

A STUDY OF VOCATIONAL INTEREST ACHIEVEMENT
AND SCHOLASTIC APTITUDE

by

FRED LEE WILHOITE, JR.

B. S., Kansas State Teachers College
of Emporia, 1944

A THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

Department of Education and Psychology

KANSAS STATE COLLEGE
OF AGRICULTURE AND APPLIED SCIENCE

1951

TABLE OF CONTENTS

INTRODUCTION	1
PROCEDURE	5
THE NATURE OF INTEREST MEASUREMENT	6
INTERPRETATION OF HANKES SCORING SHEETS FOR THE STRONG INTEREST TEST	12
RELATIONSHIP OF SCHOLASTIC APTITUDE AND ACHIEVEMENT	16
RELATIONSHIP OF INTEREST AND SCHOLASTIC APTITUDE	21
Comparisons of Specific Occupation Rankings of Students	32
Relationship Between Ability and Occupational Level	36
Relationship Between Ability and Interest Maturity	36
RELATIONSHIP BETWEEN INTEREST AND ACHIEVEMENT	36
Relationship Between Achievement and Occupational Level	39
Relationship Between Achievement and Interest Maturity	39
CONCLUSIONS	41
Scholastic Aptitude and Achievement	41
Interest and Scholastic Aptitude	42
Achievement and Interest	42
Sex Differences	43
SUMMARY	45
ACKNOWLEDGMENTS	47
BIBLIOGRAPHY	48
APPENDIX	50

List of Tables

1.	Summary of chronological age data	6
2.	Determination of weights in Strong's Blank	9
3.	Dependability of ratings from Strong	10
4.	Rating scale for Strong Interest Test	12
5.	Occupational groups on Hanks scoring sheet	14
6.	Summary of mental age data	18
7.	Scale for averaging grades earned	19
8.	Summary of average grades for five semesters	20
9.	Distribution of Occupational Groups of all students according to Interest Ratings	23
10.	Distribution of Occupational Interest Group Rank- ings of boys	23
11.	Distribution of Occupational Interest Group Rank- ings of girls	24
12.	Percentage distribution of Occupational Interest Group Rankings of boys and girls	24
13.	Distribution of Interest Group Rankings of stu- dents above Q_3 in Mental Ability	28
14.	Distribution of Occupational Interest Group Rank- ings of students below Q_1 in mental ability	29
15.	Percentages of distribution of Occupational Interest Group Rankings of students above Q_3 and below Q_1 in mental ability	29
16.	Specific occupational interest rankings of stu- dents above Q_3 in mental ability who received "A" interest ratings	32
17.	Specific occupational rankings of students below Q_1 in mental ability who received "A" interest ratings	33

18.	Specific occupational rankings of students above Q_3 in mental ability who received "B+" interest ratings	34
19.	Specific occupational rankings of students below Q_1 in mental ability who received "B+" interest ratings	35
20.	Distribution of Occupational Group Rankings of students above Q_3 in achievement	37
21.	Distribution of Occupational Group Rankings of students below Q_1 in achievement	37
22.	Percentages of distribution of Occupational Interest Group Rankings of students above Q_3 in achievement and below Q_1 in achievement	38
23.	Sex, chronological age, mental age, and grade average for all students in study	51
23.	Mean interest occupational group score, interest maturity score, occupational level score, and masculine-femininity score for all students in study	57

Figures

1.	Comparisons of total "A" and "B+" ratings of boys and girls	26
2.	Comparisons of total "A" and "B+" ratings of students above Q_3 and below Q_1 in mental ability	31
3.	Comparisons of total "A" and "B+" ratings of students above Q_3 and below Q_1 in achievement	40

INTRODUCTION

Educators today, for the most part, agree that the problem of educating boys and girls in our present day society is a complex one of great consequence. In this process of education, one should always keep in mind the hope that each student will be able to adjust himself so that he may live more effectively and develop into a mature adult contributing to the utmost, within the limits of his capacities, to the welfare of society.

In the present day organization and functioning of public education, the high school plays an important role in the training of today's youth. At this stage of learning and development, the counseling of students, which is an important phase of guidance, is crucial; therefore, it should not be done as a matter of routine or considered lightly, but should be performed in a serious positive manner taking into consideration, and judiciously weighing all factors which bear directly or indirectly upon the final decisions to be reached. As a result of this counseling students will be helped to make wise vocational and educational choices in pursuit of their careers.

However, when counseling students in high school, many problems emerge. Many times teachers or advisors hear students make various statements concerning their interest in certain vocations or occupational undertakings. Such remarks as

"I am interested in becoming a lawyer when I grow older", or "I am planning on studying medicine when I enter college", or perhaps as one youth ventured to remark: "I am interested in being an accountant, or a dentist--Oh No!, I think I am interested in being a mortician" are common expressions of youth. Do educators, give credence to these remarks or do they weigh in their minds the multiplicity of factors which undoubtedly underlie the vocational choices of youth?

