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Date August 5, 1970

THE EFFECTS OF MOBILITY ON READING ACHIEVEMENT

by

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ABSTRACT

The research for this study has been concerned with the effects of mobility on reading achievement. A review of related literature was conducted by the investigator. The three major studies on the effects of mobility were reviewed plus several smaller studies.

Sixth grade students from Willson Middle School, Bozeman, were used in the study. A questionnaire was used to determine four groups: Non-mobile, Mobile-in-Bozeman, Mobile-in-Montana, and Mobile-Out-of-State. Samples were randomly selected from each group. The cumulative records of the students in the sample groups were examined to find information on intelligence, fathers' occupations, reading vocabulary, and reading comprehension scores.

Analysis of covariance statistical methods were used to control the variants of intelligence and occupational ranking. The hypothesis that there was no significant difference between groups was tested. Results of the study indicate that when intelligence and occupational ranking are controlled, the hypothesis should be retained.

CHAPTER I

INTRODUCTION

Our society and our education systems place much emphasis on the ability to read. In fact, reading ability might be considered the essential factor in determining a child's success in most other academic disciplines. In adult life being a disabled or inefficient reader is a serious handicap for occupational and recreational opportunities.

Educators know there are many variables which effect a child's reading ability. Some of these might be the child's mental and physical health, intelligence, home environment, socio-economic background, motivation, and quality of instruction, to name a few. Another variable of increasing importance is that of mobility.

The population of the United States has been free to move anywhere within the country's three million square miles. Our industrial society is characterized by rapid growth and change. Many occupations are being phased out while new ones come into existence. Families move to take advantage of new occupational or educational opportunities, better living conditions, or to meet the requirements of military service. Many families have moved from the rural areas into the urban centers (Taeuber and Taeuber, 1958).

Young families have become very mobile. These families, of course, are the ones which have the most school age children. In 1958

twenty-five percent of all children attended a new school in the United States. One family in five moves annually. One family in three crosses county lines (Hood, 1960).

The Problem

The purpose of this study is to determine what differences there are in achievement in reading vocabulary and comprehension between children who have attended only two schools in Bozeman, Montana, and those who have had a frequent change of schools.

Need for This Study

Results of research on the effects of mobility on reading achievement have been inconclusive. Some investigations indicate that achievement deteriorated with mobility while other results show an improvement in achievement. Some investigators gave little data on socio-economic background or failed to control for this factor in their study. Other investigators indicated that mobility was a problem only for children of low-economic backgrounds or children of low intelligence. Since mobility is not confined to any one social status, superintendents, principals and teachers must be better informed about possible consequences for transient students.

General Questions to be Answered

Does mobility have an effect on reading achievement?

How can teachers and principals best meet the needs of the migrating child?

General Procedure

Two definite procedures were necessary to procure information needed for this investigation. First, a review of literature was made in an attempt to gain a general understanding of mobility and its effects on reading achievement.

Secondly, data was gathered in School District #7, Bozeman, Montana, to determine the effects of mobility on a local level. Specifically, a questionnaire was used to obtain four sample groups of approximately thirty pupils each from the sixth grade population of Willson Middle School. These sample groups were classified as non-mobile, mobile in Bozeman, mobile in the state, and mobile from out of state. The total sample number was 131 sixth grade pupils.

Information was gathered from the cumulative records of these pupils. This information included the achievement scores in the areas of reading vocabulary and reading comprehension. The test used for the achievement scores was the Iowa Test of Basic Skills given in May of 1970.

Intelligence quotients were obtained from the cumulative records also. The test used in School District #7 is the Otis Self-Administering Test of Mental Ability.

The occupational levels of the fathers were determined from the cumulative records. Socio-economic ranking of all groups was determined by use of the North-Hatt Occupational Scale.

Those children who did not have a father or stepfather in the home were eliminated from the study to remove the broken home factor.

Limitations

The review of literature has been limited to research bulletins, periodicals, microfilms and books obtained from the Library of Montana State University.

The total population of sixth grade pupils at Willson Middle School was not sampled due to the fact that one teacher failed to provide the requested information.

The four sample groups contained approximately thirty pupils each. All of these pupils were enrolled at Willson Middle School, Bozeman, Montana. The total sample number was 131 students.

