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ABSTRACT

The purpose of this study was to test the learning ability of a class of second graders in a mining camp in Southwest Virginia in the heart of Appalachia. On the basis of family income, 20 second-grade children (12 boys and 8 girls) were divided into 2 groups--poor and non-poor. The children were tested during the third 6 weeks and again during the sixth 6 weeks of the school year 1969-70 to see the progress in reading, math, language, spelling, and intelligence. Girls' and boys' scores were compared for any sex differences between the 2 groups. The results of the study showed there were no significant differences between the poor and non-poor groups or between the sexes in achievement and intelligence. However, it was concluded that social class was a better indication of performance than sex. The study pointed out the need for comparative studies between Appalachian children and children in other parts of the United States. It also pointed out the need for information on the specific learning problems of the Appalachian child, such as probable visual and auditory discrimination. (HBC)

THE EFFECTS OF LIVING IN AN ISOLATED MINING CAMP ON THE LEARNING ABILITY OF POOR AND NON-POOR STUDENTS IN A SECOND GRADE CLASS IN KEOKEE ELEMENTARY SCHOOL KEOKEE, VIRGINIA

A Thesis

Presented to

the Graduate Faculty

East Tennessee State University

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

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by

Pat Sweet

August 1970

APPROVAL

Patricia A. Sweet has satisfactorily completed her thesis and the undersigned members of her advisory committee recommend to the Graduate Council that it be accepted in partial fulfillment of the requirements for the Master of Arts degree.

Chairman, Advisory Committee

Dean, School of Graduate Studies

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Southern Appalachia is a land of many contrasts. With craggy mountains and narrow valleys, it is a land of incredible beauty. It has large metropolitan areas and small towns. It has wealth and poverty with isolated communities of people living on the moutain sides or up a dry creek bed. Some of the people living in Southern Applachia are well educated while others will do well to write their own names. Some mountaineers have not traveled more than five miles from their homes during their entire life span.

Thompson (1910) wrote that education, schools, and teachers were not adequate for the people in Appalachia. Education did not reach all the people the way it should. Campbell (1912, Chapter 12) thought that the Southern Applachian mountaineer was independent, suspicious, sensitive, and clung to old traditions. Few of his children received an adequate education, and there was a high rate of illiteracy among the adults. Because of his isolation in the mountains, the mountaineer did not have the benefit of a wide range of experiences. He preferred his own way of learning, gaining knowledge anyway he could, rather than learning from someone else. The mountaineer was well adapted to his environment.

Kephart (1922) found the Appalachian mountaineers had changed little from their colonial ancestors of the eighteenth century. There were extremely early marriages and a high rate of inbreeding and intermarriage. A mountaineer would resist change until he could see the importance of it and what he would gain by it. Isolated in the mountains, the mountaineers changed little from generation to generation, preferring to maintain the same kind of life.

Hirsch (1928) did the first study of the intelligence of mountain

youth. He tested 1,945 East Kentucky mountain children and found the average Intelligent Quotient (IQ) was 79. There was a drop in the intelligence as chronological age increased. He concluded that inbreeding, migration of more intelligent mountaineers to other areas were the principal causes of the low IQ. Environmental factors were also important.

Hatcher (1930, Chapter 4) wrote the results of a study done at Konnarock Training School in Smythe County, Virginia. The study covered a three year period from 1926 through 1929, and in the study a variety of subjects were covered: a discription of the students, the subjects taught, and the testing program. The purpose of the tests was to compare the students with each other in their individual classes and in the school as a whole. Individual and group tests, intelligent and achievement tests were used. In 1929 the group tests used were: Stanford Achievement, Otis Group Intelligence Test (Advanced and Primary), Burgess Reading Scale, and the New York English Survey Test. The individual test was the Stanford Revision of the Binet-Simon Intelligence Scale. The results of the Binet-Scale showed a median IQ of 83. Out of 87 students tested, 15 scored below 70; 19 scored between 70 and 80; 29 scored between 80 and 90; 15 scored between 90 and 100; eight scored between 100 and 110, and one scored above 110.

The results of the three year study found the mountain children have IQs substantially lower than children in other parts of the United States. Hatcher thought the reasons were twofold: (1) out migration of the more intelligence mountaineers to larger cities; and (2) the composition of the tests. The different tests were desigend for children living in cities

and metropolitan areas. Mountain children were handicapped in that they did not have experiences the test items measured. Hatcher suggested the intelligence of mountain children could not be measured until there were adequate rural tests and until urban children had taken rural tests for comparison.

Wheeler (1932) did a study of 1,147 East Tennessee mountain children in Carter and Unicoi Counties. He used the Dearborn 1A and 11C Intelligence Scale. The results showed there was no wide difference in the intelligence of the mountain children measured by the two tests, and the results of the two tests were very similar in their findings.

Wheeler found that the median IQ of children on the Illinois test was 78 and on the Dearborn test 82. At age six the IQ seemed to be near normal, but as the chronological age increased, the IQ decreased. He found a high rate of retardation (defined as failure of a grade): one and a half years in the first grade and about two years in the eighth. Mountain children were below normal in intellignce for their grade placement. Wheeler concluded that environment affected the outcome of the testing. He thought the tests did not adequately measure the intelligence of the mountain children. If the environment of the children could be improved, or changed in any way, they might score considerably higher on the intelligence tests.

