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Date August 5, 1970.

THE PREFERRED SUBJECTS OF CHILDREN, AND THE RELATIONSHIP OF THESE PREFERENCES TO CHILDREN'S SEX, INTELLIGENCE, AND ACHIEVEMENT

by

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ABSTRACT

The purpose of this study was to determine what subjects have the greatest preference among fifth grade students, and then to determine if their choices were related to the children's sex, intelligence, and achievement in the preferred subject.

The study was conducted by a fifth grade social studies teacher in a departmental organization at the Willson Middle School in Bozeman, Montana. Students who participated were in the six regular social studies classes of about 30 students, nearly evenly divided by boys and girls.

After each student had written down his first three preferences of subjects, a table was made showing student preferences according to subjects. Another table was made showing the preferences by sex. Individual I.Q.'s were obtained, and a table made showing the subject preferences within the range of certain I.Q. scores. Similar tables were developed using subject preferences and achievement test scores, as well as subject preferences and the achievement according to teachers' yearly grades.

Chi square tests of significance between sex and subject preference, between I.Q. scores and subject preferences, and between achievement according to 1) achievement test scores and subject preference, and 2) achievement by teachers' yearly grades and subject preference, were computed.

The results of the tests showed significant differences between the subject preferences and intelligence scores, and between subject preferences and student achievement according to teachers' grades. No significant differences were shown in the tests between subject preferences and sex, or between subject preferences and achievement according to teachers yearly grades.

CHAPTER I

INTRODUCTION

Children's special interests in certain subjects and the motivating factors that have created these subject preferences have been an area of speculation for educators for some time. Several tests have been made to find out if there is any relation of the subject preference to the sex of the child; if the preference for a subject is in any way related to the I.Q.'s; or if the preference has any relation to the achievement in that subject. The educators have reached no definite conclusions, and have made recommendations for further testing.

If significant clues to the reasons for children's preferences could be obtained, they would be valuable to the improvement of instruction and learning processes. This study is another effort to obtain more significant information about reasons for children's preferences.

THE PROBLEM

This study is being made to discover reasons children prefer certain of their school subjects. To determine if specific reasons are significant statistically, the following null hypotheses will be tested: (1) There is no significant difference between preference and sex of students. (2) There is no significant difference between preference and student intelligence. (3) There is no significant difference between

preference and pupil achievement in that subject as measured by achievement tests. (4) There is no significant difference between preference and student achievement in that subject as measured by grades.

Data with which to test these hypotheses was gathered from 164 fifth grade students who listed their subject preferences and their own name on a piece of paper. This information was tabulated. Later, the sex of each student was recorded on this same paper, as were score and grade data as it became available during the school year. I.Q.'s for each student were obtained from Otis Mental Ability tests; the grade-equivalent figures were taken for the preferred subject from the Iowa Test of Basic Skills, and the teachers' average yearly grades in the preferred subject were obtained for each child from his teacher.

All of this data was processed in relation to preferred subjects and put into table form. Four chi square tests were computed to show the relationship of subject preferences to 1) the sex of the student, 2) the I.Q. of the student, 3) the grade equivalent score on the Iowa Test of Basic Skills, and 4) the teachers' average yearly grades.

CHAPTER II

RELATED RESEARCH

A number of studies have been made about children's subject preferences, and the determining factors behind their choices. Some investigations have been made to find out if there were enough significance in the likes and dislikes of children to warrant changes in methods of educating our young people.

One such study was made by Greenblatt (2:554). In a group of third, fourth, and fifth grade children, he found that art, arithmetic, and reading enjoy a substantial degree of preference, and that art and arithmetic, as well as reading, held a significant numerical advantage at a .01 confidence level over all subjects, with the exception of social studies. He found that although art, arithmetic, and reading were not found to be significantly preferred over social studies, social studies was not found to be more desirable than any other subjects. Science and music were found in the middle positions of the preference rating, and writing, language and health were the least preferred.

In the same study, boys preferred science, girls preferred music, but the preference for social studies was significant at the .05 confidence level. Using chi square tests, Greenblatt (2:554) computed the significance between achievement in reading and arithmetic and choice of these subjects. As far as reading was concerned, no relation-

ship was discovered between achievement and the degree to which they preferred it. Girls, it appeared, chose, or did not choose, arithmetic, depending upon their achievement in that class.

