility-low-income elementary schools seems to be the most appropriate context in which to study the relationship between these variables.

STATEMENT OF THE PROBLEM

The purpose of this study is to determine the relationship between pupil mobility and reading achievement in selected high-mobility-low-income elementary schools. The factors of mobility are to be examined in terms of the following three distinct categories:

1. Movement History
2. Movement Pattern
3. Time of Movement

With respect to these categories of mobility, relationships will be explored between mobility, sex, and the dependent variable of reading achievement. The I.Q.'s of the subjects will be statistically controlled in order to rule out the possibility that any observed significant differences may be due to differences in prior intelligence among the subjects. Because of the difference in

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the developmental pattern of males and females which often affect reading achievement in the primary grades, and which may affect sixth graders, sex will be included in this study for in-depth analysis.

IMPORTANCE OF THE STUDY

Pupil achievement in the elementary school is influenced by numerous factors. In a study of time allotment and achievement, Jarvis observed the following factors as having an indirect relationship to pupil achievement; the plan of organization for instruction, utilization of special teachers, length of the school day and year, and time allocations.10

Pupil mobility is another factor which seems to affect elementary pupils. Mobile pupils often find themselves facing problems of social and academic adjustment simultaneously. Achieving academically, meeting assigned tasks, getting along with new teachers, learning new school procedures and winning the social acceptance of their new peers are immediate problems faced by newcomers to a school.11 Merriman in a study of Columbus, Ohio, schools found that mobility is highly associated with absence and that both mobility and absenteeism


were related to low achievement. Bell and Green in their study of Chicago schools found pupils, teachers, and administrators distressed with the following effects of pupil mobility on their educational program; disruption of daily classroom procedure, lag in receipt of pupil information, high teacher turnover rate, physical adjustments, and maladjustments. Most important, with respect to maladjustment, is that

... pupil adjustment to the new school presents high frequencies of serious problems involving language, cultural and economic barriers adjusting to new patterns of behavior, as well as severe learning difficulties.

In order to meet the needs of these mobile pupils, researchers and educators must begin to identify and analyze the ramifications of mobility for education and subsequently modify and/or develop new curricular strategies for meeting these educational needs. In this respect, the author is hopeful that this study will specifically be useful to Columbus, Ohio, educators and more generally add to the existent theoretical knowledge concerning the problems of mobility.

DEFINITION OF TERMS

The terms listed below are special terms. They are listed in order to clarify for the reader their meaning as they are used in this study.

12 Merriman, loc. cit., p. 4.

Mobility. This term denotes movement from one school to another by a pupil. To be considered mobile, a pupil must have changed schools two or more times between grades one and six.

Stationary Pupil. This term is used to identify the pupil who has changed schools less than twice between grades one and six.

High-Mobility-Low-Income Elementary Schools (HMLIES). This term is used to identify elementary schools within the Columbus (Ohio) Public School System which meet both of the following criteria: (1) their average pupil mobility rate and (2) Aid to Dependent Children (ADC) rate is equal to or greater than twice that of the school system for the school year 1970-71.

Non-High-Mobility-Low-Income Elementary Schools (NHMLIES). This term identifies all schools which do not qualify as HMLIES.

Time of Movement. A variable of mobility used to identify the grade level period during which the mobility of the pupil took place. Three periods are observed in this study:

1. **Type I.** All of the pupil's mobility took place during grades one through three.

2. **Type II.** All of the pupil's mobility took place during grades four through six.

3. **Type III.** Any combination of Types I and II.

Pattern of Movement. A variable of mobility. This term is used to describe pupil mobility with respect to selected transfer
characteristics. Three types of patterns of movement are recognized
in this study.

1. Type I. The pupil transferred into each school
   attended including the present school only once.

2. Type II. The pupil transferred into all schools
   attended two or more times.

3. Type III. The pupil transferred into some of the schools
   attended two or more times and others only once.

Movement History. A variable of mobility used to describe
the mobile pupil with respect to the type of school he has attended
prior to the one in which he is currently enrolled. Three types
are recognized in this study:

1. Type I. The pupil attended only HMLIES.

2. Type II. The pupil attended only NHMLIES.

3. Type III. The pupil attended at least one HMLIES
   and NHMLIES.

Intelligence Quotient or I.Q. An individual pupil's
score on the California Test of Mental Maturity, Level 2H.

Reading Achievement. The total score obtained by an
individual pupil on the Comprehensive Reading Test, Level 2, Form Q.

Aid to Dependent Children (ADC). A form of public assistance
used as an index of poverty. (The percentage of ADC recipients to
enrollment per school is used as the criteria for establishing eligibility for ESEA Title I services by the U.S. Office of Education and the Ohio State Department of Education.\textsuperscript{14}

**QUESTIONS TO BE ANSWERED**

This study will address itself to answering the following questions:

1. Are there significant differences in reading achievement between mobile and stationary pupils in HMLIES?

2. Are there significant differences in reading achievement among mobile pupils in HMLIES?

**THE HYPOTHESES**

The over-all null hypotheses that no significant relationship exists between pupil mobility and reading achievement at the sixth grade level in high-mobility-low-income elementary schools will be tested in this study. Testing of the over-all hypothesis will be accomplished by formulating sub-hypotheses. These sub-hypotheses are stated in the null form in order that the statistical method to be used in this study may be properly administered.

\textsuperscript{14}Morriman, loc. cit., p. 3.
Mobility factors are perceived as the independent variable and reading achievement as the dependent variable with respect to the following sub-hypotheses:

1. There are no significant differences between the average reading achievement scores of mobile and stationary pupils in HMLIES when I.Q. is statistically controlled.

2. There are no significant differences between the average reading achievement scores of mobile and stationary pupils in HMLIES when I.Q. is statistically controlled and scores are compared by sex.

3. There are no significant differences between the average reading achievement scores of mobile and stationary pupils in HMLIES when I.Q. is statistically controlled and scores are compared within each of the following mobility categories.
   1. Movement History
   2. Movement Pattern
   3. Time of Movement

4. There are no significant differences between the average reading achievement scores of mobile and stationary pupils in HMLIES when I.Q. is statistically controlled and scores are compared by sex within each of the following mobility categories:
1. Movement History
2. Movement Pattern
3. Time of Movement

5. There are no significant differences between the average reading achievement scores among mobile pupils in HMLIES when I.Q. is statistically controlled and scores are compared by sex.

6. There are no significant differences between the average reading achievement scores among mobile pupils in HMLIES when I.Q. is statistically controlled and scores are compared within each of the following mobility categories:
   1. Movement History
   2. Movement Pattern
   3. Time of Movement

7. There are no significant differences between the average reading achievement scores among mobile pupils when I.Q. is statistically controlled and the scores are compared by sex within each of the following mobility categories:
   1. Movement History
   2. Movement Pattern
   3. Time of Movement
LIMITATIONS OF THE STUDY

The limitations of this study include, but are not limited to the following:

1. The measurement of intelligence and reading achievement will be limited by the particular nature of standardized instruments used.

2. The study included only sixth grade pupils; therefore, its findings may not be applicable to other grade levels in a similar situation.

3. This study does not exhaust the variables which may be significantly related to mobility within the context of the public schools. Thus, it is recognized that there are other variables which may be so characterized.

ORGANIZATION OF THE DISSERTATION

An introduction to the study was presented in Chapter I. This chapter included a statement of the problem, a discussion of the importance of the study, definition of terms, statements of the questions and hypotheses to which this study is addressed, and an enumeration of the limitations of this study.

A survey of related studies and literature is presented in Chapter II.
Chapter III contains a description of the procedures, methodology, and instruments used in this study.

The research findings are presented in Chapter IV.

Chapter V contains a summary of the study, a discussion of the research findings and a statement of conclusions based on the findings. A discussion of the implications of this study and recommendations for future studies are also presented in this chapter.
CHAPTER II

REVIEW OF RELATED STUDIES AND LITERATURE

Mobility and School Problems

Many facets of the school are influenced by pupil mobility. In analyzing the effects of pupil mobility upon education systems across the country, the National Education Research Bulletin reports that pupil mobility even at the beginning of the school year can cause serious problems for teachers as well as pupils.15

Phillips, in 1957, studied the public schools across the state of Texas and concluded that mobility caused two problems for schools:

1. The first is the problem of getting pertinent information concerning the pupil's past performance. Such information is very important in counseling the pupil on his program of studies and in helping him to adjust to his new school environment. To obtain such information most schools now have a regular form which they send to the school attended by the pupil.

2. The second is the problem of helping the pupil to adjust to his new school environment. This problem often is intensified by the chronic

discord in the home and the educational deficiencies of the migrant pupil.16

Hayes raised the following two questions in her 1959 study of the effect of mobility on Fort Campbell, Kentucky, public schools: (1) What are some of the problems resulting from mobility? and (2) What are some cooperative procedures employed in meeting these problems? She found that:

1. Mobility makes mandatory a continuing evaluation of a system of reporting pupil progress.

2. Mobility requires continuing interpretation of school policies and procedures to parents.

3. Mobility of pupil population necessitates that pupils be placed in groups that will encourage them to learn and will accelerate the adjustment which each must make when he arrives at a new school.

4. Mobility emphasizes the need for facilitating pupil teacher adjustment.

5. Mobility of pupils creates the problem of making it possible to have the appropriate instructional materials in the hands of teachers and students at the right time.

6. Mobility presents a problem to the administrative staff in predicting enrollment and providing adequate facilities at the individual school and system-wide levels.

7. Mobility of students creates the problem of insuring continuity of learning experiences toward educational objectives of both the school and the child.

8. Mobility has had a tendency to make both parents and children aware of the importance of community agencies and the need for coordinating activities sponsored by the different groups.