Asher (1935) did a study of Southeastern Kentucky mountain children. He used the Myers Mental Measure and the National Intelligence Test, Scale B. In 15 rural schools, 363 children had the Myers test, the ages ranging from seven to 16 years. There were 234 children who took the National test. The results of the study on the Myers test was an IQ of

67.7 and on the National an IQ of 71.5. Asher also found there was a steady decrease in IQ as the chronological age increased. Beginning with age seven the median IQ was 83.5, but at age 15 it had dropped to 60.6, a decrease of 22.9 points on the Meyers test. Like Kirsh (1928) and Wheeler (1932), Asher's study found that according to the tests used, a large number of mountain children were below normal intelligence. For example Asher found only five percent of the IQs were above 100 on the Myers test. Asher concluded that the tests did not truly measure the intelligence of mountain children. The tests were designed for children living in urban areas, and environmental conditions greatly affected the outcomes of the tests. He thought the IQ of mountain children could not be known until adequate intelligence tests were designed.

Edwards and Jones (1938) did a study of 250 North Georgia mountain children. The results showed that as chronological age increased, the IQ decreased, dropping from 108 at age seven to 70 at age 15 or beyond. The authors further tested the mathematical and reading ability of the elementary school children. They found that while the IQs were low, the reading and math scores were not. In fact they were above national norms, and the authors attributed the results to superior teaching ability. Edwards and Jones further compared the North Georgia mountain children with Eastern Kentucky school children, and they found the North Georgia children were more intelligent.

Gaumitz (1938) reported the results of a Federal Government survey of education in the Appalachian Mountains. The survey revealed a high rate of illiteracy and retardation among the mountaineers. More children attended elementary school than high school. For example in the state of

Virginia, 84.5% of the children seven to 15 years of age attended school while only 28.6% of the children 15 to 20 years of age attended. There was a high percentage of children above the normal age for the grade in which they were enrolled. In the mountainous portion of Virginia, the percentage for the elementary schools was 62.2 and for the high schools 48.1, but for the nonmountainous portion the percentage for elementary schools was 41.8 and for high schools 35.1. In the Applachian portion of Virginia, out of 1,975 children 10 years old, 60.6% were retarded. An analysis of the percentage showed: 30.3% of the children were retarded one year, 23.6% two years, and 6.7% three years. Out of 1,894 children 14 years old, 84.4% were retarded. An analysis showed: 22.3% were retarded one year, 26.3% two years, 18.4% three years, 6.7% four years, and 10.7% five years or more.

Wheeler (1942) did a ten year follow-up study of the East Tennessee mountain children in Carter and Unicoi Counties, using the Dearborn 1A and 11C Intelligence Tests and the Illinois Intelligence Scale. There were 3,525 children tested. The results showed a ten point increase in the IQ of mountain children. At six years of age, the IQs were normal, but as the chronological age increased, the IQ decreased in children who were over-age for their grade placement. The age grade retardation was the primary cause of the decline of the IQ.

As over-ageness increases and retardations accumulate from grade to grade, there occurs a corresponding decline in IQ, indicating that age-grade retardation causes the median IQ to decline with increasing chronological age. The IQ decreases with an increase in the amount of age-grade retardation.

The decline of the IQ with increase in chronological age is the same as it was a decade ago except that it is on a higher IQ level [33].

Wheeler concluded that the IQ would increase with better educational and environmental conditions.

Shepard (1942) compared the nonverbal abilities of rural elementary school children in Chanute and Independence, Kansas, with urban elementary school children in New York City. The results showed that the urban children were superior in verbal tests and tests that involved speed performance. Rural children were superior in mechanical and musical ability. Shepard concluded that it was unfair to judge one regional group as being superior to another. Rather, it was necessary to evaluate each group according to its specific abilities.

Although Edwards and Leslie (1938) tested the silent reading and mathematical ability of the North Georgia elementary school children, there was no specific differentiation between sexes. Traxlur (1935) found no difference in the reading rates of males and females. But Bennett and Crukshank (1942) found that boys were superior to girls on mechanical problems.

Stroud and Lindquist (1942) used the Iowa Every-Pupil Testing Program for high school and the Iowa Every-Pupil Basic Skills Testing Program (Grades III-VIII) to determine sex differences. In grades III-VIII (except Grade IV), boys surpassed girls in basic arithmetic skills. Girls were superior to boys in silent reading (comprehension and vocabulary) and in basic language skills.

Hobson (1947) tested sex differences in primary mental abilities, using the Chicago Tests of Primary Mental Abilities. He found boys were

higher in spatial orientation and numerical facility. Girls excelled in word fluency, inductive reasoning, and visual memory. At the eighth grade boys were superior in verbal comprehension, but in the ninth grade the scores were even.

Kostick (1954) found that boys were superior to girls in the transfer of training. Stinson and Morrison (1959) used the Differential Aptitude Test, the Cooperative Reading (C2) Test, and an abbreviated form of the Wechsler Adult Intelligence Test to determine sex differences. They found girls excelled in spelling and in clerical speed and accuracy. Boys were superior in mechanical tests, reading, and numerical reasoning.

Gates (1961) used all three of the Gates Reading Survey Tests: Speed of Reading, Reading Vocabulary, and Level of Comprehension in grades two through eight to determine any sex differences in reading ability. Girls were superior on all tests in all grades. For example, Table 1 showed that in the second grade, the biggest difference between sexes was in reading vocabulary, followed by comprehension, then speed.

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Insert Table 1 about here
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Wozencraft (1963) found that in arithmetic computation and reasoning, girls were superior to boys in the sixth grade only as far as average groups were concerned. There were no significant sex differences in groups with high or low IQs. Alexander (1963) found there were no significant sex differences in the ability to solve verbal arithmetic problems at the seventh grade level.