According to John G. Darley,

Our vocational choices are one clue to where we hope to get in the world and one way of stating what we believe our interests to be--Interests may either help keep the student attentive to things, people or activities. They bring about better learning when present, or they interfere with learning when they are absent. If our vocational choices, as expressions of interests, are impractical or impossible, we may lead unhappy and frustrated work lives. Whatever his interests are, we must know about them in our study of the student.¹

Research has shown that many adolescents want to enter occupations and vocations beyond their mental capacity or enter fields for which they have little or no interest merely because of the lack of valid occupational information, emotionalized daydreams, parental pressure, and many other reasons. However, if these students would take cognizance of their true abilities, interests and past achievements, counseling and guidance would be more effective for them.

¹ John G. Darley, Testing and Counseling in the High School Guidance Program, p. 38.

In the process of studying students for counseling and guidance purposes, their abilities, achievements, and interests can best be measured by tests especially designed for these purposes. Interest measurements supply information that is not disclosed by ability and achievement. Counseling that considers abilities, achievements, and interests is superior to that based on one or two of these factors.

In regard to this matter of interest, achievement and ability, E. K. Strong says:

There is no known way of directly determining a man's interests or abilities. Both are inferred from what a man says and does and from the use of tests. Consequently when we talk about the relationship between interests and abilities we mean the relationship between observed behavior or between test scores. It is better to talk about relationships between interest and achievement than between interest and ability, because achievement is what is observed and measured, whereas ability for the most part is inferred from achievement.¹

In studying about the relationship of ability, achievement and interests, this study was a result of the challenge set forth by E. K. Strong in his twofold hypothesis which assumes:

Analogously, the relationship among abilities, interests, and achievement may be likened to a motor boat with a motor and a rudder. The motor (abilities) determines how fast the boat can go, the rudder (interests) determines which way the boat goes. Achievement might be thought of as distance traveled in a straight line in a given interval of time.²

Accepting this hypothesis as a challenge, this research was

¹ E. K. Strong, Vocational Interests of Men and Women, p. 13.
² Ibid., p. 17.

pursued to learn of the relationship between: (a) Scholastic Aptitude and Achievement, (b) Interest and Scholastic Aptitude; and (c) Achievement and Interest for the senior students of the Manhattan High School, Manhattan, Kansas.

With this hypothesis in mind, the research was divided into five phases which constituted the basic pattern of study for the thesis. These phases as they appear in the study are as follows:

1. Ascertaining the descriptive nature of the group, taking into consideration number of subjects, age, sex, race and grade classification.

2. Determining the scholastic aptitude of the subjects as denoted by mental age scores from the Henmon-Nelson Test of Mental Ability--Form B.

3. Determining the scholastic achievement of the subjects by averaging their grades earned for five semesters in grades 10, 11 and 12.

4. Determining the interest pattern groupings of the subjects by administering the Strong's Vocational Interest Blank Form M (for Men).

5. Analyzing the data found in the first, second, third, and fourth phase to learn what relationships exist, if any, between scholastic aptitude and achievement; interest and scholastic aptitude; and achievement and interest.

In the final analysis of the research, appropriate conclusions have been drawn.

PROCEDURE

As a working procedure for the study, a three by five index card was used for each student. The following data were included for each subject in the study.

Information Card

No. ____ Name _____ Age ____ Sex ____
 Mental Score _____ Mental Age _____ I.Q. ____ Gr. Av. ____
 Interest Maturity ____ Occupational Level ____ Masc.-Fem. ____
 Interest Group Ranks: _____
 Letter Ratings _____
 Occupat. Group I II III IV V VI VII VIII IX X XI
 Score _____
 Specific Occupat. Ratings:
 "A" _____
 "B+" _____
 "B" _____
 "B-" _____

On the back of each card, the grades earned were listed for five semesters. These grades were earned during the first and second semester of grades 10, 11, and the first semester of grade 12. The grades were obtained from their high school scholastic records.

The subjects for this study were the senior students of the Manhattan Senior High School, Manhattan, Kansas. The total number

of students included in the study was 144. Seventy-seven of the students were boys and 67 were girls. All of the students in the study were white students with the exception of two Negro girls, two Negro boys, and two Mexican boys. The age range for the students was 23 years 8 months to 16 years. The mean age for the boys was 17.90 while the mean age for the girls was 17.49. The mean age for the group was 17.75.

Table 1. Summary of chronological age data.

Students: Number :Range in months: Mean : Stand. Dev.				
Boys	77	272 - 196	17.90	.93
Girls	67	235 - 192	17.49	.68
All	144	272 - 192	17.75	.82

THE NATURE OF INTEREST MEASUREMENT

Douglas Fryer states "Inventoried interests have been found to be a more valid measure of interest than subjective estimates of interests".¹ It was decided to use an interest inventory for the study.

As the Strong's Vocational Interest Blank for Men was used in the study to ascertain the designated occupational interests of each student, it is necessary that a summarization of the

¹ Douglas H. Fryer, Measurement of Interests, p. 56.

nature, purpose, validity and reliability of this measurement instrument be given. According to E. K. Strong this test was constructed on the basis that:

Men engaged in a particular occupation have been found to have a characteristic set of likes and dislikes which differentiate them from men following other professions. The Vocational Interest Test is a device by which such patterns of interests may be determined. By means of it, also, it is possible to ascertain the pattern of interests with which a given individual's interests most nearly coincide, and hence the occupation for which he is best fitted so far at least as his interests are concerned.