9. Mobility necessitates continuing evaluation of all phases of the school program as well as the individual child and his work...17

The attitude of educators toward mobile pupils can help to reduce their problems. Perlman states that:

Whether our uprooted children are thoughtlessly pulled out of one setting and tossed into another with nebulous expectations that children can adjust to anything, or whether they are carefully and professionally transplanted from one environment to another on the basis of all we know about healthy growth and development, depends on the extent of our planning. By lavishing care and guidance upon him, we can take a child out of the temporary 'uprooted' category and assure his flowering in a new setting.18

Mobility and Social Adjustment

Ames, in 1953, studied sixth grade mobile pupils in thirty-one different Salt Lake City, Utah schools.19 During the course of his investigation approximately twenty per cent of 2,229 sixth graders transferred to different schools. The majority of his subjects were from either upper-lower or lower-middle class homes as defined by the "Index of Social Status" (Social Class in America.)


Newcomers were found to be rated slightly higher in both academic achievement and personality adjustment than were other pupils. This finding was based upon ratings of pupils' teachers and the results from the California Mental Health Analysis.

Ames administered the "Social Distance Scale" (Understanding the Group Behavior of Boys and Girls) six months after the newcomers had entered school. This instrument required each pupil to rate every other member of his class with regard to social acceptance. Based on this instrument, the newcomers were rated lower in social acceptance than were other members of the class.

Also, in 1953, Downie studied eighteen classes of fifth, sixth, seventh and eighth graders in Hermiston, Oregon. Twelve socio-metric tests were administered to the pupils. Each pupil was asked to identify three other children in the class with whom he would prefer to carry out various classroom activities. Individual identifications were related to a real activity, that is, action followed the selection process. Downie found that a small number of moves (one or two) or a sustained enrollment (one to three years) after moving tended to lead to greater average social acceptance than having remained in the same school one's entire history, having been in the same school system less than one year, or having moved around frequently.

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Mobile pupils require special help in adjusting to their new social environment. Educators must show these pupils empathy, sympathy, understanding, respect, and acceptance. The social adjustment of mobile pupils may be assisted if each child is helped to develop a sense of importance, a feeling that he is somebody.\textsuperscript{21}

Pupil mobility at the elementary and junior high schools of New York City was studied by Kasindorf in 1962.\textsuperscript{22} The highest rates of mobility were found among the elementary schools. At the time of the study, the pupil mobility rate in Manhattan was as high as 50.9 per cent. According to Kasindorf, pupil mobility influences the effectiveness of the educational program of the school as well as the individual classroom.

While studying some of the problems resulting from mobility, Hayes found that mobile pupils tended to suffer from fear, insecurity, anxiety, tensions, and shyness. According to Hayes:

Mobility implies that a student will meet many new and different people, differences in teaching methods and materials, and new expectancies. Teacher preparation and ability to understand individual differences, and teachers' attitudes concerning homework, discipline, extracurricular activities and other phases of the program will also vary.\textsuperscript{23}


\textsuperscript{23}Hayes, \textit{loc. cit.}
Mobility and Reading Achievement

Some investigations of mobility have focused only on the relationship of mobility to reading achievement. Others have studied the relationship between mobility and achievement in general which included reading as well as other academic achievement areas. In order to present a complete review of the literature relevant to the present investigation both types of studies have been included in this section.

Corbally studied the problem of pupil mobility in public schools located in the state of Washington. He found the primary detrimental effects of moving to be (1) difficulty in adopting to a new or different teaching method, (2) difference in type of work, (3) difference in difficulty of work, (4) difficulty in adjusting to a new situation. Corbally's findings suggest that not only reading achievement may be detrimentally affected by pupil mobility but also achievement in other academic areas such as mathematics and language arts. Corbally concluded that the individual school may be the most appropriate context in which mobility studies ought to be carried out.

Sackett reviewed an investigation of the effect of mobility on the educational status of children in the Panama Canal Zone schools.

Joy contrasted the efficiency of the Canal Zone schools with that of schools in the United States. The results of the performance of pupils on the New Stanford Achievement Test indicated that Canal Zone pupils of both a given age and grade were achieving beyond the norms established for pupils in the United States.

Sackett noted that Joy compared the native and transient groups with respect to their mean subject-matter ages in each of the subjects tested. According to Sackett the final data indicated that, in general, the Panama Canal Zone transient children in grades seven and eight excelled in all subjects tested except in arithmetic computation. Sackett stated that Joy suggested no reasons for the superior performance of the Panama Zone transient children.

In 1957, Daughtery investigated the eleventh grade of a high school in Savannah, Georgia. She studied thirty-four items of data about each pupil. According to Daughtery, the pupils who had made the greater number of "voluntary" inter-school moves in contrast to pupils who had made fewer such moves were more likely to have greater than average grade placement scores on the standardized achievement test, to be older than average, and to have had fewer than average school absences during the eleventh grade.

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The mobility problem in the Cincinnati, Ohio Public Schools was investigated by Bollenbacher in 1962.27 Her sample included ninety-five per cent of the sixth graders in the school system and consisted of 2,778 boys and 2,800 girls. Data were gathered for each individual pupil and were reported in terms of the number of moves made by individual pupils. Each pupil recorded the number and location of the schools in which he had been enrolled, and any grades repeated. The cumulative records of the pupils were used to validate their responses. Reading achievement data were obtained by use of the Stanford Intermediate Reading Test.

The findings show that (1) most of the mobility took place within the school district, (2) reading achievement was not influenced by the number of schools attended, and (3) pupils who moved the most frequently were consistently the least capable, as measured by a group intelligence test. In her explanation of the findings to principals and teachers, Bollenbacher stated that a mobile pupil is likely to be a lower achiever in reading, but that his low achievement is related to his proportionately low ability.

The relationship between pupil mobility and achievement within a St. Louis, Missouri suburban school system was studied by Tout in 1962.28 The population of the study consisted of the fourth, fifth

and sixth grades of the Brentwood School District. The subjects were categorized according to one of three mobility groups of permanent, semimobile, or mobile. These groups of pupils were then compared by grade level and by total groups.

Tout found that at the sixth grade level non-mobile pupils had significantly higher achievement than either the semimobile or mobile pupils. However, he found no significant differences at the fourth or fifth grade level.

Suburban school mobility in Arlington Heights, Illinois was studied by Fouty. Six hundred fifty junior high school pupils composed the population studied. Sex, I.Q., mobility, and parent education were the variables analyzed. The mobility variable consisted of three categories: (1) low mobility group—pupils who had attended one other school system, (2) high mobility group—pupils who had attended two or more school systems, and (3) stationary group—pupils who had not attended any other school system. Pupils were also grouped on the basis of I.Q. scores, sex, and the average educational level of their parents. Teachers' grades and pupils' achievement test scores (reading, arithmetic, language, and the composite) were used in the comparisons between the groups.
Fouty concluded the following:

1. There were no significant differences in academic achievement between pupils when the three mobility groups were compared.

2. There were no significant differences in achievement between pupils when they were compared on the basis of mobility with the variable of sex, mean parent education, and I.Q. test scores.

3. Pupils of parents with a high educational background achieved significantly better than children of parents with a low educational background.

4. Girls achieved better than boys. But, the effect of mobility was apparently the same for both sexes.

5. The pupils in the high I.Q. group achieved significantly better than pupils in the lower I.Q. groups. However, the effect of the mobility was apparently the same for all groups.²⁹

Gallagher studied 749 sixth graders in his investigation of the influence of mobility on the academic achievement of pupils in the Anderson, Indiana Public Schools.³⁰ Age, race, sex, I.Q., social class, and achievement data were collected for each pupil and the number of schools attended by individual pupils was the form in which the mobility data were collected. The Stepwise Multiple Regression statistical technique was used to analyze the


relationship between five independent variables and the following
dependent variables: (1) total achievement, (2) arithmetic achievement,
and (3) reading achievement.

Gallagher found a significant negative relationship between
the number of schools attended by pupils and their success in total
achievement, arithmetic achievement, and reading achievement. That
is, as the number of schools attended increased academic success
decreased among those pupils studied.

Snipes and Perrodin studied the relationship between pupil
achievement in reading in a county school system in central Georgia.31
The subjects consisted of 483 sixth graders. Three mobility variables
were studied: (1) number of moves, (2) recency of move, and (3) dis­
tance of move. These mobility variables were analyzed with respect
to their relationship to certain dependent personal characteristics
(sex, age, socio-education level of parents, retention at grade level
for more than one year and I.Q.) and achievement variables.

Data were collected through the use of the following instru­
ments: (1) California Short-Form Test of Mental Maturity, Form S,
(2) The California Achievement Test, Complete Battery, Form W, and
(3) A Personal Data Form. The analysis of variance statistical technique

31Alex F. Perrodin, and Walter Snipes, "The Relationship of
Mobility to Achievement in Reading, Arithmetic, and Language in
Selected Georgia Elementary Schools," Journal of Educational Research,
was used to analyze the mean differences between the categories of mobility, personal characteristics, and achievement variables. Significance of differences between particular groups were tested by *Duncan's New Multiple Range Test*.

Snipes and Perrodin concluded from their findings: (1) the number of moves made by pupils did not appear to influence reading achievement, (2) the distance of move was related to reading vocabulary (pupils who entered the school system from a state other than Georgia achieved higher in the area of reading vocabulary than non-movers or pupils moving within the state); (3) retention, age, and I.Q. seemed to be positively associated variables in the area of reading. Pupils favored in the difference were those who were older, those who had been promoted regularly, and those who manifested higher I.Q.'s.

Snipes in a re-analysis of the data used in the Snipes and Perrodin study mentioned above found significant differences between groups in the areas of reading vocabulary and reading comprehension. Movers scored higher than non-movers or those subjects who moved one or two times. Significant differences were also found with respect to the mobility variable of duration of residence and reading comprehension, however, there was no distinct pattern of differences. No differences were observable when the mobility variable of prior place of residence was compared with reading vocabulary and comprehension although significant differences were present.
Snipes concluded that:

1. The number of moves pupils make does not appear to have a detrimental effect on achievement in reading. Rather, moving appears to strengthen achievement in this specific variable.

2. The data seem to indicate that pupils who have had some experience in various schools tend to score higher on tests of reading achievement. The grade levels at which these changes occur are independent of achievement.

3. Pupils who have lived in other states and countries appear to be favored in reading achievement over non-movers or in-state movers.