Balow (1963) used the Gates Reading Readiness Tests and the Lorge Intelligence Test to test first graders. He found significant differences in favor of girls in reading readiness and reading achievement.

Edmonds (1964) tested 1,239 eleventh grade pupils in 66 high schools in Virginia. All the schools were rural while three of them were parochial. One high school had a high per e r students from a depressed area. Edmonds used the Cooperative School and College Ability Test and the Otis Mental Ability Test. He found no significant difference between the verbal ability of boys and girls, but he did find significant differences between boys of high socio-economic status and boys of low socio-economic status. Also there was a difference between girls of high status and girls of low status. Edmonds concluded that the socio-economic level was a better index of pupil achievement than sex.

Rude and King (1965) tested eleventh and twelfth grade students in a low-income rural county in Southern Indiana. The county was the poorest in Indiana, having the lowest level of mean family income and number of years of formal education by the adults. Rude and King used the Employee Aptitude Survey, and the results showed no significant sex differences. The aptitudes of the students were similar to those of the population of the county. The students were deficient in communication skills, but they excelled in numerical ability.

Rowland (1968) used the Science Background Experiences Scale to test 288 sixth graders in Kansas City, Missouri. The results showed that boys scored higher than girls. Rowland tested the difference between low and high social class, and he found that the upper class scored higher in science than the lower class.

Riessman (1962) stated that children living in poverty were handicapped in several ways. They scored lower on IQ tests than their middle class peers. They had little interest in learning for the sake of

learning. Education was desired only as being useful and practical to the individual. Intelligence tests did not adequately measure their knowledge because test items were not within the frame of reference or range of experiences of the children.

In Appalachia the experiences a child might have would be different from those a child would have in the city. Isolated in steep mountain valleys or housed in a shanty in a mining camp, a child would have a way of life entirely different from life in a big city slum or even in one of the metropolitan centers in his own regions, cities such as Asheville, North Carolina, Roanoke, Virginia, or Charleston, West Virginia. Appalachia, according to the Southern Appalachia Region (SAR) Survey (1962) consisted of parts of seven states, was more than 600 miles long, and almost 250 miles in width. The major industries were coal mining, forestry, and agriculture. It was mostly rural with only eight metropolitan areas, defined as industrial centers.

The Appalachian Regional Commission (ARC) Report to the President (1964) revealed that Appalachia was one of the poorest sections of the country. The study revealed that the per capita income was only $1,400. Homes were in poor condition, needing repairs, plumbing, and sanitary facilities. There were large families, high welfare lists, and loss of pride of the people. Furthermore, there was a high rate of unemployment, coupled with illiteracy. The Report (p. 8) stated:

For every 100 persons over 25 years of age, 11 have failed to finish five years of school. Out of every 100 Appalachians over 25 years of age, 32 have finished high school. Only five out of every 100 persons over 25 years of age have completed at least four years of college.

The SAR Survey (1962) found that the median number of years of school completed by the head of the household was 7.4 for rural families, 10.3 for urban families, and 11.1 for metropolitan families. The overall median was 9.3 years. Furthermore, the Survey revealed there was a high rate of retardation: 30.7% of the fourth graders in rural areas and 25.8% in metropolitan areas. In addition there was a high dropout rate in the schools. While there were some improvements from conditions in 1938, there was still the high rate of retardation, and educational levels of adults were low.

Weller (1965) found that mountain children were not interested in ideas or learning for its own sake. They did not understand abstract thought, instead seeking basic, concrete facts, attuned to the here and now, something to be grasped and used immediately. There was poor motivation among school children because of child-rearing practices which did not train the child to concentrate on any task for a sustained period of time. A mountaineer preferred people to books or ideas. Crow, Murray, and Symthe (1966) also found poor motivation among mountain children.

Edwards and Leslie (1938) found the silent reading and math ability of North Georgia mountain elementary school children to be above national norms. Ramsey (1967) found that fourth grade children in Kentucky were reading near national levels while eighth grade students were below national norms.

Skinner (1967) thought that one reason children in Appalachia had trouble with reading was their language patterns and speech characteristics. The patterns were far removed from the precise language found in textbooks, and they were totally foreign to what the child normally

knew. Crow et al. (1966) found that underprivileged children in New York City had trouble with reading mainly because they did not understand the meaning of the words. They had trouble making auditory and visual discriminations between words and sounds. Ryckman (1967) thought the biggest difference between middle and lower class boys was their language ability. The second important thing was being able to label visual imput or imagery.

Crow et al. (1966) in a survey of 100 teachers of socially disadvantaged children in New York City found the children to be quite deficient in language arts in several ways.

1. Poor interaction with parents
2. Limited reinforcement of correct verbalization
3. Restricted listening
4. Inadequate models to imitate
5. Language restricted to concrete situations
6. Inability to follow the language used by the teacher
7. Poor auditory discrimination
8. Inability to correctly report school experiences
9. Restricted vocabulary
10. Excessive use of slang and other idiomatic expressions
11. Utilization of poor grammar
12. Limited experiences to share with classmates
13. Inability to adequately report experiences to classmates [p. 22]

Weller (1965) found that a mountaineer used words to impress people rather than to express ideas. Ancedotes replaced logic in the development of an argument or the expression of a position.