It is assumed that, if a man likes to do the things which men like who are successful in a given occupation and dislikes to do the things which these same men dislike to do, he will feel at home in that occupational environment. Seemingly, also, he should be more effective there than somewhere else because he would be engaged, in the main, in work he liked.¹

Inasmuch as this test was being administered to high school seniors, investigations were made to find out the feasibility of using the test with this age group. A recent book by Donald E. Super states:

Age and stability studies both cross-sectional and longitudinal have been seen to show that meaningful data can be obtained by means of Strong's Blank from boys and girls as young as fourteen and fifteen and that by that time they are eighteen to twenty years old their Strong scores are rather well fixed. This suggests that, despite the apparent difficulty of some of the words used in the inventory, it is sufficiently well understood at these age levels to be applicable to most high school students.²

¹ E. K. Strong, Vocational Interest Blank For Men--Manual--1945.

² Donald F. Super, Appraising Vocational Fitness, p. 409.

Mr. Super further states:

The vocabularies of the Strong, Kuder, and other inventories were analyzed by Stelfre who reported that the Strong Blank has a tenth grade vocabulary. This fits in with the data on its usefulness with seventeen (17) year olds, and suggest that it should be used below that level, only with the more able and more advanced students.¹

The Strong's Vocational Interest Blank includes 400 items to which a student may respond as: Like, Dislike, or Indifferent. Since there is a rather large number of items to answer, one may feel that the test would not be appropriate to use for high school seniors; however, J. C. Darley relates that "....it is important to realize that the items do sample experiences accessible to the greater majority of even sixteen and seventeen year old students."²

There is no time limit for the Vocational Interest Blank, as the task for the student is to answer all questions; the time required ranges from a little over 30 minutes for the better students to something more than an hour for the less able students.

In answering the blank, the subject marks each item according to whether he likes, dislikes, or is indifferent to it. The answer to each item is assigned a weight based on the degree to which the answers of men in a given occupation differ from those of men in general. In order to help clarify our thinking in

¹ Ibid., p. 409.

² J. C. Darley, Clinical Aspects and Interpretation of Strong's Interest Blank, p. 8.

regard to the "weighting" of a student's response to an item, the following table has been reproduced from Strong's Vocational Interest of Men and Women.

Table 2. Determination of weights in Strong's Blank.

Group	Item "Actor"		
	Like	Indifferent	Dislike
	: percent	: percent	: percent
Engineers	9	31	60
Men (general)	21	32	47
Difference	-12	- 1	13
Weight	- 1	0	1

It is made clear by the "difference" row in Table 2 that engineers are less likely to indicate a liking for the occupation "actor" than are men-in-general, slightly more likely to indicate indifference, and much more likely to show a disliking for it. By means of a formula based on the significance of the difference between two per cents these data are converted into the weights shown in the bottom row. In scoring the inventory of a young man who thinks he wants to be an engineer, but who indicates that he would like being an actor, one would therefore deduct one point from his engineering score; he has shown that in this respect at least, he is more like other men than like engineers.¹

The raw scores earned by each student may be translated into letter grades. Strong suggests that:

Students making "A" and "B+" scores in either form of the test be considered as having interests typical of the criterion group; "B" scores should be considered as doubtful evidence of interests similar to the criterion group, and "C" scores represent interests atypical of the criterion group.

¹ Ibid., p. 9.

An "A" score means no more than similarity of the individual responses to an arbitrarily chosen "majority" proportion of the "successful" men in the occupation. No "goodness or badness" attaches to the score from the counseling standpoint.¹

In using the Strong's Vocational Interest Test, for our study, one of the most important problems which confronted us was the matter pertaining to the validity of the ratings which would be assigned to each student on the basis of his occupational interest score. Strong asserts:

If "A" and "B+" ratings are considered as indicative of having the interests of an occupation and "B-" and "C" are considered indicative of the reverse then it is possible to say that ten years later when tested again, the chances that one will receive an "A", "B+" or "B" rating are shown below.

Table 3. Dependability of ratings from Strong.²

Initial rating	: Rating 10 years later (percent)
A	94
B+	79
B	62
B -	42
C -	28
C	9

"Strong presents evidence that interest patterns as measured by his blank change less and less as people become older. He has shown that interest patterns are relatively stable by the time they become twenty-five."³

¹ J. C. Darley, Clinical Aspects and Interpretation of the Strong Vocational Interest Blank, p. 8.

² Strong, loc. cit., p. 68.

³ Walter Van Dyke Bingham, Aptitudes & Aptitude Testing, p. 74.

In a study concerning the occupation of engineering

Strong found:

Interests as measured on Strong's Interest Blank are highly permanent. The correlation between occupational interest scores when there is an interval of ten years between test and retest is .75. Permanence measured in this way for younger students is slightly less but such correlations compare favorably with the permanence of ability and achievement test scores. They are certainly high enough to warrant prediction based upon interests.

It is obvious that if interests are not permanent and are influenced considerably by training and occupational experience it would be rather futile to assign a youth to any occupation in terms of his present interests. If interests are easily changed, it might be better to ignore them, to base guidance solely on abilities and then to provide special training designed to make the task agreeable.¹

In making a diagnostic value of the Vocational Interest Test, Strong found:

....of 156 seniors, forty-six (46) per cent entered the occupation on which they scored highest; twenty (20) per cent the occupation on which they scored next highest, and eleven (11) per cent on which they scored third highest. Only eighteen (18) per cent entered an occupation for which, according to the test, they had no interest.²

In the final analysis of occupational interest scores made on the Strong Interest Test, letter grades may be assigned to these scores as a means of interpreting the meaning of a score. The following standard score scale has been set up by Strong.