4. No specific areas of reading achievement (reading vocabulary of reading comprehension) appears to be favored in moving. However, differences are more explicit in the area of reading comprehension than in reading vocabulary.32

Pupil mobility among pupils in a school system adjacent to Bunker Hill Air Force Base, Bunker Hill, Indiana, was studied by Evans in 1966.33 Specifically, Evans was interested in whether or not a history of moving from one school system to another caused poorer achievement in reading than would have been experienced in continuous residency. The subjects of Evans’ study were 98 pupils enrolled in the fifth and sixth grades of Nead School during the


33John Evans, "The Effect of Pupil Mobility Upon Academic Achievement," The National Elementary Principal, XIV (April, 1966), pp. 18-22.
1963-64 school year. Data were gathered from the cumulative records and were converted to number grades. The records of the pupils were divided into mobile and non-mobile groups for both grade levels and means, medians, and standard deviation scores were calculated for each group.

Evans found that mobile pupils tended to have better reading records than non-mobile pupils and are capable of adjusting to any of the detrimental effects which may be associated with mobility as it relates to academic achievement.

Focusing on the question of whether the academic achievement of sixth grade pupils is affected by the rate and type of school change experienced, Miller, in 1966, studied culturally disadvantaged and middle socio-economic neighborhoods in Gary, Indiana. The achievement scores on seven subtests of the Stanford Achievement battery of mobile (pupils who had changed schools three or more times by the sixth grade) and non-mobile pupils were compared.

Two hundred twenty-four mobile and 224 non-mobile pupils were matched on I.Q. and sex: 115 pairs in culturally disadvantaged schools, and 109 pairs in middle socio-economic schools. The two socio-economic groups were treated separately. Determination of whether differences existed between the mobile and non-mobile groups was accomplished by using the t-test (or paired observations).
Miller found that:

1. There was high intracity mobility among the culturally disadvantaged while the middle socio-economic group showed greater migrant mobility.

2. There was a higher rate of mobility among the culturally disadvantaged than the middle socio-economic group of pupils.

3. With respect to the culturally disadvantaged, significant differences were found between the mean scores of mobile and non-mobile matched student groups on only two of the 49 comparisons made.

   Non-mobile pupils scored better than mobile pupils in the area of arithmetic applications. Also, in the area of paragraph meaning very high mobile pupils scored better than non-mobile pupils.

4. Among the middle socio-economic pupils, non-mobile pupils scored better than mobile pupils in the area of language and arithmetic concepts when pupils were grouped according to migrant mobility, high mobility and total mobility. Also, non-mobile girls scored better than mobile girls on the language subtest and when grouped according to mobility (high, and total) non-mobile girls scored better than mobile girls on the subtest of word meaning.  

Miller's conclusions were:

1. Culturally disadvantaged pupils were not affected by mobility,

2. Language and arithmetic concepts seemed to be the only areas effected by mobility among pupils in the middle socio-economic schools and this influence seems to be related to migrant mobility, and

---

3. Girls are more influenced by mobility than boys.\textsuperscript{35}

Elementary and junior high schools in Columbus, Ohio were used as the unit of analysis by Merriman in his investigation of the relationship between pupil mobility and reading comprehension for school year 1967-1968 and 1969-1970.\textsuperscript{36} Each school was analyzed individually; mobility data for each school were correlated with reading comprehension scores acquired at the beginning of the following school year. The \textit{California Comprehensive Reading Tests, Level 2H} was administered to an average of 8,258 pupils.

Merriman found a negative correlation between pupil mobility and reading comprehension. That is, the higher the pupil mobility rate for a given school the lower the average achievement for that school was likely to be with respect to reading comprehension.

\textbf{Summary}

The first section of the chapter was a review of literature on mobility and school problems. Phillips identified the problems of getting past performance data on pupils and helping pupils adjust to their new school environment as being the most pertinent problems faced by schools resulting from pupil mobility. Hayes emphasized

\textsuperscript{35}Ibid.

\textsuperscript{36}Personal conversation with Dr. Howard O. Merriman, Department of Evaluation, Research, and Planning, Columbus (Ohio) Public School System, September, 1971.
problems of instruction, predicting enrollment, and pupil evaluation. Perlman noted that mobile pupils need not suffer adjustment problems provided they are given care and guidance.

In the second section of this chapter literature pertaining to the relationship of mobility and social adjustment was reviewed. Ames, Zimmerman, and Kasindorf characterized the effects of mobility on pupils as feelings of fear, insecurity, anxiety, tension, and shyness. Nevertheless, Downie in his study of fifth, sixth, seventh, and eighth graders found that pupils who had moved once or twice or who had been in one school one to three years after moving tended to have greater average social acceptance than other pupils.

Studies and literature related to the effects of mobility on reading achievement were reviewed in the third section of this chapter. Studies by Merriman, Bollenbacher, Gallagher, and Snipes suggest that there may be a negative relationship between reading achievement and pupil mobility. In contrast to these studies, investigations by Sackett, and Daughtery imply that mobile pupils may be better prepared than non-mobile pupils in some areas of reading achievement.

It is apparent from this review of the literature that studies which have focused on this problem are inconclusive. This finding underscores the need for further research in this educational problem area possibly utilizing new methodological approaches such as those included in this investigation.
CHAPTER III

RESEARCH METHODS

Introduction

This chapter described the design of this investigation including the procedures used in identifying the participating schools, selecting the subjects and collecting and analyzing the data. There are four major sections to this chapter: (1) Subjects for the Study, (2) Description of the Instruments, (3) Data Collection and Processing Procedures, and (4) Data Analysis Procedures.

Subjects for the Study

School characteristics.—At the time of this study Columbus, Ohio was a city of approximately 541,000 inhabitants. Its public school system served 105,002 pupils. Of this number 8,678 pupils were enrolled in the sixth grade. The pupil mobility rate (total number of pupils entering or leaving a school, compared to the total pupil enrollment during the school year plus the number of pupils entering the school) for the school system was 12 per cent. Also on a system-wide basis, the incidence of families receiving Aid to Dependent Children compared to pupil enrollment was 17 per cent.

Selection of the subjects.—Mobility exists to some degree in every school system. The purpose of the study was to determine the relationship between pupil mobility and reading achievement in

33
high-mobility-low-income elementary schools. The subjects in this study, then, were selected on the basis of their enrollment in schools which had mobility characteristics of such proportion as to supply sufficient numbers in each category considered in this investigation.

Seven schools were selected for inclusion in this study. The bases for their selection were two-fold: (1) their pupil mobility and (2) Aid to Dependent Children (ADC) rate had to be equal to or greater than twice that of the school system. Thus, only schools which had a pupil mobility rate equal to or greater than thirty-four per cent and whose ADC rate was equal to or greater than twenty-four per cent were included. Table 1 presents mobility and ADC characteristics of these schools.

In order to define the problem more precisely, the sixth grade within each school in the study was selected for analysis. The Columbus Public School system operates basically on a 6-3-3 curriculum plan. That is, pupils spend six years in elementary school, three years in junior high school, and three years in high school. Including subjects beyond the sixth grade would have involved pupils who had changed schools involuntarily one or more times to another school in the school system. Thus, research was limited to the last grade of the elementary school.

The sixth grade enrollment of the seven elementary schools included in the study was 265. The enrollment by school was (a) 32, (b) 72, (c) 51, (d) 19, (e) 25, (f) 30, and (g) 36.
# TABLE 1

**SCHOOL MOBILITY AND ADC CHARACTERISTICS**

<table>
<thead>
<tr>
<th>School</th>
<th>Enrollment</th>
<th>Mobility Rate</th>
<th>ADC Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>217</td>
<td>.59</td>
<td>.29</td>
</tr>
<tr>
<td>B</td>
<td>394</td>
<td>.46</td>
<td>.54</td>
</tr>
<tr>
<td>C</td>
<td>462</td>
<td>.43</td>
<td>.25</td>
</tr>
<tr>
<td>D</td>
<td>180</td>
<td>.43</td>
<td>.33</td>
</tr>
<tr>
<td>E</td>
<td>195</td>
<td>.40</td>
<td>.50</td>
</tr>
<tr>
<td>F</td>
<td>250</td>
<td>.39</td>
<td>.32</td>
</tr>
<tr>
<td>G</td>
<td>305</td>
<td>.37</td>
<td>.33</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,003</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The subjects of this study were selected on the following bases: (1) enrollment in the sixth grade of the selected schools, (2) completion of both the reading comprehension and reading vocabulary sections of the California Comprehensive Reading Test, Level 2, Form Q, and (3) completion of the California Short Form Test of Mental Maturity, Level 2H.

The total number of pupils involved in the study was 210. This number of pupils represented 70 per cent of the sixth grade enrollment in the HMLES. Fifty-five pupils were not included in the final analysis of the data. These pupils for various reasons failed to complete one or more of the above mentioned tests.

Pupil inclusion by schools and percentage of the schools' total sixth grade population was: (A) 29 or 91 per cent, (B) 55 or 76 per cent, (C) 37 or 73 per cent, (D) 17 or 90 per cent, (E) 15 or 60 per cent, (F) 26 or 87 per cent, and (G) 31 or 89 per cent.