Those children who were considered non-mobile have attended two schools due to the fact that all fifth and sixth grade pupils in School District #7 attend Willson Middle School.

Those children whose cumulative records indicated the absence of a father or stepfather in the home were eliminated from the study to remove the broken home factor.

Definitions of Terms

Since the exact meaning will be important in understanding the data collected, the following terms are defined as they will be used in this paper.

NON-MOBILE CHILD - a child who has attended two schools in six years of school attendance. One of the schools counted will be Willson Middle School, Bozeman, Montana.

MOBILE-IN-BOZEMAN - a child who has attended more than two schools in six years of school attendance while residing in Bozeman, Montana.

MOBILE-IN-MONTANA - a child who has attended school some place in the state of Montana other than Bozeman, Montana, during six years of school attendance.

MOBILE-OUT-OF-STATE - a child who has attended school some place other than in the state of Montana and in Bozeman, Montana, during six years of school attendance.

Summary

As the Bozeman, Montana, area continues to grow, the educators of School District #7 can expect to find more and more mobile children in the local schools. To be aware of the possible effects of mobility

should prove helpful for many educators. How to deal with the effects of mobility has definite implications for curriculum design if the effects prove to be detrimental.

Hopefully, the results of this study will have significant value for educators in School District #7 by increasing their understanding of the effects of mobility on reading achievement.

The review of literature has been used as a means of becoming familiar with the data which is pertinent to the investigator's study. Attention will be given to the general area of mobility and how it can be defined, to the effects of mobility on the achievement of the low socio-economic migrant child, and to the effects of mobility on the achievements of the middle and upper socio-economic migrant child.

CHAPTER II

MOBILITY

Investigators in the field of education have made little distinction between the types of mobility that sociologists recognize. Most sociologists agree that the type of mobility involved in the move of a person or family is of much importance. However, not all sociologists will agree on how many types of mobility there are.

Roach, Gross, and Gursslin say there are two types--horizontal and vertical. They state:

> Horizontal mobility refers primarily to changes in status or role, especially occupation, which are not accompanied by corresponding changes in class or strata position. Such mobility is also known as <u>situs</u> mobility, meaning the movement from one functional category (situs) to another equally valued one. Examples are the machinist who leaves a job in one factory to accept a similar job in another or the cashier who becomes a waitress in the same or another restaurant.
>
> Vertical mobility refers to changes in status or occupation accompanied by changes in class or strata position in either an upward or downward direction. American society places great emphasis on the value of success through upward mobility. (1969, pp. 505-506).

Tumin, on the other hand, makes a distinction between the two types of vertical mobility thereby classifying mobility as three types: upward, downward, and horizontal. According to Tumin people have different feeling about moving upward or downward or horizontally.

Tumin also points up that within the framework of these three directions there are other dimensions:

> Social mobility is obviously a complex phenomenon, for in addition to the three directions in which movement can take place, there is the dimension of time. That is, changes can occur from one generation to another (intergenerational mobility), or within one generation (intragenerational or career mobility), or one can be concerned with the amount of time, inter- or intragenerational, that it takes for persons to move from one set of positions to another.
>
> A third dimension by which systems of mobility vary is the context or institution in which mobility occurs. Here reference is to occupational or educational mobility, mobility in general evaluation, or changes in material resources or power.
>
> A fourth dimension concerns the mechanisms of mobility. Persons acquire positions on ladders of stratification by ascription, achievement, maturation and validation. They also move from these positions and into others by the same general routes.
>
> A fifth aspect is the unit of mobility: individuals, families, groups, strata, or whole societies. All of these units, as well as others, are the proper object of study.
>
> A sixth feature of mobility concerns the distinction between objective and subjective aspects of a change in status; an objective aspect might be an annual salary increase of $500; subjective aspects of this change concern the individual's feeling about it--whether he considers it an improvement, whether he defines it as desirable, and whether he exerts effort to achieve it. What may seem to some to be an upward movement or improvement may be seen by others as no improvement at all or even a change for the worse. (1967, p. 88).

Only one set of investigators--Morris, Pestaner and Nelson--whose studies are reviewed in the following pages, made any reference to the types of mobility in which children may be involved. (1967, p. 79).