¹ Strong, loc. cit., p. 51.

² E. K. Strong, "Diagnostic Value of the Vocational Interest Test", Educational Record, 10: 58-69. 1929.

Table 4. Rating scale for Strong Interest Test.

Score intervals	:	Rating
45-up		A
40-44		B+
35-39		B
30-34		B-
Below 30		C

By considering these foregoing data concerning the nature, purpose, reliability, and usefulness of the Strong Vocational Interest Test, it was decided that the instrument would prove satisfactory for this study.

INTERPRETATION OF HANKES SCORING SHEETS FOR THE STRONG INTEREST TEST

Before any comparisons could be made to determine the relationship between interest and ability it was necessary that the results of the Strong's Interest Test scores be analyzed, interpreted, and tabulated. For this study, the scores were interpreted on an occupational interest group basis which may also be called an occupational interest pattern. Each score which a student made in an occupational group was read from the standard scale on the Hankes Scoring sheet, and all scores within this group were averaged; consequently each score for an occupational group represented a mean score for that

respective group. Equivalent letter grades were assigned to this group score.

As a means of illustration one could assume that in occupational Group I a student's scores read from the standard scale were as follows: Artist 12; Psychologist 55; Architect 49; Physician 65; Osteopath 55; Dentist 40; and Veterinarian 60. The mean interest score for this occupational group would be 48 which has an equivalent letter rating of "A" in this group which would be interpreted to mean that this student has interests similar to the members of the occupational group. This would also be his primary interest pattern.

For purposes of making comparisons it was assumed that this type of analysis would prove more reliable and satisfactory for this study than using ratings for specific occupations. Our assumption, concerning using group interest patterns, is substantiated by the statements of Donald F. Super who states:

It is manifestly unwise to play up scores on specific occupations. The result too often is that a student says, "I rate "A" as a minister, but I don't have any desire to be a minister," and the insights into interest which might be gained from the score are lost in the negative reaction to a stereotype of a specific field.

When occupational interest scores are grouped according to their factorial composition, however, the result is often quite different. This puts related occupations together in families; it permits the analysis of scores in terms of types of occupations rather than specific occupations, and it makes it easy to see whether or not a high score in one occupation is supported by high scores in related occupations.

It is more helpful to know, for example, that a student's primary interest patterns are in the scientific and literary field, than to know that he made "A's" as psychologist, physician, physicist, chemist, engineer, personnel director, public administrator, advertising man, author-journalist and president of a manufacturing concern.¹

The Hanks Scoring Sheets were analyzed for each student, in the same manner as described above for the 11 occupational groups. The occupations included in the various groups are given in Table 5.

Table 5. Occupational groups on Hanks Scoring Sheet.

Group I	Group II	Group III	Group IV	Group VI
Artist	Mathematician	Production- manager	Farmer	Musician
Psychologist	Physicist		Aviator	
Architect	Engineer		Carpenter	
Physician	Chemist		Printer	
Osteopath			Math-Phys- Science Teacher	
Dentist				
Veterinarian			Ind.-Arts Teacher	
			Policeman	
			Forest Service- man	

¹ Super, loc. cit., p. 414.

Table 5. (concl.)

Group VII	Group VIII	Group IX	Group X	Group XI
C. P. A.	Senior C. P. A.	Sales- manager	Advertising- man	President of Mfg. Concern
Accountant		Real Es- tate	Lawyer	
Office Man		salesman	Author- journalist	
Purchasing- agent				
Banker				
Mortician				
Pharmacist				

In addition to the scoring for the 11 occupational groups for the Strong Test there are 3 other scales: one for interest maturity; one for occupational level; and the other for masculinity-femininity. Each student is rated for these three factors as they relate to interest. Interest maturity and occupational level scales were utilized in this study.

In regard to the factor of interest maturity, Fryer quotes Strong as saying: "Certain interests decrease and others increase with age. One-third of a man's interest changes between age 15.5-16.5; one-third between age 16.5-18.5; one-third between 18.5-25."¹

¹ Donald F. Fryer, Measurement of Interests, p. 150.

Statistically interest maturity is the quantitative measurement of the differences in interests of fifteen (15) and twenty-five (25) year old men--the degree to which one has the interests of the latter in contrast to the former. Our data, indicate, however, that interest maturity is not closely associated with age, since the correlation between the two is only .50. Our data indicate, moreover, that it is associated with occupational interests. The reliability of the revised interest maturity scale is .932.¹

The occupational level score of the student is based on the principle that occupations may be arranged in a hierarchy in terms of interest. It is stated by Strong that:

The occupational scale affords an opportunity to measure the interests of men in all occupations on a single scale ranging from unskilled workmen, on one hand, to business and professional men, on the other hand.