**Description of the Instruments**

The following instruments were used in this study:

1. California Short Form Test of Mental Maturity, Level 2H.

2. California Comprehensive Reading Test, Level 2, Form Q.

3. Pupil Personal Data Collection Form.
California Short Form Test of Mental Maturity, Level 2H.— This is a group standardized test of intelligence which was derived from the California Test of Mental Maturity. It measures the mental capacities which are fundamental to learning, problem solving, and responding to new situations. Logical Reasoning, and Verbal Concepts are factors by which development is measured. The seven test units within these factors are sub-divided into two parts: Language and Non-Language. The Language part measures an individual's response to verbal stimuli; the Non-Language part measures his response to pictorial stimuli. This form yields a total I.Q. score.37

Validity coefficients for the California Short Form Test of Mental Maturity, Level 2H range from .70 to .84 when correlated with the Stanford Binet test of intelligence.38 Reliability coefficients for the California Short Form Test of Mental Maturity, Level 2H range from .93 to .92.39

California Comprehensive Reading Test, Level 2, Form Q.— This is a group standardized test of reading achievement which is

37Elizabeth T. Sullivan, et. al., California Short Form Test of Mental Maturity Examiner's Manual (Monterey, California: California Test Bureau, 1963), p. 5.
38John E. Horrocks, Assessment of Behavior (Columbus, Ohio: Charles E. Merrill, 1964), p. 249.
39Ibid., p. 252.
one component of the Comprehensive Test of Basic Skills. It is divided into two parts: reading vocabulary and reading comprehension. The California Comprehensive Reading Test, Level 2, Form Q covers the following content dimensions: "Word in Context, Sentences, Paragraphs, Letters, Stories, Articles (including Rules and Ads), Poems."^0

Content validity refers to the degree to which the sample of test items represents the content that the test is designed to measure. Content validity was stressed in the construction of the California Comprehensive Reading Test, Level 2, Form Q.^1

Adequate selection of items by test constructors usually suffices to assure that a test has content validity.^2 Construct validity is the degree to which a test is based upon a particular theory or theoretical construct. Construct validity for this test was secured by correlating it with the Stanford Achievement subtests which resulted in substantial correlations.^3


^3Mehrens and Lehmann, loc. cit., p. 164.
Reliability refers to the consistency of a measuring instrument. That is, a test reliability coefficient reflects the degree to which a test may be relied upon to produce similar test results under similar condition. The Kuder-Richardson Formula 21, a statistical technique used to estimate reliability, indicated the reliability of the California Comprehensive Reading Test, Level 2, Form Q to range from .86 to .96. \(^4^4\)

Personal Data Form.—This form was constructed by the investigator in order to facilitate the collection of necessary personal data about each pupil. These data include:

1. Name
2. Sex
3. I.Q.
4. Mobility information such as the name of the schools attended, the number of schools attended, and the grade level at which the pupil entered each school.

Each of these items of information was secured for use in categorizing individual pupils according to their mobility characteristics and sex.

Data Collection and Processing Procedures

Reading achievement and I.Q. data were collected during the month of October, 1970. The Department of Evaluation, Research and Planning of the Columbus, Ohio Public School System collected these data as part of the school system's city-wide testing program. The investigator collected the pupil mobility and sex data by reviewing the cumulative personal records of the subjects included in the study. All data were subjected to computer analysis in order to insure maximum accuracy.

\(^4^4\)Ibid., pp. 164-165.
Data Analysis Procedures

Analysis of covariance.—To test for the significance of any difference in reading achievement, it was necessary to account for the influence of differences in prior ability. The analysis of covariance made this possible. It is a statistical technique which controls for prior differences in ability among subjects by adjusting the means and sampling error for the effect of the uncontrolled variable. It also insured a more accurate analysis of the data by allowing I.Q. to be treated as a continuous variable instead of a discrete variable.

Analysis of variance.—The analysis of variance is a statistical technique which indicates whether or not there is a significant difference or variation among a group or set of means. It is an over-all test of significant differences among means. That is, it only indicates whether or not a significant differences exist anywhere among the means. It does not provide any information about the difference between specific means. Where the F ratio resulting from the analysis of variance test was not equal to or greater than the significance level of .05 the hypothesis that no significant differences exist among the means was accepted and no further analysis of the data was undertaken.

Hypothesis I states that there are no significant differences between the average reading achievement scores of mobile and stationary pupils in HMLIES when I.Q. is statistically controlled. Hypothesis II states that there are no significant differences between the average

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45Downie and Heath, loc. cit., p. 186.
reading achievement scores of mobile and stationary pupils in HMLIES when I.Q. is statistically controlled and scores are compared by sex. Hypothesis V states that there are no significant differences between the average reading achievement scores among mobile pupils in HMLIES when I.Q. is statistically controlled and scores are compared by sex. Analysis of variance was used to test simultaneously Hypotheses I, II, and V. The following procedure was used:

1. The mean reading achievement score of mobile and stationary pupils was calculated.
2. The mean reading achievement score of mobile and stationary pupils according to their sex was calculated.
3. The influence of I.Q. on the results of the reading achievement test was accounted for by adjusting the mean achievement scores with the analysis of covariance.
4. In order to test for significant differences in reading achievement among the mobility subcategories, analysis of variance was applied to their adjusted mean scores.

Hypothesis III states that there are no significant differences between the average reading achievement scores of mobile and stationary pupils in HMLIES when I.Q. is statistically controlled and scores are compared within each of the following mobility categories:
Hypothesis IV states that there are no significant differences between the average reading achievement scores among mobile pupils in HMLIES when I.Q. is statistically controlled and scores are compared within each of the following mobility categories:

1. Movement History
2. Movement Pattern
3. Time of Movement

Hypothesis VII states that there are no significant differences between the average reading achievement scores among mobile pupils when I.Q. is statistically controlled and scores are compared by sex within each of the following mobility categories:

1. Movement History
2. Movement Pattern
3. Time of Movement

Hypotheses III, IV, VI, and VII were also tested simultaneously with the analysis of variance statistic. The following procedure was used:

1. The mean reading achievement scores for stationary and mobile pupils according to the various mobility subcategories of Movement History, Movement Pattern, and Time of Movement was calculated.
2. The mean reading achievement score for stationary and mobile pupils according to the various mobility sub-categories was calculated by sex.

3. The influence of I.Q. on the results of the reading achievement test was accounted for by adjusting the mean achievement scores with the analysis of covariance.

4. In order to test for significant differences in reading achievement among the mobility sub-categories, analysis of variance was applied to their adjusted mean scores.

The specific analysis of variance model used in this investigation was Model I (Two-way Fixed Effects Model). This model assumes that the levels of each factor in the analysis were not randomly selected from a larger population of levels by the investigator. Because of this lack of randomization any generalizations based on tests of significance are restricted to the specific levels and combination of levels actually investigated.47

The analysis of covariance and analysis of variance were computed by an IBM 360 computer at The Ohio State Computer Center. Exact solutions for unequal observations per cell were produced.

CHAPTER IV

FINDINGS OF THE STUDY

Introduction

Identification of the relationship between pupil mobility and reading achievement in high-mobility-low-income elementary schools was the major purpose of this investigation. Two questions were posed in this study:

1. Are there significant differences in reading achievement between mobile and stationary pupils in high-mobility-low-income elementary schools?

2. Are there significant differences in reading achievement among mobile pupils in high-mobility-low-income elementary schools?

Testing of the over-all null hypothesis that no significant relationship existed between pupil mobility and reading achievement at the sixth grade level in HMLIES was accomplished by formulating and testing the following seven sub-hypotheses:

1. There are no significant differences between the average reading achievement scores of mobile and stationary pupils in HMLIES when I.Q. is statistically controlled.
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UNIVERSITY MICROFILMS.
6. There are no significant differences between the average reading achievement scores among mobile pupils in HMLIES when I.Q. is statistically controlled and scores are compared within each of the following mobility categories:
   1. Movement History
   2. Movement Pattern
   3. Time of Movement

7. There are no significant differences between the average reading achievement scores among mobile pupils when I.Q. is controlled and scores are compared by sex within each of the following mobility categories:
   1. Movement History
   2. Movement Pattern
   3. Time of Movement

The major findings of this investigation are presented in the following two sections of this chapter:

1. Analysis of the Mobility, and I.Q. Characteristics of this Investigation.

2. Findings of the Hypotheses.
Reading Achievement Characteristics

of the Subjects

Table 2 indicates the frequency of subjects who scored above and below the national norm, median grade equivalent 6.0, on the California Comprehensive Reading Test, Level 2, Form Q. Of the forty-five pupils who scored above the national norm 33 per cent were mobile and 67 per cent were stationary. One hundred sixty-five pupils scored below the national norm; 35 per cent of these pupils were mobile and 65 per cent were stationary.

Table 3 shows the frequency of subjects who scored above and below the school system's median grade equivalent score of 5.6 on the California Comprehensive Reading Test. Sixty of the pupils scored above the system's median score; 27 per cent were mobile and 73 per cent were stationary. One hundred fifty of the pupils scored below the system's median grade equivalent score; 38 per cent of these subjects were mobile and 62 per cent were stationary.

Analysis of the Mobility, Sex, and I.Q.

Characteristics of This Investigation

This section of the study is concerned with an analysis of the personal attributes of the subjects as reflected in the personal data collection on each pupil. Tables 4, 5, 6, and 7 show the number of individuals in each design analyzed.
TABLE 2

READING ACHIEVEMENT CHARACTERISTICS FOR
SIXTH GRADE PUPILS IN
HIGH-MOBILITY-LOW-INCOME ELEMENTARY SCHOOLS

<table>
<thead>
<tr>
<th>National Norm</th>
<th>Mobile</th>
<th>Stationary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>Number</td>
<td>Number</td>
</tr>
<tr>
<td>Above</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>(20%)</td>
<td>(22%)</td>
<td></td>
</tr>
<tr>
<td>Below</td>
<td>58</td>
<td>107</td>
</tr>
<tr>
<td>(80%)</td>
<td>(78%)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>73</td>
<td>137</td>
</tr>
</tbody>
</table>
TABLE 3

READING ACHIEVEMENT CHARACTERISTICS FOR SIXTH GRADE PUPILS IN HIGH-MOBILITY-LOW-INCOME ELEMENTARY SCHOOLS

<table>
<thead>
<tr>
<th>School System Norm</th>
<th>Mobile</th>
<th>Stationary</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Number</td>
</tr>
<tr>
<td>Above</td>
<td>16</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>(22%)</td>
<td>(32%)</td>
</tr>
<tr>
<td>Below</td>
<td>57</td>
<td>93</td>
</tr>
<tr>
<td></td>
<td>(78%)</td>
<td>(68%)</td>
</tr>
<tr>
<td>Total</td>
<td>73</td>
<td>137</td>
</tr>
</tbody>
</table>
The characteristics of mobility and sex.—Table 4 groups the subjects by sex according to whether or not they were defined as mobile or stationary pupils in this study. Table 4 indicates that 35 per cent of the subjects were mobile and that 65 per cent were classified as stationary. Fifty-six per cent of the mobile pupils were females as opposed to 44 per cent who were males. Fifty-three per cent of the stationary pupils were female as compared to 47 per cent who were males.