Mobility and the Low Socio-Economic Child

One group which seems to be adversely affected by mobility is the child from low socio-economic background, commonly called in most studies the low socio-economic child. Morris, Pestaner and Nelson state:

> It is anticipated that mobility would by dysfunctional for low SES children, especially in the case of reading achievement. Typically parents of high socio-economic status encourage the early development of verbal skills in their children. Such parents usually possess and read books, magazines, and newspapers and an effort is made to interest their children, from infancy, in books. Assuming the validity of these prepositions, it is argued that children from homes where a premium is placed on reading and intellectual pursuits would be less likely to suffer a deficity in reading performance compared with children whose parents place lesser value on reading and who are not in a position to make up the losses due to broken schooling. (Morris, Pestaner and Nelson, 1967, p. 75).

Indeed, there are many children of low SES who show disability in reading achievement. Frost describes very well this type of child:

> Each year 150,000 children move with their parents across the croplands of this country, harvesting as they go. They are burdened by poverty and disease, deprived of education and legislation which could alleviate their conditions. These are the migrants rejected by communities and unwelcomed in schools. Temporary residence makes them ineligible for public assistance and other legal benefits. Many are illiterate; most are educationally retarded.
>
> Child labor and school attendance laws are inadequate and often ignored as children (at times as young as four years of age) work in the fields beside their parents. Deprived of cultural experiences which contribute much to success in schools, these children are

> frequently destined for failure in school and become misfits in adult living. They subsequently bear other generations of migrants. Thus the vicious cycle proliferates. (Frost, 1964, p. 129).

Mobility rates are higher for the non-white population than for the white population.

Migrant children were found to be retarded at least one year in school achievement in a survey made of eighty school districts in California. (Nance, 1961). Teachers also mentioned poor physical condition, poor mental health, spotty attendance and the need for constant adjustment to new teachers and classmates. There was a general feeling of insecurity and frustration on the part of these children. Often the lack of achievement was not due to a lack of native ability but rather to the loss of time in school. Many of the children did not speak English at all or else only in a limited manner.

Florida is another state which has many migrant children. Immekalee, Florida, is one such school system which has many mobile children. The school population is about evenly divided between permanent residents and mobile children. Some of the 12 and 13 year olds have never been in school before. (Newsome, 1967).

This type of transient student is an extreme example of the mobile child. He is, however, very much a part of the American scene.

Another type of highly transient pupil is the child of the urban disadvantaged background. Chodes, writing in August of 1969, reported that the median level of performance correlates very well with the

number of schools attended. Some schools in New York City and Washington, D.C., have a turnover per year of more than 100 percent. There is a stable core of about 30 percent and the other 70 percent turns over more than once.

Martin Mayer, chairman of a local New York City school board, spent three years visiting classrooms. He says, "Kids who stay put do better than kids who shift from school to school. Few educators would dispute this. But even fewer have acted upon it." (Chodes, 1969, p. 8).

Mayer's school district made it a practice of telling parents to keep sending their children to the same school if they should happen to move during the school year.

Continued mobility was found to be a significant factor in the performance of disadvantaged children on standardized tests of mental ability. Frankel and Ferlane (1967) found that when performance was measured on a longitudinal basis over a three year period, the non-transient subgroup at the third grade level scored significantly higher on the Otis Alpha test than their transient classmates. The difference between the nontransient and transient subgroups was greater at the sixth grade level. This indicates the scholastic deterioration shown by the disadvantaged transient children as they progress through the grades.

Morris, Pestaner and Nelson (1967) report similar results. High IQ transient students were superior to high IQ nontransient students while the low IQ transient students scored somewhat lower than low IQ nontransients.

The Migrant Child of The Upper and Middle Socio-Economic Levels

Not only are the children of migrant laborers part of the mobile population. The 1964 report of the U.S. Census Bureau shows that the American people of all socio-economic levels are becoming more mobile then ever. Migration more commonly occurs among the younger rather than the older parts of the population. Mobility is almost three times greater for the age group from one to four than for the group 65 and older. Also, the students who move are more commonly enrolled in elementary school than in secondary school.

Migration into California, for example, is greater today than at any other time since World War II. By this year of 1970 the annual population growth is expected to be divided equally between natural growth and immigration. State officials expect the state to gain twice as many young adults from ages 18 to 24 as were gained between the years 1940 to 1955. (McDermon, 1962). Not all of the these children will be those of a low socio-economic background.