At the Institute for Developmental Studies, Deutch,M. (1967) found

that children living in the slums came to school completely unprepared for what it would demand. For example he cited lack of books, toys, puzzles, pencils, and paper in the home. There were few adults to whom a child could ask questions and receive satisfying answers. Weller (1965) also found there were few books and magazines in mountain homes. Parents sometimes had less education than their children and thus were unable to help with homework assignments. Deutch, C. (1967) found underprivileged children had trouble with auditory discrimination. Katz and Deutch (1967) found deprived children who were slow readers had trouble with auditory discrimination, changing from one modality to another, and with serial learning. Deutch, M. (1967) showed that underprivileged slow readers had less perception than good readers. Scholnick, Olsen, and Katzeilenbogen (1968) further found that lower class children did poorly on discrimination tasks, but experience on a simple discrimination task would help to facilitate performance in concept learning.

Crow et al. (1966) found a number of deficiencies in mathematics among underprivileged children.

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1. Lack of opportunity to develop perceptual skills in mathematics
2. Limited knowledge of mathematical concepts
3. Limited knowledge of objects at home to acquire form discrimination
4. Inadequate spatial concepts
5. Inability to read mathematical problems
6. Inability to relate mathematics to new experiences
7. Inadequate time concepts
8. Inability to see relationships in mathematics [pp. 125-126]

Many of the difficulties underprivileged children had in school were related to lack of experience with the necessary objects. Mountain children would have an added disadvantage in that they simply were not interested in abstract thoughts which math would require.

Ausbury (1969) used the Otis Quick Scoring Test in a study of rural Appalachian Kentucky eighth boys in four high schools where the per capita income was less than $900.00. The mean IQ score of the boys was 90.6. Not all children going to school in Appalachia would be below average intelligence, but a vast majority of them would not be exposed to events and sights outside their own region. They would be able to see and hear only what they had in school or on television. As far as school was concerned, they were experientially handicapped.

To give underprivileged children a better chance in school, Federal programs such as Head Start and Follow Through were established. Follow Through was a supplementary program that would begin in either the first grade or kindergarten after one year of Head Start. It would involve the family, school, and community to meet the educational and physical need of a deprived child. The effects of training before school were definitely beneficial. For example Smith (1969) tested poverty children who had had kindergarten and those who had not. He used the Stanford Intelligence Scale L. M. and the Peabody Picture Vocabulary Test. The results showed that boys and girls with kindergarten scored higher than the children with no kindergarten. Girls with kindergarten scored higher than boys with kindergarten.

In a brief summary studies (Hirsch, 1928; Hatcher, 1930; Wheeler, 1932, 1942; Asher, 1935; Edwards and Jones, 1938; Ausbury, 1968) found

that the IQ of mountain children was below national norms, but children six or seven years old had normal IQs. There was a progressive decrease in IQ as chronological age increased, the loss being a point or less each year. The high rate of retardation and over-ageness for a specific grade were the principal reasons for the low IQs, although environmental conditions and the contents of the tests were important. In sex differences girls excelled in reading and language arts while boys excelled in math and mechanics. Two studies (Edmonds, 1964; Wozencraft, 1968) found no specific sex differences among underprivileged children. Social class was a better indicator of achievement than sex. Rude and King (1965) found underprivileged high school students were deficient in communication skills, but they excelled in arithmetic computation.

The Appalachian child himself had little interest in learning of ideas. He had trouble with abstract thoughts and reasoning. He was a poor reader because his own particular language style conflicted with the written language in his books. A mountaineer would have to see the importance and relevance of school before he was willing to accept it.

The purpose of this study was to test the learning ability of a class of second graders in a mining camp in Southwest Virginia in the heart of Appalachia. On the basis of family income the children were divided into two groups: poor and non-poor. They were tested during the third six weeks and again during the sixth six weeks of the school year 1969-1970 to see the progress in reading, math, language, spelling, and intelligence. Girls and boys' scores were compared for any sex differences between the two groups. While it was expected the children would make some progress, the question was how much. What influence if any did

the time element have? In the study the hypotheses were:

1. There was no significant difference between the poor and non-poor in intelligence.

2. There was no significant difference between the boys and girls in intelligence.

3. There was no significant difference between the poor and non-poor in reading.

4. There was no significant difference between the boys and girls in reading.

5. There was no significant difference between the poor and non-poor in math.

6. There was no significant difference between the boys and girls in math.

7. There was no significant difference between the poor and non-poor in language.

8. There was no significant difference between the boys and girls in language.

9. There was no significant difference between the poor and non-poor in spelling.

10. There was no significant difference between the boys and girls in spelling.

11. There was no significant difference between the poor and non-poor in the total battery.

12. There was no significant difference between the boys and girls in the total battery.

METHOD

Subjects

The subjects (Ss) were 20 second graders in Keokee Elementary School, Keokee, Lee County, Virginia. There were 12 boys and 8 girls. The median age of the boys was 8.1 years and the girls 7.2 years. Of the 20 Ss, eight were retarded. An analysis showed that five boys and two girls were retarded two years while one boy was retarded four years. Out of the 20 Ss, 13 of their fathers were associated with coal mining. Two fathers were disabled, receiving a social security check and a miner's pension respectively. One father had irregular employment, working periodically in the mines or not working at all, giving family no support. One family received welfare. Other occupations included construction, a truck driver, and a railroad man. One father was deceased, as a result of a mining accident, and his wife received a pension.

Keokee Elementary School was located in the heart of the coal mining region of Appalachian Virginia. Situated one mile east of the Kentucky state line, it was a mining camp with a population of approximately 2,092 people, including outlying communities. Caudill (1962) described the mining camps in Kentucky as row upon row of crudely built shanties with tar-paper roofs, wooden or clap-board sides, and some plastered walls. Less well constructed structures had boards nailed together for walls, a pine floor, and a ceiling made of lumber. In all the camps there was a commissary where the miner and his family could buy food and clothing. All camps had a Federal Post Office and a school. The children attended until they were old enough to marry or work in the mines.