In examining the relationship between the subject choices and the intelligence of the children, Greenblatt (2:555) noted a marked similarity in subject choices in the group with I.Q.'s above 110, and a wide divergence of opinion in the group with I.Q.'s of 91 or lower.

Dean (1:90-91) who investigated the relationship between subject preferences and achievement of fifth grade children reports no statistically significant finding, though boys indicated strong preferences in the selection of arithmetic, spelling and reading.

Chase and Wilson, as reported by Greenblatt (2:554), studied fifth grade children in Boston, and found that reading, art, spelling and social studies ranked high in terms of pupil preference. Boys showed a significantly stronger preference for social studies than girls, but these investigators reported no other significant preferences on the basis of sex.

Inskeep and Rowland (4:226-227) were inspired by E. L. Greenblatt's (2) study, and made a similar one, for slightly different purposes. However, their study yielded data that was directly related to Greenblatt's (2) study. By recasting their data, so that a comparison could be made, their study revealed the pupil preferences to be markedly similar to those of Greenblatt, with arithmetic being the most

preferred subject, and language the least preferred, but felt that this preference had been affected by the listed order of presentation of school subjects, on which list the students had expressed their choice by underlining the subject title. Inskeep and Rowland (4:228) concluded that unless the effect of the order of presentation was controlled, no statement could be made that validly represented the preferences of upper grade elementary school children for particular school subjects.

Mosher (6:34-35), in his investigation of subject preferences of boys and girls attending schools in different types of communities in New York State, found that the first three choices in the middle grades in the urban community are arithmetic, spelling, and art. In the rural community they are arithmetic, art, and spelling, and in the mountain community they are arithmetic, spelling and art. On this level, the subjects preferred are the same, irrespective of the type of community, the only variation being in rank order.

Mosher (6:35) also found, when the students were asked to check subjects as being "liked" or "disliked", that there was a wider variety in the choices than when they selected first, second and third choices. In this method of selection of subjects, reading appears in the "liked" group three times, (once for each community) while art appears twice, and the other four subjects appear only once. He noted that while the numbers of pupils who gave first, second, or third choices to reading are statistically insignificant, the small numbers who indicated a

liking or disliking for the subject are highly significant.

When Mosher (6:36) investigated the preferences according to sex differences, he found little statistical significance between the choices of boys and girls when first-choice-only data are considered. The totals, based on first choices of all the pupils in the middle elementary grades, show spelling, arithmetic, and art as preferences for girls, and arithmetic, art, and spelling for boys. He found little in his investigation to indicate that there is any line of separation between preferences of girls in the "aesthetic" subject areas, and of boys in the "skill" areas in the middle grades.

In summarizing his investigations, Mosher (6:38) stated that social studies, instead of being far down in the line of preferences, was well up toward the top choices with pupils of both sexes on all levels. He also said that spelling, contrary to general belief, ranks strongly among top choices. He found that those choosing reading as first choice was not significant. He recommended further examination of subject-preferences of boys and girls.

Herman (3:336), who made a study of how intermediate children rank subjects, reported a favorable comparison with the results of another investigator, Arthur T. Jersild, who found that social studies generally ranked first as the subject children liked least. These results would be opposed to those found by Mosher (3:38) who reported that social studies was well up toward the top choices. Herman studied

intermediate grade children's preferences, and found on the basis of an interest inventory, spelling, English and arithmetic were the choices of girls, in that order, and for the boys, science, spelling and arithmetic were the most liked subjects. Boys and girls considered together as one group ranked spelling as best liked, followed by arithmetic, social studies, science, and English. He made special note of the interest strength spelling has for the children involved in his investigation.

CHAPTER III

FINDINGS OF THE STUDY

The students in each of six social studies classes were asked to write down the subjects which they most enjoyed, or liked, ranking the subjects as first, second, and third choices, and omitting on their list physical education, art, music, and penmanship. (The reason for omitting these subjects is the impossibility of getting comparable measures of achievement through standardized tests in these four areas.) The directions were taped, and no subject list was submitted to the students in an effort to avoid any teacher influence upon choices because of way subjects were listed. Also recorded on the tape was the information that this was not a test, that it would have no effect upon their grade, that it was just a survey or study that was being made about fifth grade students and the way they felt about the subjects they study in school. Only names, section numbers, and the subjects preferences appeared on the paper turned in by each of the students. Subjects which they considered were reading, arithmetic, social studies, science, English, and spelling. A numerical value was assigned to each choice: first choice, 3 points; second choice, 2 points; and third choice, 1 point. Table I on the following page shows the subjects and accumulated points. It indicates that English was the most preferred subject, with math, science, social studies, reading and spelling next preferred in that

order. The study did not agree with Greenblatt (2:554) whose order of preference showed arithmetic first, and language last. Herman (3:436) found a different preference ranking, placing spelling first, then arithmetic, English, science, and last, social studies.