What, then, does research show about the child of the higher socio-economic level? Bollenbacher asked this question in 1962: "If a family moves frequently, is it likely that a child's reading achievement will be lower than the achievement of similar pupils who have not moved?" She reports two studies done in the Cincinnati, Ohio, public schools. The first study was done in 1952; the second was done in 1960. In

1960 Cincinnati had eighty thousand pupils enrolled in the public schools. Over 5,578 of these pupils were in the sixth grade. Data was gathered on each of these pupils, during the 1959-60 school year. In February all sixth graders were given the Stanford Intermediate Reading and Arithmetic Test. Also, the Lorge-Thorndike Verbal I.Q. scores were recorded. Ninety-five percent of all the sixth grade pupils were involved in the study.

The city of Cincinnati has many community types within the confines of the metropolitan area. The suburban fringes of the city generally have pupils who are above average in ability and more than half plan to attend college. The "middle" schools were those between the suburban areas and the downtown areas. These schools had considerable problems of adjustment because of population movement into these areas from downtown. In the downtown or "basin" areas, school populations were getting smaller and some schools had been closed. The students of the "middle" schools were characterized as being average in ability and achievement. This area is also plagued with the constant movement of students back and forth between this area and the nearby southern states. This process has been taking place year after year, and the area is known as a white ghetto area.

Many teachers in Cincinnati tended to equate pupils' low reading achievement almost entirely in terms of pupil mobility. This was the reason for the study.

The results of the study were surprising to many. Bollenbacher states:

> The data revealed that pupils in the basin schools had moved an average of 1.58 times in the five and a half years covered by the study; those in middle schools had moved 1.46 times, and those in the suburban schools .89 times. The average number of moves for the entire grade was 1.30. A further check revealed that in the total sixth grade 38 percent of the pupils had never moved, while 28 percent had moved only once. It appeared, then, that most of the pupil mobility was confined to one-third of the sixth grade of the school system. Of the mobile third, more than three-fourths resided in the middle and basin areas. (1962, p. 358).

It was surprising to many people that most of the mobility came from within the school district rather than from outside. Three-fourths of the total sixth grade had never attended a school outside Cincinnati. From October to February, the time spent in the study, a total of 600 sixth grade pupils were involved in a move or transfer. Mobility in the system was recognized as an even greater problem than at first thought.

In brief, the results of this study are that reading achievement as measured by a standardized test was not affected by the number of schools attended. The pupils who were the most mobile were also those who were the least capable. Bollenbacher concludes that a mobile pupil is likely to be a low achiever in reading but his low achievement is related to his low ability. The children who scored the highest in reading achievement were both mobile and non-mobile children but they were also the most capable.

Evans, writing in 1966, tells of a study he did in the Nead School, Bunker Hill, Indiana, during the 1963-64 school year. Ninety-eight pupils of the fifth and sixth grades were chosen. The school has had a high rate of pupil turnover because it is close to the Bunker Hill Air Force Base. Four subject areas were studied: reading, social studies, arithmetic and science. The basic conclusion reached by Evans, founded primarily on the median and mean studies, was that mobility does not have an adverse effect upon the academic achievement of the mobile students. He, in fact, described the mobile youngster as one who seems to be resilient and able to adjust quickly to his new environment and achieve acceptability.

Perrodin and Snipes conducted a study in six selected elementary schools during the 1963-64 school year in a Georgia county. The subjects in the study consisted of 483 sixth grade pupils. The county had a 34.6 percent migrant population from 1950 to 1960 according to the 1960 census reports. The total population had grown 86.8 percent. Differentiation of the sample was accomplished by dividing the pupils according to the established categories of mobility, sex, age, socio-education retention, and I.Q. Reporting the results of the study, Perrodin and Snipes found no significant relationship between reading achievement and the number of times the student had moved. However, it should be noted that the investigators state that the children moving into the state and into the school district were typically of higher socio-education status than the non-moving students. Children moving

long distances tended to have higher IQ's than the children who had moved short distances or had not moved at all. Perrodin and Snipes fail to report just what reason caused the influx of people into this area. Such information is vital to the interpretation of this study. (1966).