As a mining camp Keokee differed from the row upon row of houses

that characterized her sister camps. Located in a hilly section of Lee County, Keokee had three grocery stores, two churches, three gasoline stations, two cafes, and the school. The streets were laid out without sidewalks, and most all of the houses were built on hills, characteristic of homes in Appalachia.

According to the SAR Survey (1962), Lee County had the highest number of welfare recipients and the highest number of out-migration in the entire state of Virginia. The ARC Report (1964) found a low per capita income and houses that were substandard and lacking sanitary facilities. In addition there was a low educational level. The Office of Economic Opportunity Community Action Program (CAP) (1966) statistics showed that out of a total of 627 families of Keokee, 367 families or 56.9% of the population had an income of less than $3,000. A further breakdown of the families showed:

Families with less than $1,000	60
Families with income from $1,000-$1,999	153
Families with income from $2,000-$2,999	144

CAP records further revealed that out of 579 housing units in Keokee, 346 or 59.7% were substandard. On the educational level, out of 1,194 persons 25 years old and over, 515 or 43.1% had less than eight years of education. As far as welfare payments were concerned, 10.3% of the population received Aid to Families with Dependent Children (AFDC), and 6.4% received old age assistance.

Apparatus

To a certain degree most of the second grade was underprivileged. To be as objective as possible, it was decided to use other agencies that had

already specified the children as underprivileged. Although some of the categories overlapped, it was necessary to use as many sources as possible to include the most children. The criteria were:

1. If a child had attended Head Start in Lee County
2. If the child received free lunches or free county textbooks
3. If the child's family had received Emergency Food and Medicine (EAM) from CAP. EFAM was available only if the head of the household was out of work, and there was no other source of income.
4. If the child in the second grade had a brother or sister described as underprivileged by the Follow-Through Program in the first grade.
5. If any of the families of the second graders received welfare grants in the form of AFDC.

In addition the Reading, Mathematics, and Language Tests of the California Achievement Test (CAT) and the California Test of Mental Maturity (CTMM) were used. The tests were chosen because they were a part of the regular testing program of the schools.

Procedure

On the basis of the criteria for determining the poor group and non-poor group, it was decided 10 of 20 children could be described as poor. If the child were in any one category or a combination of categories, he was chosen as underprivileged. An analysis of the data concerning the poor group showed that two children attended Head Start only, and two had brothers or sisters described as poor by Follow-Through only, making a total of four Ss in one category. The remaining Ss were in two or more categories. Of the other children, one attended Head Start, received

EFAM and free lunches, and had a brother termed poor by Follow-Through; one attended Head Start, received free lunches, and received AFDC; one attended Head Start, received free books, and had a sister termed poor by Follow-Through; one attended Head Start, received EFAM, and had a brother described as poor by Follow-Through; one attended Head Start and received EFAM; and one attended Head Start and had a brother described as poor by Follow-Through.

A summary of the data showed that of the 20 Ss, eight attended Head Start, six had brothers or sisters termed poor by Follow-Through, two received free lunches, one received free books, one received AFDC, and three received EFAM.

There were 10 Ss in the poor group and 10 Ss in the non-poor group. In each group there were six boys and four girls. In the study of sex differences only eight boys were used, because there were only eight girls in the class. The four boys not used were chosen, two from the poor group and two from the non-poor group. But of the two boys from the non-poor group, one had attended Head Start, and one had a sister described as poor by Follow-Through. In other words the two boys were not as poor as the other boys in the poor group. In the non-poor group one father was a miner and the other father was in construction.

During the third and sixth six weeks of the school year 1969-1970, the CAT and CTMM were administered. The t test for uncorrelated data was the statistical test used, and the .05 level of confidence was the criterion.

RESULTS

The group termed poor had a lower IQ than the group termed non-poor, but the differences were not significant at the .05 level of confidence.

As Table 2 showed, the IQ of the poor group decreased from 93 to 91 while the IQ of the non-poor group increased from 99 to 105, a gain of 6 points. Being poor or non-poor did not seem to influence the performance of the Ss. Hypothesis 1 was accepted.

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Insert Table 2 about here
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As Table 3 showed, the girls' IQ increased from 97 to 104, a gain of 7 points while the boys' IQ dropped from 97 to 93, a drop of 4 points. The t test showed that although there was a difference between the IQ scores of the boys and girls, it was not significant at the .05 level. Sex did not make a difference in the IQ scores of the boys and girls. Hypothesis 2 was accepted.

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Insert Table 3 about here
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In reading the poor group scored higher than the non-poor group. In Table 4 the results showed the groups were even with an obtained grade placement (OGP) of 2.3 during the third six weeks. But the poor group increased to 2.9 while the non-poor group increased to 2.8 during the sixth six weeks. On the other hand the t test showed that the results were not significant at the .05 level. Although both groups improved substantially in reading, the differences were not statistically significant. Hypothesis 3 was accepted.

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Insert Table 4 about here
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Girls had higher scores in reading than boys, but again the differences were not enough to be significant at the .05 level. As Table 5

showed, the girls had a higher OGP, 2.7 during the third six weeks than the boys with an OGP of 2.2, a difference of 5 months. During the sixth six weeks, the OGP increased to 3.1 for the girls and 2.9 for the boys, a difference of 2 months. While the girls and boys made some progress in reading, there was no significant difference in their scores. Hypothesis 4 was accepted.