TABLE I

POINT ACCUMULATIONS FOR PREFERRED SUBJECTS

Subject	Points Assigned
English	299
Math	222
Science	198
Social Studies	162
Reading	78
Spelling	37

Table I shows considerable variation in order of subject preference rankings. Wayne L. Herman, Jr. (3:436), upon examination of social studies, the lowest ranked subject preference in his research, was cognizant of the students' feeling that this was a monotonous subject. He asked the question, "Can the blame for this indictment be laid on the teacher?" and followed his question with an example of how the Social Studies Council of Allegheny County in Pennsylvania compiled a booklet of over a hundred activities which its teachers are using to

inject enthusiasm, variety, and vigor into its social studies program.

SEX AND SUBJECT PREFERENCES

The lists of the students were sorted into lists of boys' preferences and girls' preferences, and using the first choice of subject, Table II, below, was compiled.

TABLE II

FIRST CHOICE OF SUBJECTS BY BOYS AND GIRLS

	English	Science	Math	Social Studies	Reading	Spelling
Boys	24	23	20	8	7	2
Girls	34	11	17	14	4	2

From this data, a chi square test was computed. Since the table chi square at 5 degrees of freedom was 11.070 and the computed chi square was 8.6343, the null hypothesis that there is no significant difference at the .05 level of confidence between preferences and sex of student was not rejected. In a similar test, Greenblatt (2:554) found boys' preference for social studies significant at the .05 level of confidence.

INTELLIGENCE AND SUBJECT PREFERENCES

The Otis Mental Ability test was the source of data used to make

a table relative to the level of intelligence and subject preferences. In Table III the student I.Q. scores were divided into four groups, and then sorted by subject preferences.

TABLE III

FIRST CHOICE OF SUBJECTS ACCORDING TO INTELLIGENCE RATING

I.Q.	English	Science	Math	Social Studies	Reading	Spelling
120+	15	13	4	7	3	2
110-119	24	8	17	7	1	0
100-109	16	10	10	5	2	1
Below 99	4	3	6	3	5	0

In the matter of subject preferences, the children of the 120 I.Q. or above group showed a preference for English and science, while those in the 110-119 I.Q. group showed a choice of English and math, and in the third group, they chose English first with science and math equally preferred. Those students with lower I.Q.'s chose nearly equally among English, science, math, social studies and reading, with none giving spelling as a first choice. Where Greenblatt (2:555) found that students with higher I.Q.'s (above 110) placed arithmetic first; art, second; and reading, third, and that the lower I.Q. group (under 90) indicated a preference for art, reading, and spelling, this research showed that math was the subject of second choice, with English in first

place.

A chi square test was computed from this table. Since the table chi square at 15 degrees of freedom was 24.996 and the computed chi square was 26.4092, the null hypothesis that there is no significant difference between preferences and intelligence was rejected.

ACHIEVEMENT OF STUDENTS (ACCORDING TO IOWA BASIC TESTS) AND SUBJECT PREFERENCES

The subject composite scores in terms of grade equivalents from the Iowa Basic Skills tests were used to make Table 4, which shows the relationship of student preferences and achievement. Since science was not included in the Iowa Basic Skills test, this subject was not considered in this study.

TABLE IV

ACHIEVEMENT OF STUDENTS (ACCORDING TO IOWA BASIC TESTS) AND SUBJECT PREFERENCES

Achievement	English	Math	Social Studies	Reading	Spelling
Above Average of Class	36	19	15	7	4
Below Average of Class	23	15	7	4	0

Although the above-average group chose English well ahead of other subjects, and the below-average group also chose English, the

number was not enough to be significant. Chi square tests of the significance between student achievement and subject preference were completed, but since the table chi square at 4 degrees of freedom was 9.448 and the computed chi square was 3.3907, the null hypothesis that there is no significant difference between preferences and student achievement as measured by the Iowa Basic Skills test was not rejected.