Gilliland carried out a study with 2,118 fifth and seventh graders from 11 schools in four cities or towns in three different states. The data was obtained in October of two consecutive years, 1956 and 1957. There was no duplication of pupils. The areas of achievement considered in this study included: reading vocabulary, reading comprehension, total reading achievement; arithmetic reasoning, arithmetic fundamentals, total arithmetic achievement; mechanics of English, grammar, spelling, total language achievement, and total achievement in all subjects.

Gilliland purposely selected pupils from non-farming towns and cities so children of migratory farm laborers would be eliminated.

He found that mobile pupils were significantly ahead of the non-mobile children in total achievement and in each subject matter area except in arithmetic fundamentals. The differences in achievement between mobile and non-mobile pupils were greatest in those subject matter areas which require understanding. The mobile pupils had the greatest lead in the area of reading comprehension. Those areas of subject matter, such as arithmetic fundamentals, showed the highest lead for non-mobile pupils.

In general, Gilliland found that the higher the IQ of the pupils the greater the difference between the mean achievement scores of the non-mobile and mobile pupils.

He also concluded from his study that mobile children from families that belonged to the upper socio-economic occupational groups excelled over the non-mobile children from similar types of socio-economic background. The mobile children of professional parents appeared to have gained more from mobility while the children of unskilled laborers seemed to have gained very little from mobility.

Although no such children from the low socio-economic levels were included in this study, Gilliland felt that the low achievement of migratory farm laborers must be attributable to factors other than the fact of mobility. He suggests that erratic school attendance, economic inferiority and unequal scholastic aptitude might be more valid determiners of their low achievement.

Gilliland also noted that many mobile children are held back in school so that, as a group, mobile children are somewhat behind non-mobile children in age-grade status. (1958).

Morris, Pestaner and Nelson undertook investigation in the effects of mobility on achievement in a study they conducted in the industrial suburbs of northern Alameda County, California. They attempted to pick a sample of an ethnically homogeneous group composed of Caucasian children. The entire fifth grade enrollment of 410 boys

and girls was used. Statistical techniques were used to control variations in intelligence and socio-economic status.

The number of schools attended by the children and the occupations of their fathers were determined from school records.

The results of the study demonstrated that mobility does have a negative effect on reading achievement. Statistical analysis was needed to investigate performance as a result of mobility, taking intelligence, race, and socio-economic status into account. The negative effect of mobility was not a simple confirmation. The investigators found, for example, that the upward and downward mobility in occupational status of the family must be considered. Those families which move up in socio-economic levels with the least stress have children who usually find the move stimulation for achievement. These families which move up in socio-economic level with stress and worry tend to have children who find change and the breaking of social barriers academically dampening. Those families which are moving downward in socio-economic status may have children who cannot cope with the pressures of new situations.

The investigators feel, therefore, that a more intensive look at mobility should be taken. They state:

> We need to know more about why people move, who moves, and how much moving occurs, as well as show moves upward successfully. A significant contribution to mobility research will be made by a

> systematic study of the relationship of mobility to individual achievement, taking the achievement motivation and value system of the family into account. (1967, p. 79).

Summary

The population of our country is becoming increasingly mobile. The structure of big business and our highly industrialized society has fostered much of this mobility. Young families, in particular, have become very mobile. Many of these families move to take advantage of opportunities for occupational and educational advancement. These families, of course, have the most elementary school age children.

Three major studies were done in the areas of mobility during the last decade. There were also numerous smaller studies. The results of these studies were inconclusive and the investigators felt that there are many questions yet unanswered about the effects of mobility. Some investigators failed to control for the socio-economic factor in their study. Others dealt with only the children of the lowest socio-economic gackgrounds and the lowest ability levels. Some investigators limited their study to the children of the middle or high socio-economic levels.

Several studies reviewed have indicated that the type of mobility (horizontal or vertical) is of extreme importance to the child's adjustment to the new school situation. For example, some studies indicate that the horizontal mobility has more detrimental effects for children of low socio-economic background while vertical

mobility has more detrimental effects for children of high socio-economic background.

As an increasing number of children are involved in moving each year, it becomes more pertinent for educators to be aware of the situation and be knowledgeable of how to meet the needs of the migrating child.

Procedures used in a study of the effects of mobility on reading achievement of students in Willson Middle School, Bozeman, Montana, are described in Chapter III.