Men cannot be assigned to a specific occupation on the basis of intelligence test scores. Neither can they be assigned to a specific occupation in terms of an occupational level score. In both cases there is far too great overlapping between occupations to make this possible. Nevertheless such assignments can be made in a general way: Men with high occupational level scores have the interests of business executives and professional men, but those with low scores have the interest of workmen.²

RELATIONSHIP OF SCHOLASTIC APTITUDE AND ACHIEVEMENT

The second phase of the study was to determine the relationship of scholastic aptitude and achievement of the students. For the purpose of determining scholastic aptitude the mental ages of the students were used. These mental ages were obtained

¹ Strong, loc. cit., p. 285.
² Strong, op. cit., p. 185.

from scores made on the Henmon-Nelson Test of Mental Ability--Form B. These test scores were used because they were available on the cumulative records of the students, and they are:

designed to measure the mental ability of students in junior and senior high schools. The test consists of ninety items arranged in order of increasing difficulty. A wide variety of types of questions is used, thus furnishing a test of many types of mental ability.¹

According to Louise E. Altender, the Henmon-Nelson Test of Mental Ability

is made up largely of problems involving reasoning and general information. The coefficient of correlation between the results for the Henmon-Nelson Test and the Minnesota Paper Form Board Test for 300 cases is $.45 \pm .03$. This coefficient would indicate that both similar and different traits are measured by the two tests.²

The validity and reliability of the Henmon-Nelson Test were taken into consideration before definitely deciding to use the scores from this test for the study. Validity may, in part, be determined by comparing one test with other tests which have proven to be useful as measures of mental ability. It was noteworthy that the coefficients of correlation of the test used and other important mental tests for the twelfth grade are:

Otis Self-Administering Test (Scores) .810; Terman Group Test (I.Q.'s) .78; American Council Psychological Examination (Scores) .79; and the American Council Psychological Examination (P.R.'s) .78. The coefficient of reliability of the Henmon-Nelson Test for grade 12 is .903 with a standard deviation of 14.1 and a P.E. of 3.0. The time limit for the test is thirty minutes.³

¹ Henmon-Nelson Tests of Mental Ability Manual, p. 1.

² Louise E. Altender, "The Value of Intelligence Personality and Vocational Interest Test in a Guidance Program." Jour. Educ. Psych. XXXI (July, 1940), 45 p.

³ Henmon-Nelson Tests of Mental Ability, Manual, p. 1.

The scores made on the Henmon-Nelson Test were arranged and tabulated in a frequency distribution in order that a rather concise description of the group could be found concerning their mental ability. After statistical computations had been completed it was learned that the range of mental ages in the group was from 89 to 19. This was an equivalent mental age of 23 years 8 months to 11 years 3 months. The mean mental age of the group was represented by a score of 57.56, which was equivalent to a mental age of 17 years 2 months. The standard deviation of the distribution was 12.50. Since the upper quartile and lower quartile of mental ability were to be used in the study, they were also calculated. Q_3 was 66.38 which was equivalent to a mental age of 18 years 3 months and Q_1 was 48.82, which was equivalent to a mental age of 15 years 10 months. The girls had a mean score of 59.55, which was equivalent to a mental age of 17 years 5 months. The boys mean score was 55.90, which was equivalent to a mental age of 16 years 10 months. The mean difference of 3.65 was found to be statistically insignificant at .01 level of confidence.

Table 6. Summary of mental age data.

Students :	No. :	Range :	Mean :	Stand. Dev.:	Q_1 :	Q_3
Boys	77	83-19	55.90	13.65		
Girls	67	89-34	59.55	10.85		
All	144	89-19	57.56	12.50	48.82	66.38

In order to compare scholastic aptitude and achievement, some criterion denoting achievement of each student was necessary. All grades which the students had earned during the first and second semester of the tenth and eleventh grades and the first semester of grade 12 were included. Inasmuch as the grades of the students were listed on their high school scholastic record as "A", "B", "C", "D", "F", and also I, II, III, IV, and V, it was necessary to devise an equivalent numerical scale which would facilitate averaging the grades for each student. The following scale was used:

Table 7. Scale for averaging grades earned.

Grade	:	Points	:	Grade	:	Points
A	:	4	:	I	:	4
B	:	3	:	II	:	3
C	:	2	:	III	:	2
D	:	1	:	IV	:	1
F	:	0	:	V	:	0

After the grades had been averaged for each student, the same statistical data which were obtained for mental ages were computed for average grades. The range of achievement for the group was 4.00 to .92. One student in the group of 144 students had a straight "A" average and one student had an average below "D" for the five semesters. The mean of achievement for the group was 2.69. The standard deviation for the distribution of

grades was .75. The lower quartile point was 2.08 and the upper quartile point was 3.30.

At this stage of this research the central tendencies and variability of the 144 students had been obtained for mental age and achievement, now the major purpose of this phase of the study was to learn the relationship of scholastic aptitude, as denoted by mental age scores, and achievement, as denoted by five-semester grade averages. As a means of determining this relationship the Pearson product-moment method for computing coefficient of correlation was used. The coefficient of correlation between scholastic aptitude and achievement was found to be .5865 with a standard error of $\pm .07$.

The next step in the study of achievement of the group was the study of sex differences in achievement. The grades of the boys were separated from those of the girls and tabulated into frequency distributions. After computations had been made, the following facts were revealed.

Table 8. Summary of average grades for five semesters.