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Insert Table 5 about here
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In math the non-poor group scored higher than the poor group which Table 6 showed. During the third six weeks, the poor group had an OGP of 2.4 while the non-poor group scored 2.7. a difference of 3 months. There was a substantial increase for both groups with an OGP of 3.5 for the poor group and 3.6 for the non-poor group during the last six weeks, a difference of 1 month. But the t test showed the differences between the two groups was not significant at the .05 level, and Hypothesis 5 was accepted.

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Insert Table 6 about here
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Boys scored slightly higher than girls during the third six weeks and during the sixth six weeks in math. The results in Table 7 showed that during the first testing period, the boys had an OGP of 2.7 while the girls had 2.5, a difference of 2 months. During the sixth six weeks, the girls' OGP increased to 3.6 and the boys to 3.7, a difference of 1 month. But the t test showed that the differences between the groups was not significant at the .05 level. Hypothesis 6 was accepted.

- - - - - - - - - - - - - - -
Insert Table 7 about here
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In language the non-poor group had a higher OGP, 2.5 during the third six weeks than the poor group with an OGP of 2.2, a difference of 3 months as Table 8 showed. But during the last six weeks, the two groups each had an OGP of 2.8. The t test showed no significant difference between groups, and Hypothesis 7 was accepted.

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Insert Table 8 about here
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The girls during both tests had higher scores in language than the boys. In Table 9 the results showed that during the third six weeks, the girls had an OGP of 2.6 while the boys had 2.2, a difference of 4 months. During the last six weeks the girls' OGP increased to 3.2 and the boys increased to 2.7, a difference of 5 months. The t test found there was no significant differences between the groups, and Hypothesis 8 was accepted.

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Insert Table 9 about here
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In spelling the poor group had a higher OGP than the non-poor group, but the difference between groups was not significant at the .05 level. As Table 10 showed, the poor group had a 2.4 OGP during the third six weeks, and the non-poor group had 2.2, a difference of 2 months. During the sixth six weeks, the poor group increased to 3.1 and the non-poor to 2.6, a difference of 5 months. Hypothesis 9 was accepted.

- - - - - - - - - - - - - - - -
Insert Table 10 about here
- - - - - - - - - - - - - - - -

In spelling the girls scored higher than the boys, but again the t test showed there were no significant differences. Table 11 showed that

the girls had an OGP of 2.7 during the third six weeks and the boys 2.1, a difference of 6 months. During the sixth six weeks, the girls had an OGP of 3.5 and the boys had 3.0, a difference again of 5 months. Hypothesis 10 was accepted.

- - - - - - - - - - - - - - -
Insert Table 11 about here
- - - - - - - - - - - - - - -

In the total battery there was only a slight difference between the poor and non-poor. As Table 12 showed, there was a larger difference between the two groups during the third six weeks than during the sixth six weeks. The poor group had an OGP of 2.4 during the third six weeks, and the non-poor group had 2.6. During the sixth six weeks, the non-poor had an OGP of 3.3 compared with 3.2 for the poor group. The t test revealed that the difference between the two groups was not significant at the .05 level. Hypothesis 11 was accepted.

- - - - - - - - - - - - - - -
Insert Table 12 about here
- - - - - - - - - - - - - - -

In the total battery the girls scored slightly higher than the boys, but the t test showed no significant difference. The results in Table 13 showed that the girls had an OGP of 2.7 during the third six weeks and the boys had 2.4, a difference of 3 months. During the sixth six weeks, the girls had an OGP of 3.4 and the boys had 3.2, a difference of 2 months. Hypothesis 12 was accepted.

- - - - - - - - - - - - - - -
Insert Table 13 about here
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DISCUSSION

The results of the study showed there were no significant differences between the poor and non-poor groups in achievement and intelligence. Being poor or non-poor made no difference in the level of achievement and the fluctuation of the IQ scores. The results showed, also, there were no significant differences between the boys and girls in achievement and intelligent. Sex had nothing to do with the IQ scores and achievement level. The results further showed that the children in the second grade class were very similar in their learning capacities.

There were several reasons for the lack of significant differences. One reason was the small sample of Ss. There were only 10 Ss in the poor group and 10 Ss in the non-poor group. A larger sample was necessary to insure greater probability of significant differences. In the study of sex differences, there were only eight girls and eight boys. Again a larger sample was needed. Another probable reason for the lack of significant differences was giving the same test during the third and sixth six weeks. Not enough time lapsed between tests to give the Ss a chance to forget the content. They were retested on something with which they were already familiar.

A third reason for the lack of significant differences between groups was the environmental conditions of the children. In Appalachia parents do not teach their children to listen to the meaning of words, only to the emotion behind the words. Because of their low educational level, parents are unable to help a child with homework assignments. In the home there is a distinctive lack of educational stimulation, such as a deficient number of books and magazines, or educational toys and puzzles.

Also there are characteristics of the mountaineer that handicap a child in school. A mountaineer simply is not interested in learning for the sake of learning, or abstract ideas and logical reasoning. A child has a short attention span and the inability to concentrate on a task for a sustained period of time. With a background of permissiveness, a mountain child comes to school totally unprepared for what it demands of him in the way of self-discipline and motivation.

In other words the study compared Appalachian children with each other. Being poor or non-poor, girl or boy made little difference. The children lived in the same community, were exposed to the same sights and sounds around them, and associated with each other outside of school. The only difference was that some of the children enjoyed a slightly better economical status while others had the benefit of attending Head Start. The influence of Head Start was important, giving the poor children, the extra background and attention they needed.