The movement history categories analyzed in this study are presented in Table 5. Movement history was analyzed on the basis of the types of schools attended by pupils. Four per cent of the pupils had attended only Type I, high-mobility-low-income elementary schools; 52 per cent only Type II, non-high-mobility-low-income elementary schools; and 44 per cent had attended Type III, some non-high-mobility-low-income and some high-mobility-low-income, schools.

The time of movement variable, Table 6 was analyzed in terms of the following three types of categories: Type I (pupil mobility took place during the primary grades, 1-3), Type II (pupil mobility took place during the intermediate grades, 4-6), Type III (pupil mobility took place during both the primary and intermediate grades). Table 5 indicates that 26 per cent of the subjects were categorized as Type I, 11 per cent as Type II, and 63 per cent as Type III. In the Type I category 58 per cent of the subjects were females and 42 per cent were males. Sixty-three per cent of the subjects in the
SEX CHARACTERISTICS FOR SIXTH GRADE PUPILS IN
HIGH-MOBILITY-LOW-INCOME ELEMENTARY SCHOOLS

<table>
<thead>
<tr>
<th>Sex</th>
<th>Mobile</th>
<th>Stationary</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Number</td>
</tr>
<tr>
<td>Female</td>
<td>41</td>
<td>72</td>
</tr>
<tr>
<td>Male</td>
<td>32</td>
<td>65</td>
</tr>
<tr>
<td>Total</td>
<td>73</td>
<td>137</td>
</tr>
</tbody>
</table>
TABLE 5

SEX AND MOVEMENT HISTORY CHARACTERISTICS
FOR SIXTH GRADE PUPILS IN
HIGH-MOBILITY-LOW-INCOME ELEMENTARY SCHOOLS

<table>
<thead>
<tr>
<th>Movement History</th>
<th>Type I</th>
<th>Type II</th>
<th>Type III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Number</td>
<td>Number</td>
<td>Number</td>
</tr>
<tr>
<td>Female</td>
<td>2</td>
<td>22</td>
<td>17</td>
</tr>
<tr>
<td>Male</td>
<td>1</td>
<td>16</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
<td>38</td>
<td>32</td>
</tr>
</tbody>
</table>

Type I: Pupils attended only High-Mobility-Low-Income Elementary School

Type II: Pupils attended only Non-High-Mobility-Low-Income Elementary School

Type III: Pupils attended at least one High-Mobility-Low-Income Elementary school and one Non-High-Mobility-Low-Income Elementary School
TABLE 6

SEX AND TIME OF MOVEMENT CHARACTERISTICS
FOR SIXTH GRADE PUPILS IN
HIGH-MOBILITY-LOW-INCOME ELEMENTARY SCHOOLS

<table>
<thead>
<tr>
<th>Sex</th>
<th>Type I Number</th>
<th>Type II Number</th>
<th>Type III Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>11</td>
<td>5</td>
<td>25</td>
</tr>
<tr>
<td>Male</td>
<td>8</td>
<td>3</td>
<td>21</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td>8</td>
<td>46</td>
</tr>
</tbody>
</table>

Type I: Transferred during Grades 1-3
Type II: Transferred during Grades 4-6
Type III: Transferred during Grades 1-3 and 4-6
Type II category were females and 37 per cent were males. Fifty-four per cent of the subjects in the Type III category were females and 46 per cent were males.

The pattern of movement categories analyzed in this study are presented in Table 7. The analysis was based on whether subjects had moved in and out of different schools (Type I), the same schools (Type II), or whether their movement pattern contained elements of both Type I and Type II patterns. Fifty-five per cent of the subjects had enrolled in each school attended only once, 36 per cent had transferred in and out of all schools attended multiple times, and 10 per cent of the subjects had patterns of movement which included moving in and out of some schools multiple times and others only once. Table 7 reveals that 58 per cent of the subjects were females and 42 per cent were males in the Type I pattern of movement category. There was an equal distribution of males and females in the Type II category. Fifty-seven of the subjects were females and 43 per cent were males in the Type III category.

I.Q.—I.Q. for the purpose of the present study, was considered as a continuous variable in the treatment of the data. This variable is not shown on a table, inasmuch as it existed only as a continuum, and was used as an adjustive factor in the determination of significant differences. A constant value was determined for each variable and each mean was adjusted in relation to this value before statistical comparisons were made.
<table>
<thead>
<tr>
<th>Sex</th>
<th>Type I</th>
<th>Type II</th>
<th>Type III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>23</td>
<td>13</td>
<td>4</td>
</tr>
<tr>
<td>Male</td>
<td>17</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>26</td>
<td>7</td>
</tr>
</tbody>
</table>

**Type I:** Enrolled in each school attended only once

**Type II:** Enrolled in each school attended multiple times

**Type III:** Enrolled in some schools attended only once and others multiple times
Findings for the Hypotheses

The hypotheses of this study were analyzed by applying the analysis of variance statistic to four groupings of the subjects. The average reading achievement scores of pupils were adjusted for the different levels of I.Q. and pupils were grouped by sex according to (1) whether they were mobile or stationary, (2) their movement history, (3) their movement pattern and (4) their time of movement.

Mobile versus stationary pupils.—Hypothesis I: There are no significant differences between the average reading achievement scores of mobile and stationary pupils in HMLIES when I.Q. is statistically controlled. Hypothesis II: There are no significant differences between the average reading achievement scores of mobile and stationary pupils in HMLIES when I.Q. is statistically controlled and scores are compared by sex. Hypothesis V: There are no significant differences between the average reading achievement scores among mobile pupils in HMLIES when I.Q. is statistically controlled and scores are compared by sex.

Table 8 shows the adjusted mean reading achievement scores for the subjects. Although mobile females scored better than any of the other categories of subjects, only slight differences in achievement were observed among the scores.

Table 9 gives the summary results of the analysis of variance test for the relationship between mobility, sex, and reading achievement. No significant $F$ ratios were found. Thus, Hypothesis I is not rejected
TABLE 8

MEAN READING ACHIEVEMENT SCORES OF MOBILE AND STATIONARY
GROUP PUPILS ADJUSTED FOR I.Q. AND GROUPED BY SEX

<table>
<thead>
<tr>
<th>Sex</th>
<th>Mobile</th>
<th>Stationary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>49.75</td>
<td>46.71</td>
</tr>
<tr>
<td>Male</td>
<td>46.47</td>
<td>45.62</td>
</tr>
</tbody>
</table>
when the relationship between the reading achievement of mobile and stationary pupils is examined. Hypothesis II is not rejected when the relationship between reading achievement, sex, and mobility is analyzed. Hypothesis V is not rejected when the differences among the reading achievement scores of mobile pupils are examined.

Movement history.—Hypothesis III: There are not significant differences between the average reading achievement scores of mobile and stationary pupils in HMLIES when I.Q. is statistically controlled and scores are compared according to the movement history of pupils.

Hypothesis IV: There are no significant differences between the average reading achievement scores of mobile and stationary pupils in HMLIES when I.Q. is statistically controlled and scores are compared by sex according to the movement history of pupils. Hypothesis VI: There are no significant differences between the average reading achievement scores among mobile pupils in HMLIES when I.Q. is statistically controlled and scores are compared according to the movement history of pupils. Hypothesis VII: There are no significant differences between the average reading achievement scores among mobile pupils when I.Q. is statistically controlled and scores are compared according to the movement history of pupils.

Table 10 presents the mean reading achievement scores of the subjects. Mean scores are adjusted for I.Q. and grouped by sex according to the categories of movement history as well as the stationary category. Males scored higher than females in the Type I and II categories. In the Type III and stationary categories, females scored slightly higher than the males.
## TABLE 9

**ANALYSIS OF VARIANCE OF MOBILE AND STATIONARY PUPILS GROUPED BY SEX**

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>P less than</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>1</td>
<td>29627.223</td>
<td>29627.223</td>
<td>255.223</td>
<td>0.001**</td>
</tr>
<tr>
<td>Sex (S)</td>
<td>1</td>
<td>6.867</td>
<td>6.867</td>
<td>0.059</td>
<td>0.808</td>
</tr>
<tr>
<td>Mobility (M)</td>
<td>1</td>
<td>126.449</td>
<td>126.449</td>
<td>1.089</td>
<td>0.298</td>
</tr>
<tr>
<td>S x M</td>
<td>1</td>
<td>225.555</td>
<td>225.555</td>
<td>1.943</td>
<td>0.165</td>
</tr>
<tr>
<td>Within Cell</td>
<td>205</td>
<td>23797.125</td>
<td>23797.125</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant at .05

**Significant at .01
Table 11 presents the results of the analysis of variance of the movement history variable. No significant differences were found. Therefore, Hypothesis III is not rejected when subjects are grouped according to their movement history and differences between mobile and stationary subjects are examined. Hypothesis IV is not rejected when subjects are grouped by sex according to their movement history and differences between mobile and stationary pupils are investigated. Hypothesis VII is not rejected when reading achievement differences among mobile pupils grouped by sex according to their movement history is investigated.