Students :	No. :	Range :	Mean :	Stand. Dev.:	Q ₁ :	Q ₃
Boys	77	3.95- .92	2.52	.71		
Girls	67	4.00-1.51	2.90	.69		
All	144	4.00- .92	2.69	.75	2.08	3.30

The mean achievement of the girls was higher than that of

the boys. The obtained difference of .38 with a "T" function of 3.36 was statistically significant at the .01 level of confidence.

RELATIONSHIP OF INTEREST AND SCHOLASTIC APTITUDE

As the study progressed it was necessary to learn the occupational interest scores for each student in order that their interest ratings might be compared with their scholastic aptitude. For the purpose of securing the interests ratings of the students, the Strong's Vocational Interest Blank - Form M for Men was used.

The test was administered to the students in four groups. About 35 students were in each group. All students were given ample time to finish the test. Before the test was administered, a talk concerning the nature, purpose, and the use of the results was given to the students by the counselor of the school. As the results of the test were to be used also for counseling each student, a keen interest was shown in taking the test by the students.

The same form of the Strong Test was administered to both boys and girls. Since our study was to consider sex differences, it was thought that the form for men would be adequate. According to Strong "there is greater similarity than differences in interests at all ages. The similarity of interest at this

particular age is represented by a correlation of .61."¹

The study by G. E. Laleger points out that:

The men's blank is better standardized in some respects, and contains many of the items also included in the women's blank. Although it is probably not wise to use the men's blank routinely in work with girls, it has nevertheless, seemed to us desirable procedure in research in which sex differences are being studied.²

Concerning the use of the men's blank with girls, Carter, Taylor and Canning found:

When high-school girls are tested on the men's blank the girls tend to receive, if anything, fewer high ratings than the boys-----but when tested on the women's blank the girls tend to receive higher ratings than do boys tested on the men's blankIt is then interesting that the men's blank reveals sensible outcomes when used with girls, but it is also important to note the qualifications which must be accepted when one resorts to such procedures.³

After the test had been administered to all of the students, and scored by machine for all of the occupations on the Hanks Scoring Sheet, the following data were revealed:

¹

Strong, loc. cit., p. 91-92.

²

G. E. Laleger, The Vocational Interests of High School Girls, p. 101.

³

Carter, H. D., K. F. Taylor, L. B. Canning, Vocational Choices & Interest Test Scores of High School Students, Journal of Psychology, 1941, vol. 11, p. 302.

Table 9. Distribution of occupational groups of all students according to Interest Ratings. (N = 144).

Occupational: group	: I :	II :	III:	IV:	V :	VI:	VII:	VIII:	IX:	X :	XI:	:To- tals
"A" Ratings	6	8	11	16	1	43	2	7	10	7	10	121
"B+" Ratings	11	4	11	21	6	15	1	20	26	22	22	159
"B" Ratings	18	8	19	17	10	22	6	28	30	26	23	207
"B-" Ratings	32	13	20	26	13	28	17	39	37	24	32	281
Totals	67	33	61	80	30	108	26	94	103	79	87	768

This table may be read: Six (6) students received "A" ratings in occupational Group I, etc.

The next step in determining the occupational interest groupings of the students was to divide the students according to sex to learn how the boys compared with the girls. This distribution of interest grouping is shown in Tables 10 and 11.

Table 10. Distribution of Occupational Interest Group Rankings of boys. (N = 77).

Occupational: group	: I :	II :	III:	IV:	V :	VI:	VII:	VIII:	IX:	X :	XI:	:To- tals
"A" Ratings	3	7	11	16	0	12	1	2	4	3	6	65
"B+" Ratings	5	4	11	19	2	6	0	10	6	5	10	78
"B" Ratings	12	5	17	13	4	10	2	17	15	7	13	115
"B-" Ratings	19	11	16	14	5	20	5	28	25	10	16	169
Totals	39	27	55	62	11	48	8	57	50	25	45	427

This table may be read: Three (3) boys received "A" rating in occupational group I, etc.

Table 11. Distribution of Occupational Interest Group Rankings of girls. (N = 67).

Occupational: group	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	Totals
"A" Ratings	3	1	0	0	1	31	1	5	6	4	4	56
"B+" Ratings	6	0	0	2	4	9	1	10	20	17	12	81
"B" Ratings	6	3	2	4	6	12	4	11	15	19	10	92
"B-" Ratings	13	2	4	12	8	8	12	30	12	14	16	131
Totals	28	6	6	18	19	60	18	56	53	54	42	360

Table may be read: Three (3) girls received "A" rating in Group I, etc.

The data in Tables 10 and 11 were converted into percentages for the purpose of comparisons. The percentages for the distributions for both sexes are given in Table 12.

Table 12. Percentage distribution of Occupational Interest Group Rankings of boys and girls. (N = 144).

Occupational: group	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
"A" Ratings											
Boys	4	9	14	21	0	16	2	3	5	4	7
Girls	4	1	0	0	1	46	1	7	9	6	6
"B+" Ratings											
Boys	6	5	14	25	3	7	0	15	7	6	15
Girls	9	0	0	3	6	13	1	15	30	25	18
"B" Ratings											
Boys	16	6	22	17	5	15	3	22	20	7	17
Girls	9	4	3	6	9	18	6	16	22	28	15
"B-" Ratings											
Boys	25	14	21	18	6	30	6	35	32	15	21
Girls	19	3	6	18	12	12	18	45	18	21	17
Totals											
Boys	51	34	71	81	14	68	11	75	64	32	60
Girls	41	8	9	27	28	89	26	83	79	80	56

Table may be read: Four percent of the boys received "A" ratings in Group I, and four percent of the girls received "A" ratings in Group I, etc.

