DOCUMENT RESUME

ED 097 229 SE 018 457

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TITLE The Relationship Between Parent's Education and Performance on Math and Reading Tests.
PUB DATE [74]
NOTE 10p.

EDRS PRICE MF-$0.75 HC-$1.50 PLUS POSTAGE
DESCRIPTORS Achievement; *Mathematics; *Mathematics Education; *Parent Education; *Reading Achievement; *Research

ABSTRACT

One hundred six freshman students were studied as to their performance on mathematics and reading tests in relation to their parents' education. These tests were local tests and were not based on national norms. Results showed that the mother's education influenced the test performance more than the father's, but both mother's and father's education tended to show relationship between mathematics and reading performance. The relationship between student scores on the reading and the mathematics tests also showed up substantially. (Author/DT)

The Relationship Between Parent's Education and Performance on Math and Reading Tests

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ABSTRACT

The 106 freshman students were studied as to their performance on math and reading tests in relation to their parent's education. These tests are local tests and are not based on national norms. The mother's education influences the test performance more than the father's, but both mother's and father's education tend to show relationship between math and reading performance. The relationship between reading and math also shows up substantially.

The Relationship Between Parent's Education and

Performance on Math and Reading Tests

This problem was to study the relationship between the education of fathers and mothers versus performance on math and reading tests of the selected group of freshman high school students at a suburban midwest high school.

The freshman were in a growing community which had expanded rapidly in the past few years. Most of the families in residence have moved there from other suburbs and small towns. Its socioeconomic status ranges from middle lower to upper middle class. In the last graduating class, 1972-1973, only 30% of the students went on to college. Most of the students went on to trade schools or right to work when they graduated.

The group used in this study consisted of 54 freshman boys and 52 freshman girls entering the high school from the surrounding junior high schools, they were tested in order that the school could place them in t . appropriate level courses.

The scores on the math tests were taken from Math Fundamentals Test, Township High School District 211, Schaumburg, Illinois. This test consists of 100 problems which are used to place the students in the various classes. The reading test was the Sequential Test of Educational Performance. From these scores, each student was placed in one of the following five math courses.

1. Math 128--accelerated algebra class using Modern School Math by Dolciani, in which algebra was taught

2. Math 127--modern algebra class using the book Introductory Algebra by Jacobs, in which introductory or beginning algebra was taught

3. Math 125--a two year pre-algebra course, using Combination Worksheets which are made by the district

4. Math 121--a general mathematics course using Flow Chart: Machine Mathematics by Victor Comptometer Corporation

5. Math 120--a remedial math course, using Fundamentals of Mathematics by Edwin Stein

Information concerning the parents' education was gathered from forms the parents themselves filled out upon registration of their children.

The following is a summary of information collected concerning the students and their fathers. Chart 1 groups all the students' fathers into the four categories of their educational achievement: grade school, high school, college, graduate. Then their children's math scores were averaged. One can see as the fathers' education progressed, so did the children's math average progress upward.