Movement pattern.—Hypothesis III: There are no significant differences between the average reading achievement scores of mobile and stationary pupils in HMLIES when I.Q. is statistically controlled and scores are compared according to the movement pattern of pupils. Hypothesis IV: There are no significant differences between the average reading achievement scores of mobile and stationary pupils in HMLIES when I.Q. is statistically controlled and scores are compared by sex according to the movement pattern of pupils. Hypothesis VI: There are no significant differences between the average reading achievement scores among mobile pupils in HMLIES when I.Q. is statistically controlled and scores are compared according to the movement pattern of pupils. Hypothesis VII: There are no significant differences between the average reading achievement scores among mobile pupils when I.Q. is statistically controlled and scores are compared by sex according to the movement pattern of pupils.
### TABLE 10

MEAN READING ACHIEVEMENT SCORES OF PUPILS

ADJUSTED FOR I.Q. AND GROUPED BY

SEX AND MOVEMENT HISTORY

<table>
<thead>
<tr>
<th>Sex</th>
<th>Movement History</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Type I</td>
</tr>
<tr>
<td>Female</td>
<td>47.73</td>
</tr>
<tr>
<td>Male</td>
<td>65.27</td>
</tr>
</tbody>
</table>

**Type I:** Pupils attended only high-mobility-low-income elementary schools

**Type II:** Pupils attended only non-high-mobility-low-income elementary schools

**Type III:** Pupils attended at least one high-mobility-low-income elementary school and one non-high-mobility-low-income elementary school

**Type IV:** Pupils who changed schools less than twice between grades one and six
## Table 11

**Analysis of Variance and Movement History**

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>P less than</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>1</td>
<td>29169.922</td>
<td>29169.922</td>
<td>251.194</td>
<td>0.001**</td>
</tr>
<tr>
<td>Sex (S)</td>
<td>1</td>
<td>11.160</td>
<td>11.160</td>
<td>0.096</td>
<td>0.757</td>
</tr>
<tr>
<td>History (H)</td>
<td>3</td>
<td>280.035</td>
<td>93.345</td>
<td>0.804</td>
<td>0.493</td>
</tr>
<tr>
<td>S x H</td>
<td>3</td>
<td>783.422</td>
<td>261.141</td>
<td>2.249</td>
<td>0.084</td>
</tr>
<tr>
<td>Within Cell</td>
<td>201</td>
<td>23341.168</td>
<td>116.125</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant at .05

**Significant at .01
Table 12 shows the mean reading achievement scores of the subjects adjusted for the influence of I.Q. and grouped by sex according to the movement pattern categories. In the mobile categories males performed slightly better than the females. The reverse is true for the stationary category. However, males in each of the mobility categories scored above those in the stationary. There were small differences between the achievement of mobile and stationary females.

Table 13 reveals the results of the analysis of variance of the movement pattern variable. No significant F ratios were found. Consequently, Hypothesis III is not rejected when subjects are grouped according to their movement pattern and differences between mobile and stationary pupils are analyzed. Hypothesis VI is not rejected when reading achievement differences among mobile pupils grouped according to their movement pattern are analyzed. Hypothesis VII is not rejected when reading achievement differences among mobile pupils grouped by sex according to their movement pattern are analyzed.

Time of movement.—Hypothesis III: There are no significant differences between the average reading achievement scores of mobile and stationary pupils in HMLIES when I.Q. is statistically controlled and scores are compared according to the time of movement of pupils. Hypothesis IV: There are no significant differences between the average reading achievement scores of mobile and stationary pupils
TABLE 12

MEAN READING ACHIEVEMENT SCORES OF PUPILS
ADJUSTED FOR I.Q. AND GROUPED BY
SEX AND PATTERN OF MOVEMENT

<table>
<thead>
<tr>
<th>Sex</th>
<th>Pattern of Movement</th>
<th>Type I</th>
<th>Type II</th>
<th>Type III</th>
<th>Type IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td></td>
<td>46.31</td>
<td>47.06</td>
<td>45.62</td>
<td>46.71</td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td>51.23</td>
<td>47.51</td>
<td>54.74</td>
<td>45.62</td>
</tr>
</tbody>
</table>

Type I: Enrolled in each school attended only once.
Type II: Enrolled in each school attended multiple times.
Type III: Enrolled in some schools attended only once and others multiple times.
Type IV: Pupils who changed schools less than twice between grades one and six.
TABLE 13

ANALYSIS OF VARIANCE OF MOVEMENT PATTERN

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>P less than</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>1</td>
<td>28864.480</td>
<td>28864.480</td>
<td>243.313</td>
<td>0.001**</td>
</tr>
<tr>
<td>Sex (S)</td>
<td>1</td>
<td>11.359</td>
<td>11.359</td>
<td>0.096</td>
<td>0.757</td>
</tr>
<tr>
<td>Pattern (P)</td>
<td>3</td>
<td>189.090</td>
<td>63.030</td>
<td>0.531</td>
<td>0.661</td>
</tr>
<tr>
<td>S x P</td>
<td>3</td>
<td>367.699</td>
<td>122.566</td>
<td>1.033</td>
<td>0.379</td>
</tr>
<tr>
<td>Within Cell</td>
<td>201</td>
<td>23844.852</td>
<td>118.480</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant at .05

**Significant at .01
in HMLIES when I.Q. is statistically controlled and scores are compared by sex according to the time of movement of pupils. **Hypothesis VI:** There are no significant differences between the average reading achievement scores among mobile pupils in HMLIES when I.Q. is statistically controlled and scores are compared according to the time of movement of pupils. **Hypothesis VII:** There are no significant differences between the average reading achievement scores among mobile pupils when I.Q. is statistically controlled and scores are compared by sex according to the time of movement of pupils.

Table 14 displays the mean scores of the subjects adjusted for I.Q. and grouped by sex according to the categories of time of movement as well as the stationary category. Differences between the categories are small. However, the male mobile subjects in all of the time of movement categories scored above the male stationary subjects.

Table 15 indicates that no significant F ratios were found among the means. Therefore, Hypothesis III is not rejected when subjects are grouped according to their time of movement and differences between mobile and stationary subjects are analyzed. Hypothesis IV is not rejected when subjects are grouped by sex according to their movement pattern and differences between mobile and stationary pupils are analyzed. Hypothesis VI is not rejected when reading achievement differences among mobile pupils grouped according to their time of
### TABLE 14

**MEAN READING ACHIEVEMENT SCORES OF PUPILS ADJUSTED FOR I.Q. AND GROUPED BY SEX AND TIME OF MOVEMENT**

<table>
<thead>
<tr>
<th>Sex</th>
<th>Type I</th>
<th>Type II</th>
<th>Type III</th>
<th>Type IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>43.597</td>
<td>49.586</td>
<td>46.934</td>
<td>46.713</td>
</tr>
<tr>
<td>Male</td>
<td>49.993</td>
<td>49.898</td>
<td>49.940</td>
<td>45.622</td>
</tr>
</tbody>
</table>

**Type I:** Transferred during Grades 1-3  
**Type II:** Transferred during Grades 4-6  
**Type III:** Transferred during Grades 1-3 and 4-6  
**Type IV:** Pupils who transferred less than twice
### TABLE 15

**ANALYSIS OF VARIANCE OF TIME OF MOVEMENT**

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>P less than</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>1</td>
<td>29377.836</td>
<td>29377.836</td>
<td>247.517</td>
<td>0.001**</td>
</tr>
<tr>
<td>Sex (S)</td>
<td>1</td>
<td>11.195</td>
<td>11.195</td>
<td>0.094</td>
<td>0.759</td>
</tr>
<tr>
<td>Time (T)</td>
<td>3</td>
<td>227.293</td>
<td>75.764</td>
<td>0.638</td>
<td>0.591</td>
</tr>
<tr>
<td>S x T</td>
<td>3</td>
<td>319.094</td>
<td>106.365</td>
<td>0.896</td>
<td>0.444</td>
</tr>
<tr>
<td>Within Cell</td>
<td>201</td>
<td>23856.770</td>
<td>118.690</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant at .05

**Significant at .01
movement are analyzed. Hypothesis VII is not rejected when reading achievement score differences among mobile pupils grouped by sex according to their time of movement are analyzed.

Summary

This chapter has reported the findings of this study. Seven hypotheses were advanced in order to determine the answers to the following questions:

1. Are there significant differences in reading achievement between mobile and stationary pupils in HMLIES?
2. Are there significant differences in reading achievement among mobile pupils in HMLIES?

In the study, the dependent variable was reading achievement and the independent variables were mobility, movement history, movement pattern, and time of movement.

All of the seven null hypotheses tested failed to be rejected. No significant differences in reading achievement were found between mobile and stationary sixth grade pupils nor among the sixth grade mobile pupils in HMLIES. Specifically, the following variables: movement history, movement pattern, time of movement and sex did not affect the reading achievement of sixth grade pupils in HMLIES.

Chapter Five presents the discussion of findings.
CHAPTER V

SUMMARY AND DISCUSSION

Background for the Study

The study was undertaken in order to determine the relationship between pupil mobility and reading achievement in high-mobility-low-income elementary schools (HMLIES). The empirical data for this study were collected from personal records of 210 sixth grade pupils located in seven HMLIES and records of the results of the Columbus Public School System's City-Wide Testing Program. Answers to the following questions were sought in the study:

1. Are there significant differences in reading achievement between mobile and stationary pupils in HMLIES?

2. Are there significant differences in reading achievement among mobile pupils in HMLIES?

The limitations of the study were:

1. The measurement of intelligence and reading achievement was limited by the use of and the particular nature of the standardized instruments used.
2. The study included only sixth grade pupils; therefore, its findings may not be applicable to other grade levels in a similar situation.

3. This study does not exhaust the variables which may be significantly related to mobility within the context of the public schools. Thus, it is recognized that there are other variables which may be so characterized.

The over-all null hypothesis that no significant relationship exists between pupil mobility and reading achievement at the sixth grade level in HMLIES was tested in the study. Three mobility factors: movement history, movement pattern, and time of movement were independent variables; the dependent variable was reading achievement. Testing of the over-all hypothesis was accomplished by testing the following sub-hypotheses:

1. There are no significant differences between the average reading achievement scores of mobile and stationary pupils in HMLIES when I.Q. is statistically controlled.

2. There are no significant differences between the average reading achievement scores of mobile and stationary pupils in HMLIES when I.Q. is statistically controlled and scores are compared by sex.
3. There are no significant differences between the average reading achievement scores of mobile and stationary pupils in HMLIES when I.Q. is statistically controlled and scores are compared within each of the following mobility categories:
   1. Movement History
   2. Movement Pattern
   3. Time of Movement

4. There are no significant differences between the average reading achievement scores of mobile and stationary pupils in HMLIES when I.Q. is statistically controlled and scores are compared by sex within each of the following mobility categories:
   1. Movement History
   2. Movement Pattern
   3. Time of Movement

5. There are no significant differences between the average achievement scores among mobile pupils in HMLIES when I.Q. is statistically controlled and scores are compared by sex.