By a careful study of Table 12, one learns that the girls had more musical interest than the boys. Forty-six percent of the girls received "A" interest ratings while only 16 percent of the boys rated "A" in occupational group VI. The interest of the boys and girls in occupational group I is very similar. This is the highly professional occupational group which includes the professions of artist, psychologist, physician, osteopath, dentist, architect, and veterinarian. A greater percentage of the boys than the girls had interest in group II which includes the occupations of mathematician, physicist, engineer, and chemist. The interests of the boys in group IV was more predominate than that of the girls. The occupations of farmer, aviator, carpenter, printer, mathematics and physical science teacher, industrial arts teacher, vocational agriculture teacher, policeman, and forest service man. These occupations are usually considered occupations of men.

In groups VII, VIII, and XI, the interest of the boys and girls are quite similar. The girls had more interest than the boys in groups IX and X. Group IX includes the occupations of sales manager, real estate salesman, and life insurance salesman; and group X includes the occupations of advertising man, lawyer, and author-journalist.

In the above comparisons of the interests of boys and girls, consideration has been given only to "A" and "B+" ratings, and as a means of further comparing the two sexes, Fig. 1 was made.

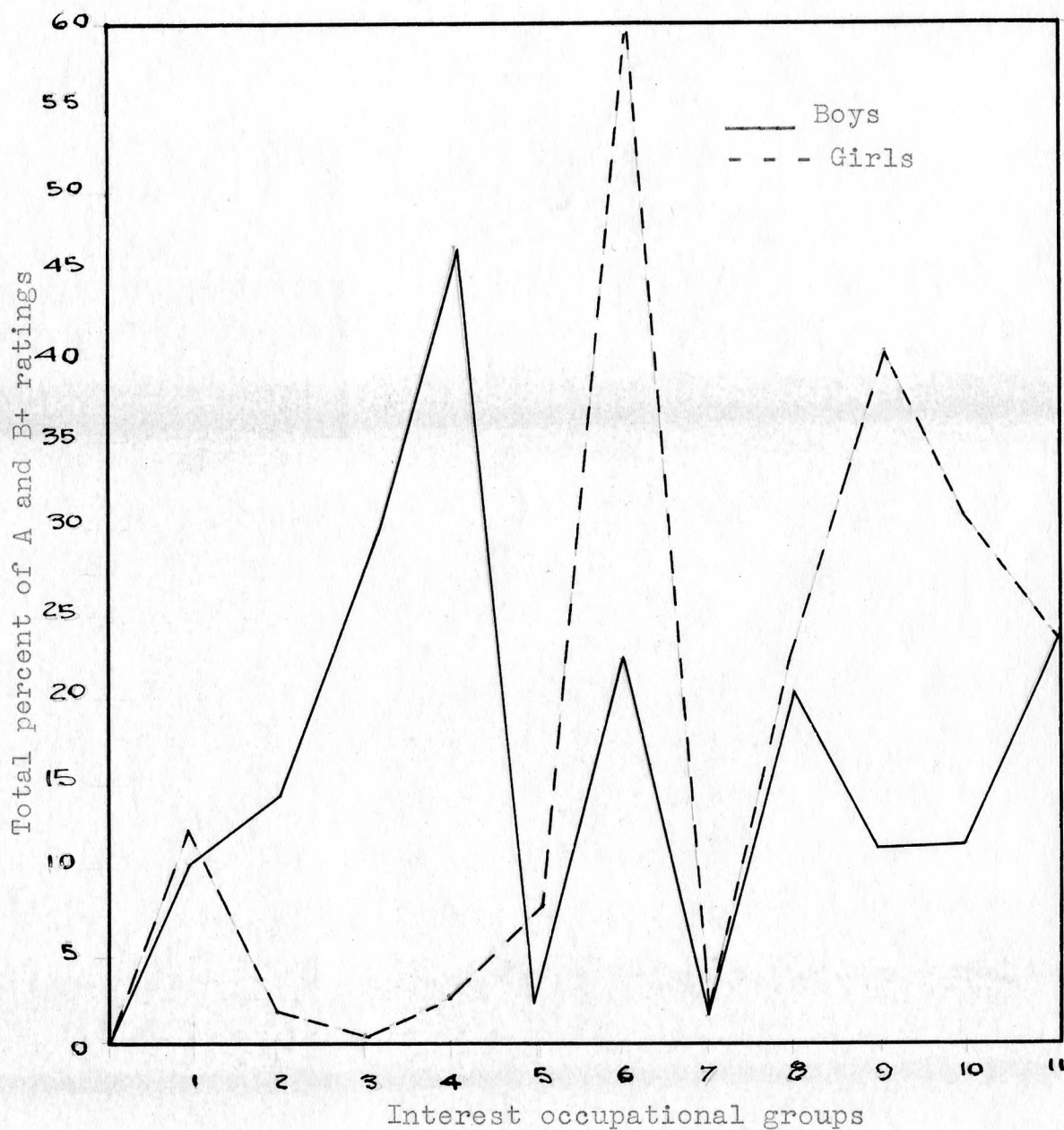


Fig. 1. Comparisons of total A and B+ ratings of boys and girls.