CHAPTER III

PROCEDURES

The purpose of this study was to determine the effects of mobility on the reading achievement of sixth grade students.

The population used in this study was 293 sixth grade students at Willson Middle School, Bozeman, Montana. A questionnaire was used to determine if students were mobile or non-mobile. One classroom of approximately thirty students was not included in the study as the teacher did not cooperate in the study.

From the population of sxith grade students four sample groups were drawn by stratified sampling methods. The Non-mobile and the Mobile-in-Bozeman sample groups included thirty-four pupils each. The Mobile-in-State and Mobile-Out-of-State included thirty-two pupils each.

The cumulative records of the students in each sample group were used to obtain data necessary for the study and possible future study. Birthday, sex, occupation of the father, reading comprehension raw scores, reading vocabulary raw scores, intelligence quotient, possible retention, and evidence to support mobility and non-mobility were obtained. Children whose cumulative records indicated a broken home or severe emotional problems were eliminated from the study.

The reading comprehension scores and reading vocabulary scores were based on the most recent Iowa Test of Basic Skills given in May 1970. Intelligence quotient scores were based on the Otis self-

Administering Test of Mental Ability. The socio-economic levels of the fathers' occupations were ranked according to the North-Hatt Occupational Scale.

Analysis of covariance statistical methods were used to control the effects of socio-economic level and intelligence level so that the effects of mobility and non-mobility on reading comprehension and reading vocabulary could be studied without bias. Four comparisons were determined for each sample group: I.Q. and comprehension, I.Q. and vocabulary, socio-economic level and reading comprehension, and socio-economic level and reading vocabulary.

The analysis of the data is described in Chapter IV.

CHAPTER IV

ANALYSIS OF DATA

The total population of sixth grade students from which sample groups were drawn totaled 293. One sixth grade homeroom was not included because the teacher did not cooperate in the study.

Table 1 indicates how the total number of students was distributed in the four sample groups: Non-mobile, Mobile-in-Bozeman, Mobile-in-Montana and Mobile-out-of-state. The questionnaire used in determining placement is included in the appendix.

Table 1 - Distribution of Students in Sample Groups

Non-Mobile	78
Mobile-in-Bozeman	76
Mobile-in-Montana	56
Mobile-out-of-state	83
Total Population	293

The questionnaire permitted the students to indicate to some extent the number of schools they had attended. This information has been shown in the following tables. It shows the extent of mobility present in the sixth grade students.

Table 2 shows the number of schools attended by the 76 students in the Mobile-in-Bozeman group.

Table 2 - Number of Schools Attended by Mobile-in-Bozeman Group

3 Schools	61
More than 3 schools	15
Total	76

Table 3 shows the distribution of the 56 students who indicated they had attended school some place in Montana other than Bozeman at some time during their first six years of school.

Table 3 - Number of Schools Attended by Mobile-in-Montana Group

Number of Schools Attended	
2	16
3	21
4	10
more than 4	9
Total	56

Table 4 shows the distribution of the 83 students who indicated they had attended school out of the state of Montana.

Table 4 - Number of Schools Attended by Mobile-out-of-State Group

Number of Schools Attended	
2	22
3	28
4	19
more than 4	14
Total	83

For ease in identification, the Non-Mobile group has been designated as Group 1, the Mobile-in-Bozeman group as Group 2, the Mobile-in-State group as Group 3, and the Mobile-out-of-State as Group 4.

Table 5 shows the results of the analysis of covarance between the reading comprehension scores of Groups 1, 2, 3, and 4 with intelligence as the covariate.

Table 5 - Analysis of Covariance for IQ and Reading Comprehension

Source of Variation	Degrees of Freedom	Sum of Squares and Products			Deviations About Regression		
		Σx^2	Σxy	Σy^2	$\Sigma y^2 - \frac{(\Sigma xy)^2}{\Sigma x^2}$	Degrees of Freedom	Mean Square
Among Groups	3	432.00	461.00	558.44	-----	----	-------
Among Students	128	13628.00	10571.00	17827.00	9627.89	$127N_2$	75.81
Total	131	14060.00	11032.00	18386.07	9729.25	130	-----
Difference for testing among adjusted treatment means					102.05	$3N_1$	34.02

F = 0.4487

Table 5 shows that there was no significant difference in reading comprehension of the groups when the variable of I.Q. was controlled.