6. There are no significant differences between the average reading achievement scores among mobile pupils in HMLIES when I.Q. is statistically controlled and
scores are compared within each of the following mobility categories:

1. Movement History
2. Movement Pattern
3. Time of Movement

7. There are no significant differences between the average reading achievement scores among mobile pupils when I.Q. is statistically controlled and scores are compared by sex within each of the following mobile categories:

1. Movement History
2. Movement Pattern
3. Time of Movement

**The Study Methodology**

The relationships between the variables investigated were determined by using the analysis of covariance and analysis of variance statistical techniques. Significance levels of .05 or .01 were accepted as adequate for the rejection of the null hypothesis. Specifically, the following procedure was used:

1. The mean reading achievement score of mobile and stationary pupils was calculated.
2. The mean reading achievement score of mobile and stationary pupils according to their sex was calculated.
3. The influence of I.Q. on the results of the reading achievement test was accounted for by adjusting the mean achievement scores with the analysis of covariance.

4. In order to test for significant differences in reading achievement among the mobility sub-categories, and between the stationary and mobile categories, the analysis of variance was applied to the adjusted mean scores.

The California Short Form Test of Mental Maturity, Level 2H, California Comprehensive Reading Test, Level 2, Form Q, and a Pupil Personal Data Collection Form were used to collect data for the study.

Summary of Findings

Results of the tests of hypotheses and interpretations were:

1. Hypothesis One: There was no significant relationship between the reading achievement of mobile and stationary pupils (F=1.089, p=0.298). This finding means that the reading achievement of mobile pupils is not influenced by their mobility.

2. Hypothesis Two: When the mean reading achievement scores of mobile and stationary pupils were analyzed by sex no significant relationships were found (F=0.059, p=0.808). The reading achievement of pupils was not facilitated nor constrained as a function of the interaction effect between sex and mobility (F=1.943, p=0.165).
3. **Hypothesis Three:** No significant relationships were found between mobile and stationary pupils when mobile pupils were categorized according to their movement history (F=0.531, p=0.661), and time of movement (F=0.638, p=0.591). The reading achievement of pupils was not influenced by their movement history, pattern, or time of movement.

4. **Hypothesis Four:** There were no significant relationships between mobile and stationary pupils when their average reading achievement scores were analyzed by sex according to their movement history (F=0.804, p=0.493), movement pattern (F=1.033, p=0.379), and time of movement (F=0.896, p=0.444). That is, there were no interaction effects on the reading achievement of mobile and stationary pupils. For example, males who had previously attended only HMLIES did not achieve any better or worse than females with the same type of movement history.

5. **Hypothesis Five:** There were no significant differences in reading achievement scores of mobile pupils when analyzed by sex (F=0.059, p=0.808). There is no discrepancy between the reading ability of male and female pupils as a result of mobility.

6. **Hypothesis Six:** No significant differences were found when the average reading achievement scores of mobile pupils were grouped according to the pupils' movement
history ($F=0.804$, $p=0.493$), movement pattern ($F=1.033$, $p=0.379$) and time of movement ($F=0.896$, $p=0.444$). There were, therefore, no differences between the various levels of mobility within each of the above mobility variables. For example, mobile pupils who had previously attended only HMLIES, NHMILES, or who had experienced both types of schools did not differ from each other with regards to their reading ability.

7. **Hypothesis Seven:** There were no significant differences among mobile pupils when their average reading achievement scores were analyzed by sex ($F=0.096$, $p=0.757$) according to their movement history ($F=0.804$, $p=0.493$), movement pattern ($F=1.033$, $p=0.379$), and time of movement ($F=0.896$, $p=0.444$). That is, there were no sex differences by levels within each of the three mobility categories nor were there interaction effects with regard to the reading achievement of mobile pupils within each category. For example, the reading achievement of males who had previously attended only HMLIES was not significantly different from that of females who had the same type of movement history or females who had different movement histories.

**Conclusions**

The data presented in Chapter IV appears to warrant the following conclusions concerning the influence of pupil mobility on the reading achievement of sixth grade pupils in HMLIES in the
Columbus (Ohio) Public Schools:

1. The reading achievement of mobile pupils is not significantly different from stationary pupils. When grouped according to their movement history, movement pattern, and time of movement, the reading achievement of mobile pupils does not differ from that of pupils who were not mobile.

2. There are no significant differences in reading achievement among mobile pupils. The reading achievement of mobile pupils is not influenced by their movement history, movement pattern or time of movement.

3. There is no significant interaction between mobility and sex.

Discussion of Findings and Implications

In Chapter I a rational was presented for each of the mobility variables identified in the study. Briefly, it was theorized that the reading achievement of mobile pupils may be influenced by the types of schools previously attended (Movement History), the number of times they were enrolled in a particular school (Movement Pattern), and the grade level during which the school transfers took place (Time of Movement).
Because of the high positive correlation between I.Q. and reading achievement, any attempt to use either of these variables as a dependent variable necessitates that appropriate steps be taken in the research design in order to avoid as much as possible conflicting interpretations of the study results. A detailed statistical analysis was made on the data in the study using analysis of covariance techniques.

However, when I.Q. was held constant for all subjects and the relationship between the effects of the mobility variables on the reading achievement of mobile pupils were analyzed, no significant differences were found. Regardless of the types of prior schools attended, the grade level during which the school transfers took place and the number of times pupils had been enrolled in particular types of schools, significant differences in reading achievement were not observed among mobile pupils nor between mobile and stationary pupils.

Although the purpose of the study was not to compare the effects of mobility on the reading achievement scores which were adjusted for the influence of I.Q. with those which were not, the findings in Appendix E suggest that whether or not I.Q. is held constant would not significantly alter the findings.

The findings in this study are further substantiated by the results of the analysis of the collapsed data. Where cell frequencies were small, five or less, data were collapsed into the next logical cell or category and re-analyzed (Appendix B, C, and D). For example,
the Movement History Type I Category indicates a frequency of two males and one female. The reading achievement scores in these categories were included in the calculation of the mean reading achievement scores which appear in the Type III male and female categories. No significant differences were found in the re-analysis.

In both analyses of the data, the original and collapsed, the seven null hypotheses tested failed to be rejected. No significant differences in reading achievement were found between mobile and stationary sixth grade pupils nor among the sixth grade mobile pupils in HMLIES. Specifically, the following variables, movement history, movement pattern, and time of movement did not significantly influence the reading achievement of sixth grade pupils in HMLIES.

Also, when I.Q. was held constant for all subjects and the relationship between the effects of the mobility variables on the reading achievement of mobile pupils were analyzed, no significant differences were found. That is, regardless of the types of prior schools attended, the grade level during which the school transfers took place and the number of times pupils had been enrolled in particular types of schools, significant differences in reading achievement were not observed among mobile pupils nor between mobile and stationary pupils.

These findings imply that if mobility negatively affects the reading achievement of mobile pupils in HMLIES they are capable of overcoming such influences by the time they reach the sixth grade.
The reading achievement of mobile pupils may be lower than that of stationary pupils when they transfer into HMLIES but such discrepancies apparently disappear over time. HMLIES, as a result of federally sponsored programs, have reading, mathematics and language arts specialists on their staffs. These specialists may be very influential in helping mobile pupils to overcome any academic deficiencies they may possess.

On the other hand, if no significant differences in reading achievement exist between stationary and mobile pupils when the latter enter HMLIES another implication appears plausible. Given this situation, the curriculum, specifically reading, of the prior schools attended by mobile pupils and that of HMLIES may be so similar that mobile pupils are able to maintain a progressive level of reading achievement which is equivalent to that of stationary pupils in HMLIES.

Some implications of this study for teachers are:

(1) reading instructions for sixth grade mobile pupils in HMLIES need not differ from that for stationary pupils, and

(2) because mobility may influence reading achievement in HMLIES between grades one through five inclusively, teachers at these levels ought to observe closely the reading skills of mobile pupils for deficiencies when they first enter their classrooms.
Recommendations for Future Studies

The following recommendations are based on the findings of the study and the survey of the literature:

1. A longitudinal study should be implemented in order to observe the effects of HMLIES on the reading achievement of mobile and stationary pupils over time.

2. It is possible that the affects of mobility on reading achievement may be significant only for the particular year and grade level during which the mobility actually occurs. Therefore, it is recommended that the influence of pupil mobility on reading achievement should be studied by year and grade level.

3. The influences on reading achievement of such extraneous variables as pupil involvement in special remedial programs like Title I reading, mathematics and language arts ought to be determined with regard to mobile pupils.

4. Could the experiences of pupil mobility influence achievement in other academic areas such as science, and social studies? The relationship between pupil mobility and achievement in academic areas other than reading should be investigated.

5. Differences between stationary and mobile pupils may exist in creative abilities, general knowledge of culture, sense of social responsibility and moral tastes and judgments.
Further, research is therefore recommended relative to these specific areas of public school responsibility and the variables of school mobility.

6. In terms of ability levels (as measured by I.Q.), what type of pupils are most influenced by mobility with respect to their reading achievement? The relationship between pupil mobility and reading achievement should be analyzed by ability levels.