Chart 1 -- Comparative Results of Fathers' Education and Students' Math Average

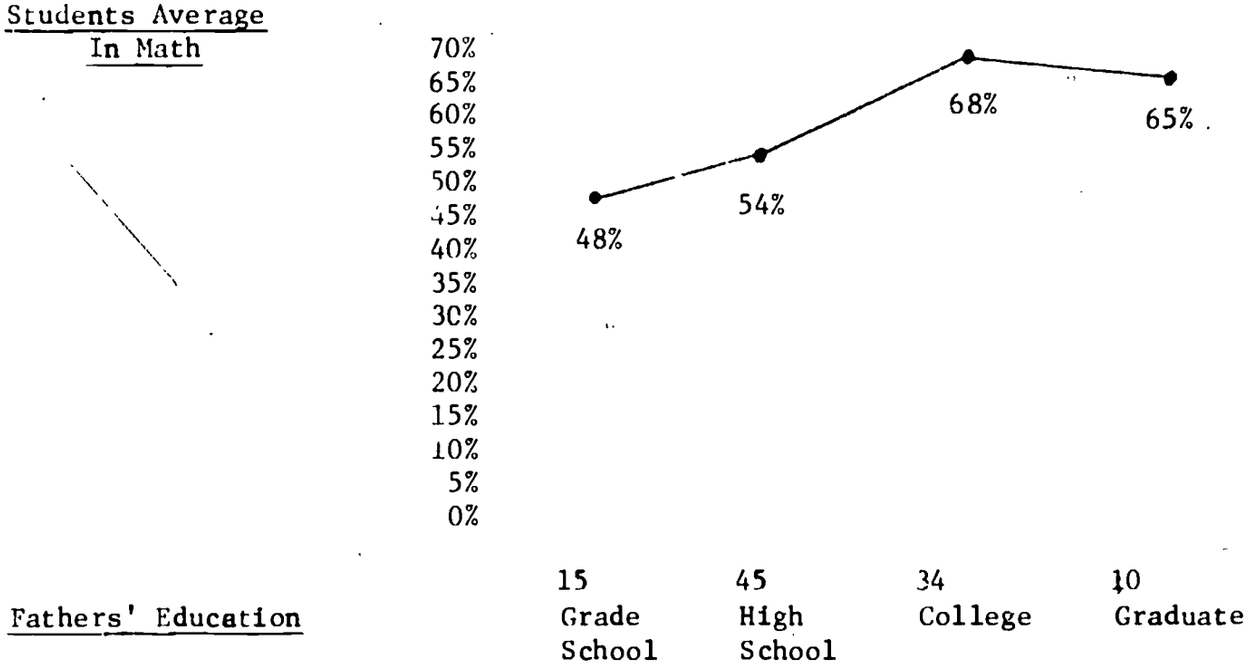


Chart 2 groups all the students' fathers into the four categories again but this time their reading scores were averaged. One can see again that as the fathers' education progressed, the students' reading ability went up.

Chart 2 -- Comparative Results of Fathers' Education and Students' Reading Average