The study pointed out the need for comparative studies between Appalachian children and children in other parts of the United States. Information is needed on specific learning problems of the Appalachian child, such as probable visual and auditory discrimination. Does a child living in Appalachia have his own particular learning problems, or are his problems similar to other children who also are disadvantaged? If there are learning problems peculiar to the mountain child, what can be done about it?

The results also pointed out the need for a follow up study of the second grade as they progress from grade to grade, as each grade becomes increasingly more difficult. Would the children continue to perform

with equal ability, or would differences develop as the subject matter becomes harder? Would there be any sex differences?

The results tended to confirm Wozencraft (1963) and Edmonds (1964) who found no significant sex differences among underprivileged children. Social class was a better indication of performance than sex.

The study showed that for a class of 20 Ss attending school in an isolated mining camp in Southwestern Virginia, there were no specific differences between sexes in achievement and intelligence. When the Ss were divided into two groups according to family income, there were still no significant differences. Sex and family income did not influence the learning ability of the children. The main reason was the similar environmental conditions of the children, although the majority of the poor group attended Head Start.

SUMMARY

At Keokee Elementary School, Keokee, Virginia, 20 Ss were given the CAT and CTMM during the third and sixth six weeks of the regular school year 1969-1970. The Ss were divided into two equal groups: poor and non-poor with six boys and four girls in each group. Sex differences were also compared with eight girls and eight boys in each group.

The results showed there were no significant differences between the poor and non-poor groups in achievement and intelligence. Also there were no significant differences between sexes in achievement and intelligence. The children were very similar in their learning capacities, mainly because they came from similar environmental backgrounds.

REFERENCES

REFERENCES

Alexander, V. E. Sex differences in seventh grade problem solving. School, Science, and Mathematics, 1963, 62(543), 47-50.

Appalachia: A Report by the President's Appalachian Regional Commission. Superintendent of Documents. Washington, D. C.: United States Government Printing Office, 1964.

Asher, E. J. The inadequacy of current intelligent tests for testing Kentucky mountain children. Pedagogical Seminary and Journal of Genetic Psychology, 1935, 46, 480-486.

Ausbury, F. A. Vocational development of rural disadvantaged eighth grade boys. Vocational Guidance Quarterly, 1968, 17(2), 109-113.

Balow, I. A. Sex differences in first grade reading. Elementary English, 1963, 40, 303-306.

Bennett, G. K. & Crukshank, R. M. Understanding of mechanical problems. Journal of Applied Psychology, 1942, 26, 121-127.

Campbell, J. C. The southern highlander and his homeland. New York: Russell Sage Foundation, 1921.

Caudill, H. M. Night comes to the Cumberlands. Boston: Little, Brown, and Company, 1962.

Crow, L. D., Murray, W. I., & Symthe, H. H. Educating the culturally disadvantaged child. New York: David McKay, 1966.

Deutsch, C. P. Auditory discrimination and learning: social factors. In M. Deutsch (Ed.), The disadvantaged child. New York: Basic Books Incorporated, 1967, pp. 259-277.

Deutsch, M. The disadvantaged child and the learning process. In M. Deutsch (Ed.), The disadvantaged child. New York: Basic Books Incorporated, 1967, pp. 39-57.

Edmonds, W. S. Sex differences in the verbal ability of socio-economically depressed groups. Journal of Educational Research. 1964, 58(2), 61-64.

Edwards, A. S. & Jones, L. An experimental and field study of North Georgia mountaineers. The Journal of Social Psychology, 1938, 9, 317-333.

Ford, T. R. (Ed.) The Southern Appalachian region: a survey. Lexington, Kentucky: University of Kentucky Press, 1962.

Gates, A. I. Sex differences in reading ability. Elementary School Journal, 1961, 61(7), 431-434.

Gaumnitz, W. H. Education in the Southern mountains. United States Department of Interior, Office of Education Bulletin, Number 26. Superintendent of Documents. Washington, D. C.: United States Government Printing Office, 1938.

Hatcher, O. L. A mountain school. Richmond: Garrette and Massie Incorporated, 1930.

Hirsch, M. D. M. An experimental study of East Kentucky mountaineers. Genetic Monographs, 1928, 3(3). Cited by L. R. Wheeler, The intelligence of East Tennessee mountain children. Journal of Educational Psychology, 1932, 23, 351-370.

Hobson, J. R. Sex differences in primary mental abilities. Journal of Educational Psychology, 1947, 40(2), 126-132.

Katz, P. A. & Deutsch, M. The relationship of auditory and visual functioning to reading achievement in disadvantaged children. In M. Deutsch (Ed.), The disadvantaged child. New York: Basic Books Incorporated, 1967, pp. 233-258.

Kephart, H. Our Southern Highlanders. New York: MacMillan Company, 1922.

Kostick, M. M. A study of transfer: sex differences in the reasoning process. Journal of Educational Psychology, 1954, 45(8), 449-458.

Office of Economic Opportunity, Community Action Program, Form 5 Statistics. Superintendent of Documents. Washington, D. C.: United States Government Printing Office, 1966.

Ramsey, W. Reading in Appalachia. Reading Teacher, 1967, 21(1), 57-63.

Riessman, F. Culturally deprived child. New York: Harper and Row, 1962.

Rowland, G. W. Sex differences in the science background experiences of elementary school children. Science Education, 1968, 52(2), 179-180.

Rude, H. N. & King, D. C. Aptitude levels in a depressed area. Personnel and Guidance Journal, 1965, 43(8), 785-790.