7. The possibility that reading achievement is influenced indirectly by pupil mobility as a result of the attitudes and pedagogical styles of teachers in HMLIES should be explored.
APPENDIX A

PERSONAL DATA FORM
PERSONAL DATA FORM

Name ____________________  (Last)  (First)  (MI)

Sex:  M _________  F _________

I.Q.: _____________

Reading Achievement Score: _____________

<table>
<thead>
<tr>
<th>Schools Attended</th>
<th>Grade Entered</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX B

SEX AND MOBILITY CHARACTERISTICS OF SUBJECTS IN THE STUDY

(Collapsed Data)
### SEX AND MOVEMENT HISTORY CHARACTERISTICS

<table>
<thead>
<tr>
<th>Sex</th>
<th>Type II</th>
<th>Type III</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Number</td>
</tr>
<tr>
<td>Female</td>
<td>17</td>
<td>15</td>
</tr>
<tr>
<td>Male</td>
<td>22</td>
<td>19</td>
</tr>
</tbody>
</table>

**Type II:** Pupils attended only non-high-mobility-low-income elementary schools

**Type III:** Pupils attended at least one high-mobility-low-income elementary school and one non-high-mobility-low-income elementary school
SEX AND PATTERN OF MOVEMENT CHARACTERISTICS

<table>
<thead>
<tr>
<th>Sex</th>
<th>Pattern of Movement</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Type I</td>
<td>Type II</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Number</td>
<td>Number</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>17</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>23</td>
<td>17</td>
<td></td>
</tr>
</tbody>
</table>

Type I: Enrolled in each school attended only once

Type II: Enrolled in each school attended multiple times
SEX AND TIME OF MOVEMENT CHARACTERISTICS

<table>
<thead>
<tr>
<th>Sex</th>
<th>Type I</th>
<th>Type II</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Number</td>
</tr>
<tr>
<td>Female</td>
<td>0.7</td>
<td>25</td>
</tr>
<tr>
<td>Male</td>
<td>11</td>
<td>25</td>
</tr>
</tbody>
</table>

Type I: Transferred during Grades 1-3
Type II: Transferred during Grades 4-6
APPENDIX C

MEAN READING ACHIEVEMENT SCORES OF PUPILS ADJUSTED FOR I.Q. AND GROUPED BY SEX AND MOBILITY

(Collapsed Data)
<table>
<thead>
<tr>
<th>Sex</th>
<th>Movement History</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Type II</td>
</tr>
<tr>
<td>Female</td>
<td>52.96</td>
</tr>
<tr>
<td>Male</td>
<td>45.21</td>
</tr>
</tbody>
</table>

Type II: Pupils attended only non-high-mobility-low-income elementary schools

Type III: Pupils attended at least one high-mobility-low-income elementary school and one non-high-mobility-low-income elementary school
### Mean Reading Achievement Scores Grouped by Sex and Pattern of Movement

<table>
<thead>
<tr>
<th>Sex</th>
<th>Pattern of Movement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Type I</td>
</tr>
<tr>
<td>Female</td>
<td>50.77</td>
</tr>
<tr>
<td>Male</td>
<td>46.35</td>
</tr>
</tbody>
</table>

**Type I:** Enrolled in each school attended only once

**Type II:** Enrolled in each school attended multiple times
### MEAN READING ACHIEVEMENT SCORES GROUPED BY SEX AND TIME OF MOVEMENT

<table>
<thead>
<tr>
<th>Sex</th>
<th>Time of Movement</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Type I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>47.71</td>
<td>49.36</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>44.18</td>
<td>44.92</td>
<td></td>
</tr>
</tbody>
</table>

Type I: Transferred during Grades 1-3

Type II: Transferred during Grades 4-6
APPENDIX D

ANALYSIS OF VARIANCE OF MOBILITY VARIABLES

(Collapsed Data)
### Analysis of Variance of Movement History
(Collapsed)

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>P less than</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>1</td>
<td>29342.961</td>
<td>29342.961</td>
<td>255.10</td>
<td>0.001**</td>
</tr>
<tr>
<td>Sex (S)</td>
<td>1</td>
<td>6.945</td>
<td>6.945</td>
<td>.060</td>
<td>0.806</td>
</tr>
<tr>
<td>History (H)</td>
<td>2</td>
<td>164.953</td>
<td>82.477</td>
<td>0.717</td>
<td>0.489</td>
</tr>
<tr>
<td>S x H</td>
<td>2</td>
<td>632.984</td>
<td>316.492</td>
<td>2.752</td>
<td>0.066</td>
</tr>
<tr>
<td>Within Cell</td>
<td>203</td>
<td>23350.004</td>
<td>115.025</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Significant at .01**
### Analysis of Variance of Movement Pattern

(Collapsed)

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>P less than</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>1</td>
<td>2973.133</td>
<td>2973.133</td>
<td>251.817</td>
<td>0.001**</td>
</tr>
<tr>
<td>Sex (S)</td>
<td>1</td>
<td>6.805</td>
<td>6.805</td>
<td>0.058</td>
<td>0.810</td>
</tr>
<tr>
<td>Pattern (P)</td>
<td>2</td>
<td>153.434</td>
<td>76.717</td>
<td>0.655</td>
<td>0.520</td>
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<tr>
<td>S x P</td>
<td>2</td>
<td>236.426</td>
<td>118.213</td>
<td>1.010</td>
<td>0.366</td>
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<tr>
<td>Within Cell</td>
<td>203</td>
<td>23759.504</td>
<td>117.042</td>
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</tbody>
</table>

**Significant at .01
**ANALYSIS OF VARIANCE OF TIME OF MOVEMENT**

(Collapsed)

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>P less than</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>1</td>
<td>29723.840</td>
<td>29723.840</td>
<td>252.289</td>
<td>0.001**</td>
</tr>
<tr>
<td>Sex (S)</td>
<td>1</td>
<td>12.840</td>
<td>12.840</td>
<td>0.109</td>
<td>0.742</td>
</tr>
<tr>
<td>Time (T)</td>
<td>2</td>
<td>242.887</td>
<td>121.443</td>
<td>1.031</td>
<td>0.357</td>
</tr>
<tr>
<td>S x T</td>
<td>2</td>
<td>238.250</td>
<td>119.125</td>
<td>1.011</td>
<td>0.366</td>
</tr>
<tr>
<td>Within Cell</td>
<td>198</td>
<td>23327.664</td>
<td>117.816</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Significant at .01**
APPENDIX E

MEAN READING ACHIEVEMENT SCORES ADJUSTED FOR I.Q.
AND UNADJUSTED MEAN READING ACHIEVEMENT SCORES
GROUPED BY SEX AND TYPE OF MOBILITY
MEAN READING ACHIEVEMENT SCORES ADJUSTED FOR I.Q.  
AND UNADJUSTED MEAN READING ACHIEVEMENT SCORES  
GROUPED BY SEX AND MOVEMENT HISTORY*  

<table>
<thead>
<tr>
<th>Sex</th>
<th>Type I</th>
<th>Type II</th>
<th>Type III</th>
<th>Type IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>47.73 (55.50)</td>
<td>45.12 (42.96)</td>
<td>47.82 (45.53)</td>
<td>45.71 (47.39)</td>
</tr>
<tr>
<td>Male</td>
<td>65.27 (45.00)</td>
<td>52.69 (52.94)</td>
<td>46.01 (44.40)</td>
<td>46.80 (46.59)</td>
</tr>
</tbody>
</table>

*Unadjusted scores appear in parenthesis below the adjusted scores.

Type I: Pupils attended only high-mobility-low-income elementary schools.

Type II: Pupils attended only non-high-mobility-low-income elementary schools.

Type III: Pupils attended at least one high-mobility-low-income elementary school and one non-high-mobility-low-income elementary school.

Type IV: Pupils who changed schools less than twice between grades one and six.
### Mean Reading Achievement Scores Adjusted for I.Q.

AND UNADJUSTED MEAN READING ACHIEVEMENT SCORES

GROUPED BY SEX AND PATTERN OF MOVEMENT*

<table>
<thead>
<tr>
<th>Sex</th>
<th>Type I</th>
<th>Type II</th>
<th>Type III</th>
<th>Type IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>46.31</td>
<td>47.06</td>
<td>45.62</td>
<td>45.71</td>
</tr>
<tr>
<td></td>
<td>(46.35)</td>
<td>(46.35)</td>
<td>(39.75)</td>
<td>(47.39)</td>
</tr>
<tr>
<td>Male</td>
<td>51.23</td>
<td>47.51</td>
<td>54.74</td>
<td>46.80</td>
</tr>
<tr>
<td></td>
<td>(50.18)</td>
<td>(44.78)</td>
<td>(61.50)</td>
<td>(46.59)</td>
</tr>
</tbody>
</table>

*Unadjusted scores appear in parenthesis below the adjusted scores

**Type I:** Enrolled in each school attended only once

**Type II:** Enrolled in each school attended multiple times

**Type III:** Enrolled in some schools attended only once and others multiple times

**Type IV:** Pupils who changed schools less than twice between grades one and six
### Mean Reading Achievement Scores Adjusted for I.Q.

**And Unadjusted Mean Reading Achievement Scores Grouped by Sex and Time of Movement**

<table>
<thead>
<tr>
<th>Sex</th>
<th>Type I</th>
<th>Type II</th>
<th>Type III</th>
<th>Type IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>43.60 (44.18)</td>
<td>49.59 (44.20)</td>
<td>46.93 (44.92)</td>
<td>45.71 (47.39)</td>
</tr>
<tr>
<td>Male</td>
<td>49.99 (47.38)</td>
<td>49.90 (42.68)</td>
<td>49.94 (12.93)</td>
<td>46.80 (46.59)</td>
</tr>
</tbody>
</table>

*Unadjusted scores appear in parenthesis below the adjusted scores*

- **Type I:** Transferred during Grades 1-3
- **Type II:** Transferred during Grades 4-6
- **Type III:** Transferred during Grades 1-3 and 4-6
- **Type IV:** Pupils who transferred less than twice


Phillips, Beeman N. "Impact of Pupil Mobility on the Schools," Educational Administration and Supervision, XLIII, No. 2 (February, 1957), 105-106.


Snipes, Walter T. "Effect of Moving on Reading Achievement," Reading Teacher, XX (December, 1966), 242-246.

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Horrocks, John E. Assessment of Behavior. Columbus, Ohio Charles E. Merrill, 1964.


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UNPUBLISHED MATERIAL

Columbus City School District, Columbus, Ohio. "Language Development and Mathematics Improvement: Title I Elementary and Secondary Education Act of 1965 Project Narrative Section," Division of Instruction, August 20, 1970. (Mimeoographed)