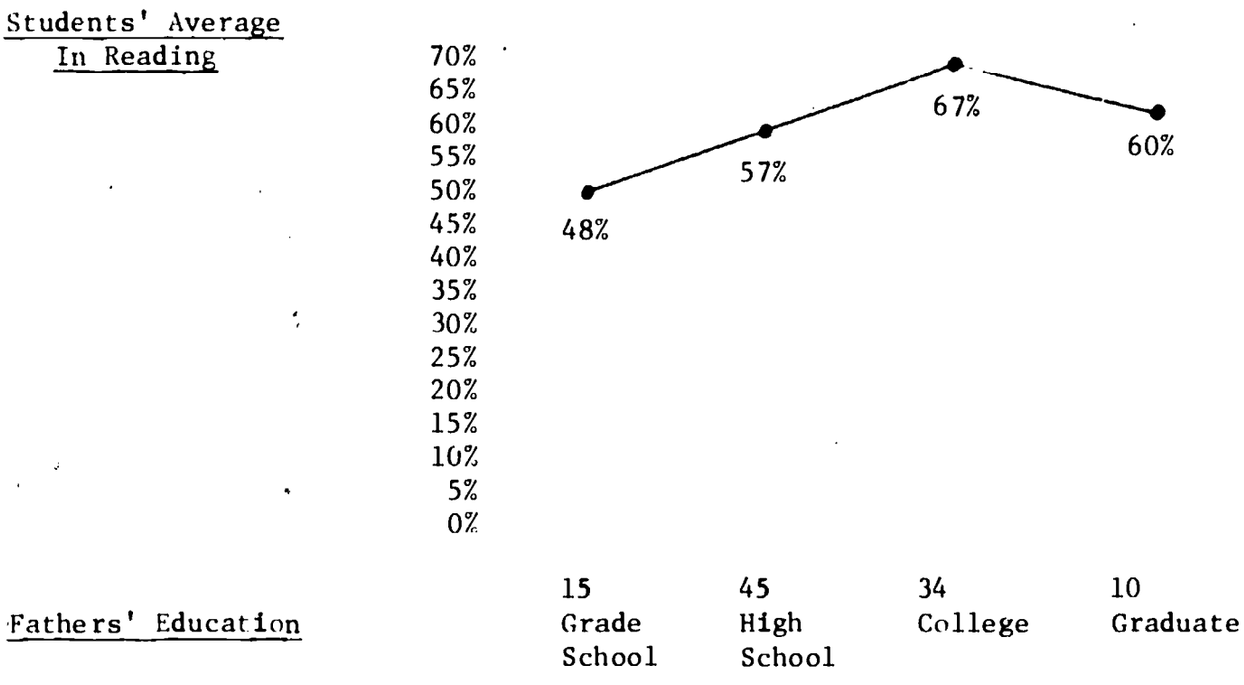


Table 1 below compares the math average on various levels of the fathers' education. As you can see, working at the .01 significance level, there were only two comparisons which were significant enough to indicate any connection between the students' math ability and his fathers' education. These two were high school versus college, .97, and high school versus graduate, .92. But considering there were only two out of the possible six combinations, there does not seem to be enough of a relationship to indicate a connection between the two.

Table 1 -- Two tailed Probability Between Education and Math Ability (Fathers)

Fathers' Education	Two Tailed Probability
Grade School vs. High School	.44
Grade School vs. College	.89
Grade School vs. Graduate	.83
High School vs. College	.97
High School vs. Graduate	.92

Table 2 compares the reading averages on the various levels of the fathers' education. One can see there was also no relationship between the fathers' education and his children's reading ability. Not one of the comparisons was more than .90.

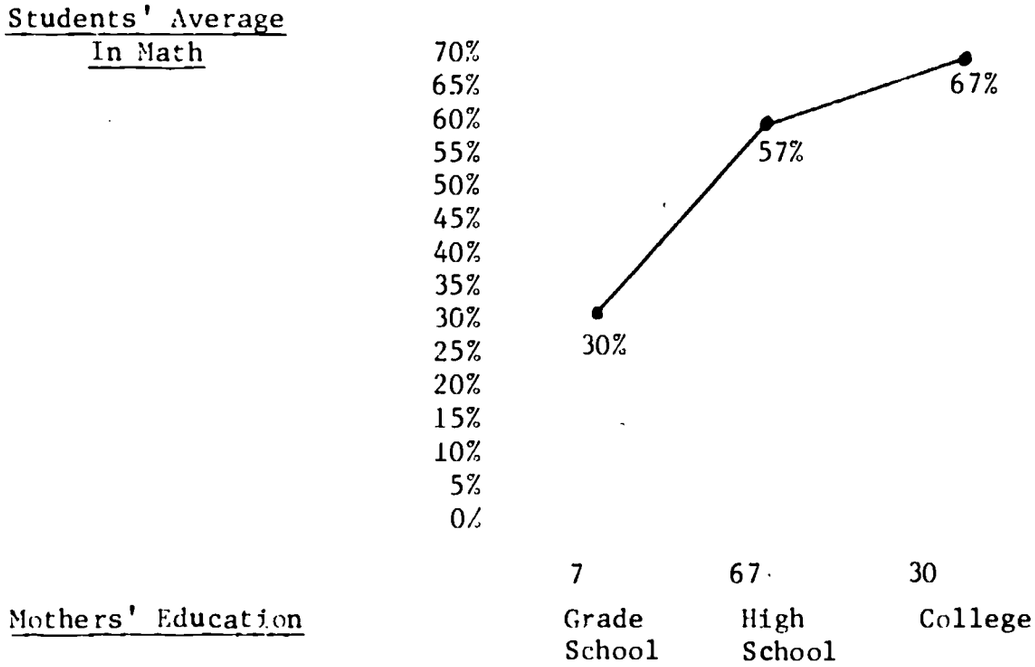
Table 2 -- Two Tailed Probability Between Education and Reading Ability (Fathers)

Fathers' Education	Two Tailed Probability
Grade School vs. High School	.56
Grade School vs. College	.86
Grade School vs. Graduate	.56
High School vs. College	.84
High School vs. Graduate	.20
College vs. Graduate	.41

Following is all the information collected concerning the students and their mothers. Chart 3 groups the students' mothers into the four

categories of their educational achievement and shows their children's math averages. The reason for no scores in the comparisons concerning the category of graduate was the fact that there was only one mother in the test group who had done any graduate work; and, therefore, there was no average to work with. Again, as the mothers' education progresses so does the math averages for the children.