ACHIEVEMENT OF STUDENTS (ACCORDING TO GRADES) AND SUBJECT PREFERENCE

To make a study of the relationship between student achievement and grades given by the teacher, the yearly averages were obtained for each student in his preferred subject. This information is compiled in Table V below.

TABLE V

ACHIEVEMENT OF STUDENTS (ACCORDING TO GRADES) AND SUBJECT PREFERENCES

Grade	English	Science	Math	Social Studies	Reading	Spelling
A	7	7	4	5	1	4
B	33	8	12	10	2	0
C	17	17	11	6	4	0
D, F	2	1	7	1	4	0

A chi square test of significance was computed from the data

given in Table 5. Since the table chi square at 15 degrees of freedom was 29.995 and the computed chi square was 50.9342, the null hypothesis that there is no significant difference between preferences and student achievement as measured by grades given by the teacher was rejected.

According to Inskeep and Rowland (4:226), Greenblatt found little evidence of a relationship between achievement and subject preference. He reported only a significant relationship between the achievement of girls in arithmetic and their preference of it at a .02 level of confidence. Inskeep and Rowland obtained data on children's perception of a subject, not on achievement, and so had no results to report in this area of study. Since a significant relationship was found in all subjects used in this study, it does reinforce what Dean (1:90) reported—that significant relationships are shown for first preferences and achievement only in the areas of arithmetic and spelling.

CHAPTER IV

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

1. There is little statistical evidence in this study that shows any significant difference between preference and sex of student, or that girls tend to prefer certain subjects, such as those in the aesthetic and content areas, while boys would generally prefer those subjects of the skills area. At this age and grade level, the sex of the student apparently has little to do with the subject preferences.

2. This study shows that a significant relationship does exist between the subject preferences of boys and girls and their I.Q.'s. The students with an I.Q. of 99 or lower showed a much wider range in first choice of subject than did those above 99.

3. It is interesting to note that while there is no significant difference in student preferences as measured by the Iowa Test of Basic Skills, a standard test of achievement, there is a significant difference in student preferences as measured by the yearly grades given by teachers. This may indicate a variable, that of the teacher, or of teacher-motivation, neither of which was given consideration in this study.

4. It is recommended that in another study, the teacher-motivation factor be considered. Herman (3:436) felt that some of the blame for the lack of interest in a subject could very possibly be directed

toward the teacher, or toward teacher-motivation.

5. The author feels that such a study as this could provide important insights and clues to be used in the improvement of supervision of instruction and for curriculum planning. It is recommended that school personnel use a study of this nature as a method of discovering the strengths and weaknesses of instructional patterns, and as a means of indicating areas of curriculum which need to be up-dated to meet the demands of modern children.

6. It is recommended that if a study similar to this one is conducted within a school, plans should be made for making the investigation more than once during the school term. It is reasonable to believe that student preferences will vary from time to time. It is also reasonable to believe that if the study were conducted for several years, preference patterns would develop within grade levels, and within schools (if junior and senior high school students were included.)

7. It is recommended that a study of student preferences be used to secure some indication about the student reaction to new instructional innovations. In this instance, it may be noted from Table II, page 10, that there is a great disparity in the number of students who prefer English and the number who prefer reading or spelling. The English class is being taught according to the Nebraska Plan, a recent curriculum change, and was preferred by fifty-eight students. Reading, a related subject, was the first choice of only

eleven students, six of whom were assigned to special reading classes. Spelling was preferred by only four students. This first study would serve only as a hint of any imbalances. Should a series of studies show a similar trend of preferences, supervision or curriculum personnel may wish to examine these subject areas for the qualities that make them attractive or unattractive to students.

8. A survey of student preferences may give the first notice of the development of problem areas. Early detection of unacceptable trends within the curriculum, or within the instructional field, would be preferable to later discovery of the problem after it had become well-entrenched. For example, where the present study shows a lack of preference for spelling, curriculum changes might be made so that spelling was no longer a separate class, but an integral part of other classes such as English, science, and social studies. In this position, spelling would take on new meaning to the students, and become a tool useful in the pursuit of other school subjects.

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