Table 6 shows the results of the analysis of covariance between the reading vocabulary scores of Groups 1,2,3, and 4 with intelligence as the covariate.

Table 6 - Analysis of Covariance for IQ and Reading Vocabulary

Source of Variation	Degrees of Freedom	Sum of Squares and Products			Deviations About Regression		
		Σx^2	Σxy	Σy^2	$\Sigma y^2 - \frac{(\Sigma xy)^2}{\Sigma x^2}$	Degrees of Freedom	Mean Square
Among Groups	3	432.00	396.00	462.81	------	-----	-------
Among Students	128	13628.00	10673.00	14905.00	6546.26	$127N_2$	51.55
Total	131	14060.00	11069.00	15367.81	6653.54	130	------
Difference for testing among adjusted treatment means					107.27	$3N_1$	35.76

F = 0.6937

Table 6 shows that there was no significant difference in reading vocabulary of the groups when the variable of IQ was controlled.

Table 7 - Analysis of Covariance for N-H Scale and Reading Comprehension

Source of Variation	Degrees of Freedom	Sum of Squares and Products			Deviations About Regression		
		Σx^2	Σxy	Σy^2	$\Sigma y^2 - \frac{(\Sigma xy)^2}{\Sigma x^2}$	Degrees of Freedom	Mean Square
Among Groups	3	15336.31	-2698.19	558.44	--------	-----	---------
Among Students	128	58406.38	- 7.63	17827.63	17827.62	$127N_2$	140.38
Total	131	73742.69	-2705.81	18386.06	18286.78	130	-------
Difference for testing among adjusted treatment means					459.16	$3N_1$	153.05

F = 1.0903

Table 7 shows that there was no significant difference in the reading comprehension of the groups when the variable of socio-economic rank was controlled.

Table 8 shows the results of the analysis covariance between the reading vocabulary scores of Groups 1, 2, 3, and 4 with occupational ranking according to the North-Hatt Occupational Scale as the covariate.

Table 8 - Analysis of Covariance for N-H Scale and Vocabulary

Source of Variation	Degrees of Freedom	Sum of Squares and Products			Deviations About Regression		
		Σx^2	Σxy	Σy^2	$\Sigma y^2 - \frac{(\Sigma xy)^2}{\Sigma x^2}$	Degrees of Freedom	Mean Square
Among Groups	3	15336.31	-2605.44	462.81	--------	----	-------
Among Students	128	58406.38	-477.06	14905.00	14901.10	$127N_2$	117.33
Total	131	73742.69	-3082.50	15367.81	15238.96	130	------
Difference for testing among adjusted treatment means					337.86	$3N_1$	112.62

F = ò.9598

Table 8 shows that there was no significant difference in reading vocabulary of the groups when the variable of socio-economic rank was controlled.

Summary

The ratio of F in each study does not show a significant difference in the reading comprehension and vocabulary between the non-mobile and mobile groups when the variables of intelligence and occupational rank were controlled. The hypothesis that there is not a difference would therefore be retained.

The investigator would suggest that the use of the Otis Test of Mental Ability used in this study might have some effects on the findings. The fact that the Otis Test tests on a verbal basis could mean that it would not be as accurate a measurement of innate ability as another test, the Wechsler, for example.

It would also be interesting to have achievement scores from another or several achievement tests rather than just the Iowa Test of Basic Skills. A comparison between achievement tests given before and after a child moved might give some information which to date has been lacking.

A brief summary of the entire study is given in Chapter V.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The research for this paper has been concerned with the question: "Does mobility have an effect on reading comprehension and reading vocabulary?". Eleven homeroom classes of sixth grade students of Willson Middle School, Bozeman, Montana, were used in the study. One homeroom was exempted because the teacher did not cooperate with the study. The investigation was done in May and June of 1970.

A questionnaire was completed by the students that indicated their non-mobility or mobility. From this information four groups were made: Non-mobile, Mobile in Bozeman, Mobile in Montana, and Mobile from out-of-state. Stratified sampling techniques were used to select a total sample of 132 students: 34 in the non-mobile groups; 34 in the mobile in Bozeman group; 32 in the mobile in Montana group; and 32 in the mobile from out-of-state group.