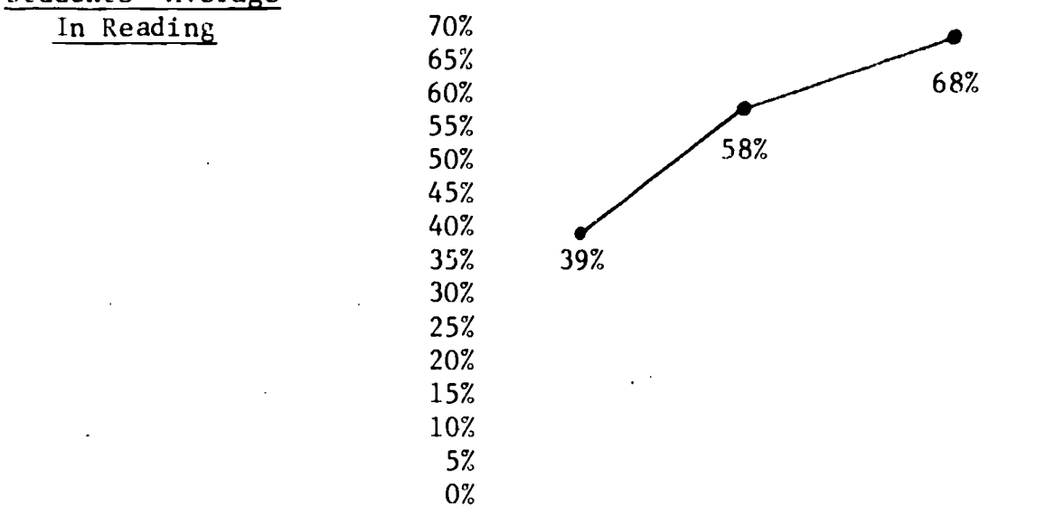
Chart 3 -- Comparative Results of Mothers' Education and Students' Math Average



Again, as the mothers' education went from grade school to college, the students' reading ability rose. Chart 4 illustrates this occurence.

One mother had done graduate work and was not included in Chart 3 nor Chart 4.

Chart 4 -- Comparative Results of Mothers' Education and Students' Reading Ability



The scores in both math and reading (Tables 3 and 4) are all very high. In the math area, grade school vs. high school and grade school vs. college both have a .99 correlation. The other comparisons, high school vs. college was a .75 correlation.

In reading the scores are also very high. Grade school vs. high school was .80, grade school vs. college was .92 and high school vs. college was .75. This suggests that the schooling of the mother has more of an influence on the child's achievement in both math and reading than the education of the father.

Table 3 -- Two-Tailed Probability Between Education and Math Ability (Mothers)

Mothers' Education	Two-Tailed Probability
Grade School vs. High School	.99
Grade School vs. College	.99
Grade School vs. Graduate	--
High School vs. College	.75
High School vs. Graduate	--
College vs. Graduate	--

Table 4 -- Two Tailed Probability Between Education and Reading Ability (Mothers)

Mothers' Education	Two-Tailed Probability
Grade School vs. High School	.80
Grade School vs. College	.92
Grade School vs. Graduate	--
High School vs. College	.75
High School vs. Graduate	--
College vs. Graduate	--

The fact that the mother has more influence on her child's math and reading ability could be attributed to the fact that the mother, in general, spends more time with the children when they are small, whereas the father is off at work all day. Because of this, the mother can emphasize reading more. She can read books to her child, show them how to count and perform different math algorithms such as addition, subtraction, etc.

Also with the great emphasis on educational TV programs for pre-schoolers, the mother can be present when her child is watching these. She can answer his or her questions concerning the programs and can also emphasize their importance giving other information in each area.

One interesting point to note about reading versus math ability, the maximum difference in mean between the two in every case, grade school, high school, college, graduate, for both mother and father, was only nine points. Computing the averages between all the differences one finds only a 2.7 difference. This suggests that if the student can read well, he should have a better ability in performing mathematical skills.

In conclusion, of both parents, mother has more influence on a child's math and reading ability than father does, but the education of both seems to correlate highly with math and reading.