Ryckman, D. B. A comparison of information processing abilities of middle and lower class Negro Kindergarten boys. Exceptional Children, 1967, 33(8), 545-552.

Scholnich, E. K., Osler, S. F., & Katzenellenbogen, R. Discrimination learning and concept identification in disadvantaged and middle class children. Child Development, 1968, 39(1), 15-26.

Shepard, E. L. Measurements of certain non-verbal abilities of urban and rural children. Journal of Educational Research, 1942, 35(6), 458-462.

Skinner, V. P. The literacy problem in Appalachia. Education Digest, 1967, 33(2), 32-33.

Smith, M. P. Intellectual differences in five year old underpriviliged girls and boys with and without kindergarten school experience. Journal of Educational Research, 1969, 61(8), 68.

Stinson, P. J. & Morrison, M. M. Sex differences among high school seniors. Journal of Educational Research, 1959, 53(3), 101-108.

Stroud, J. B. & Lindquist, E. F. Sex differences in achievement in the elementary and secondary schools. Journal of Educational Psychology, 1942, 33(8), 657-557.

Thompson, S. H. Highlanders of the South. New York: Eaton and Mains, 1910.

Traxlur, A. E. Sex differences in rate of reading in the high school. Journal of Educational Psychology, 1935, 19, 351-352.

Weller, J. E. Yesterday's people. Lexington, Kentucky: University of Kentucky Press, 1965.

Wheeler, L. R. The intelligence of East Tennessee mountain children. Journal of Educational Psychology, 1932, 23, 351-370.

Wheeler, L. R. A comparative study of the intelligence of East Tennessee Mountain children. Journal of Educational Psychology, 1942, 33(2), 321-334.

Wozencraft, M. Are boys better in arithmetic than girls? Arithmetic Teacher, 1963, 10(8), 486-490.

APPENDIX

TABLE 1

Means of Raw Scores of Boys and Girls

on Three Reading Tests

Grade 2	Number	Mean
Speed		
Girls	888	8.43
Boys	938	7.37
Difference		1.06
Vocabulary		
Girls	888	11.26
Boys	938	9.41
Difference		1.85
Comprehension		
Girls	888	8.66
Boys	938	7.05
Difference		1.61

TABLE 2

Difference Between Mean Intelligence Scores of the Poor and Non-poor Groups

	Mean		Difference	t-value
	Poor N = 10	Non-Poor N = 10		
Third Six Weeks	93	99	6	.71
Sixth Six Weeks	91	105	11	1.73

TABLE 3

Difference Between Mean Intelligence Scores of the Boys and Girls

	Mean		Difference	t-value
	Boys N = 8	Girls N = 8		
Third Six Weeks	97	97	.00	.00
Sixth Six Weeks	93	104	11	1.73

TABLE 4

Difference Between Mean Reading Scores of the

Poor and Non-poor Groups

	Mean		Difference	t-value
	Poor N = 10	Non-Poor N = 10		
Third Six Weeks	2.3	2.3	.0	.00
Sixth Six Weeks	2.9	2.8	.1	.13

TABLE 5

Difference Between Mean Reading Scores of the Boys and Girls

	Mean		Difference	t-value
	Boys N = 8	Girls N = 8		
Third Six Weeks	2.2	2.7	.5	.92
Sixth Six Weeks	2.9	3.1	.2	.29

TABLE 6

Difference Between Mean Reading Scores of the Poor and Non-poor Groups

	Mean		Difference	t-value
	Poor N = 10	Non-Poor N = 10		
Third Six Weeks	2.4	2.7	.3	.53
Sixth Six Weeks	3.5	3.6	.1	.13

TABLE 7

Difference Between Mean Math Scores of the

Boys and Girls

	Mean		Difference	t-value
	Boys N = 8	Girls N = 8		
Third Six Weeks	2.7	2.5	.2	.33
Sixth Six Weeks	3.7	3.6	.1	.19

TABLE 8

Difference Between Mean Language Scores of the Poor and Non-poor Groups

	Mean		Difference	t-value
	Poor N = 10	Non-Poor N = 10		
Third Six Weeks	2.2	2.5	.3	.29
Sixth Six Weeks	2.8	2.8	.0	.00

TABLE 9

Difference Between Mean Language Scores of the Boys and Girls

	Mean		Difference	t-value
	Boys N = 8	Girls N = 8		
Third Six Weeks	2.5	2.6	.1	.65
Sixth Six Weeks	2.7	3.2	.5	.71

TABLE 10

Difference Between Mean Spelling Scores of the Poor and Non-poor Groups

	Mean		Difference	t-value
	Poor N = 10	Non-Poor N = 10		
Third Six Weeks	2.4	2.2	.2	.26
Sixth Six Weeks	3.1	2.6	.5	.58

TABLE 11

Difference Between Mean Spelling Scores of the Boys and Girls

	Mean		Difference	t -value
	Boys N = 8	Girls N = 8		
Third Six Weeks	2.1	2.7	.6	.91
Sixth Six Weeks	3.0	3.5	.5	1.55

TABLE 12

Difference Between Mean for the Total Battery Scores

of the Poor and Non-poor Groups

	Mean		Difference	t -value
	Poor N = 10	Non-Poor N = 10		
Third Six Weeks	2.4	2.6	.2	1.11
Sixth Six Weeks	3.2	3.3	.1	1.00

TABLE 13

Difference Between Mean for the Total Battery Scores

of the Boys and Girls

	Mean		Difference	t-value
	Boys N = 8	Girls N = 8		
Third Six Weeks	2.4	2.7	.3	.47
Sixth Six Weeks	3.2	3.4	.2	.56