Data pertinent to the study was collected in June, 1970, from the cumulative records of the students in the sample groups. This data included birthdate, sex, intelligence quotients, occupations of the fathers, retention, reading vocabulary raw scores, reading comprehension raw scores, confirmation of mobility or non-mobility, and retention. The reading achievement scores were taken from the Iowa Tests of Basic Skills. The intelligence quotients were based on the

Otis Test of Mental Ability. Those children whose records indicated no father or stepfather in the home were removed from the study to eliminate the broken home factor from the study.

The occupations of the fathers were ranked numerically according to the North-Hatt Occupational Scale.

Analysis of covariance statistical methods were used to test the hypothesis: There is no significant differences in achievement in reading comprehension and vocabulary between non-mobile and mobile children. The two variables controlled in this study were intelligence and socio-economic background.

Conclusions

The hypothesis was retained. The F ratio reported in each comparison was not significant so that the investigator would conclude that mobility does not have an effect on reading comprehension or reading vocabulary when intelligence and socio-economic background are controlled.

The investigator would recommend that future studies on the effects of mobility use intelligence scores based on some test that will measure non-verbal abilities rather than verbal ability. It would also seem helpful to have more than one achievement test score to use as a basis of evaluation of achievement. Ideally, there would be scores available from a time before the move and from after the move. Then a more careful study of the effects of mobility could be made.

Recommendations

None of the studies done on the effects of mobility on reading achievement have taken into consideration the definitions of mobility emphasized by sociologists. Each has considered mobility as a single factor when, in fact, it has several facets: upward, downward, or horizontal. (Tumin, 1967).

Only Morris, Pestaner and Nelson indicate a need for taking into account "why people move, who moves, how much moving occurs, as well as who moves up successfully." (1967, p. 79).

This investigator would agree that there are some questions concerning the effects of mobility which have not yet been answered. It would appear that mobility effects cut across intelligence quotient lines and socio-economic lines and would seemingly have effect in individual cases depending on conditions within the family. Implications which have not been considered in any research to the investigator's knowledge are those which deal with the stress, acceptance and expectations within the family. This investigator would recommend research be made by person or persons trained to observe these conditions within a family.

Teachers, administrators and other school personnel concerned with the welfare of children indicate there are children for whom mobility presents many problems. (Morris, Pestaner, Nelson, 1967; Bollenbacher, 1962). It would seem that the effects of mobility and

consequent adjustment to new home, new school, and new friends would be an individual matter. Teachers and administrators should be aware of some of the adverse reactions that children could have to mobility and how they might help a child adjust to the new learning situation.

APPENDIX

Bozeman, Montana
April 30, 1970

Mr. Charles Ennes
Willson Middle School
Bozeman, Montana

Dear Mr. Ennes:

Educators know that there are many variables that affect a child's ability to read. One variable that is not often considered, however, is that of mobility. Does moving from school to school during the time a child is learning to read have any effects on his reading achievement? The results of the few studies done to date have been inconclusive. The purpose of this research is to add to our knowledge of the effects of mobility on reading achievement. As the population of the United States becomes increasingly mobile, the information gained may have significant value in meeting the needs of children.

Sixth grade students at Willson Middle School have been chosen for the study. The enclosed questionnaire will be used to select sample groups of non-mobile and sample groups of mobile children. After these groups are chosen the cumulative records of the sample children will be examined to collect the data pertinent to the study. All information will be handled in a confidential, ethical and professional manner.

In order to increase the validity of the study, it is important that every sixth grade student present check a questionnaire.

The questionnaire has been designed so that the proper response can be checked quickly. The entire process should not take more than ten minutes of your class time.

I appreciate the help of you and your sixth grade students with this project. I will be most happy to share the results with you after the study is completed.

Sincerely,

Shirley S. Beck

Questionnaire

Name_____

Homeroom Teacher's Name _____

Have you attended school any place other than Bozeman? Yes_____

No_____

How many schools have you attended in Bozeman? 1_____

2_____

3_____

more than 3_____

Answer the rest of the questions if you have attended school some place other than Bozeman.

How many schools have you attended? 2_____

3_____

4_____

more than 4_____

Have you attended school(s) outside of Montana? Yes_____

No_____

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