The distribution of interest group rankings had been obtained for all of the students, and the next logical procedure in the study was to obtain the relationship which existed between interest and scholastic aptitude. The method for determining this relationship was by comparing the students who ranked above the third quartile of ability with the students who ranked below the first quartile of ability. The guiding problem in mind while making these comparisons was to find out whether or not the students ranking in the upper quarter of ability had similar or different interest group pattern rankings. The primary interest was in the "A" and "B+" patterns.

The third quartile for the distribution of mental age scores was 66.38 which was an equivalent score for a mental age of 18 years 3 months. All students whose score exceeded this point were included in the upper quarter ranking. Thirty-four students were included in this group. Next, the designated interest group rankings were obtained for the same students. The following results were found concerning the interest group rankings of the students above Q_3 in scholastic aptitude.

Table 13. Distribution of Interest Group Rankings of students above Q_3 in Mental Ability. (N = 34).

Occupational: group	: I :	II :	III:	IV:	V :	VI:	VII:	VIII:	IX:	X :	XI:	:To- tals
"A" Ratings	2	4	2	3	0	14	1	1	2	2	2	33
"B+" Ratings	3	0	0	4	0	1	0	4	3	3	1	19
"B" Ratings	4	4	4	4	4	4	3	7	7	7	5	53
"B-" Ratings	7	1	5	8	4	2	4	9	8	4	3	55
Totals	16	9	11	19	8	21	8	21	20	16	11	160

Table may be read: Two students received an "A" interest rating for occupational group I, etc.

In order to make comparisons of the occupational interest group rankings of the students above Q_3 and below Q_1 of mental ability, similar data for the lower quarter students were tabulated. The first quartile for the distribution of mental age scores was 48.82 which was an equivalent score for a mental age of 11 years 3 months. All students whose scores fell below this point were included in this group. Thirty-five students were included in this group. The occupational interest group rankings of the lower quarter students were as follows:

Table 14. Distribution of Occupational Interest Group Rankings of students below Q_1 in mental ability. (N = 35).

Occupational: group	: I :	II :	III:	IV:	V :	VI:	VII:	VIII:	IX:	X :	XI:	Totals
"A" Ratings	0	1	4	4	0	8	0	0	0	3	4	24
"B+" Ratings	1	1	2	8	1	4	0	2	7	5	5	36
"B" Ratings	4	1	5	4	1	4	1	6	6	5	3	40
"B-" Ratings	10	6	3	4	3	6	3	14	10	4	9	72
Totals	15	9	14	20	5	22	4	22	23	17	21	172

Table may be read: Ten students received "B-" ratings in Group I, etc.

As a means of comparing the occupational interest group rankings of the students above Q_3 and below Q_1 of mental ability, the data in Tables 13 and 14 were changed to percentages for each group. These data are presented in Table 15.

Table 15. Percentages of distribution of Occupational Interest Group rankings of students above Q_3 and below Q_1 in mental ability. (N = 69).

Occupational: group	: I :	II :	III:	IV :	V :	VI :	VII:	VIII:	IX :	X:	XI
"A" Ratings											
Above Q_3	6	12	6	9	0	41	3	3	6	6	6
Below Q_1	0	3	11	11	0	23	0	0	0	9	11
"B+" Ratings											
Above Q_3	6	0	0	12	0	3	0	12	9	9	3
Below Q_1	3	3	6	23	3	11	0	6	20	14	14
"B" Ratings											
Above Q_3	12	12	12	12	12	12	9	21	21	21	15
Below Q_1	11	3	14	11	3	11	3	17	17	14	9
"B-" Ratings											
Above Q_3	21	3	15	24	12	6	12	26	24	12	6
Below Q_1	29	17	9	11	9	17	9	40	29	11	26
Totals											
Above Q_3	45	27	33	57	24	62	24	59	60	48	30
Below Q_1	43	26	40	56	15	62	12	63	66	48	60

Table may be read: Twelve percent of the students above Q_3 in mental ability received "A" ratings in Group II. Three percent of the students below Q_1 received "A" ratings in Group II, etc.

The students ranking above Q_3 in ability had a greater percentage of "A" ratings in all occupational groups except groups III, IV, X, and XI. Group III includes the occupation of production manager. Group IV includes the occupations of farmer, aviator, carpenter, printer, mathematics and physical science teacher, industrial arts teacher, policeman, and forest service man. Group XI includes the occupation of president of a manufacturing concern. The students below Q_1 in ability received a greater percentage of "B+" ratings in all occupational groups except in groups I, VII, and VIII.

The students above Q_3 in ability had more musical interest than the students below Q_1 in ability; however, this occupational group, VI, was the interest pattern in which both ability groups ranked first. Forty-one percent of the students above Q_3 in ability received "A" ratings in the musical group as compared to 23 percent of the students below Q_1 in ability.

Neither of the ability groups received "A" interest ratings in occupational group V. Occupational interest group V includes the occupations of Y.M.C.A. Physical Director, personnel director, public administrator, Y.M.C.A. secretary, city school superintendent, and minister.

Further comparisons are shown in Fig. 2.

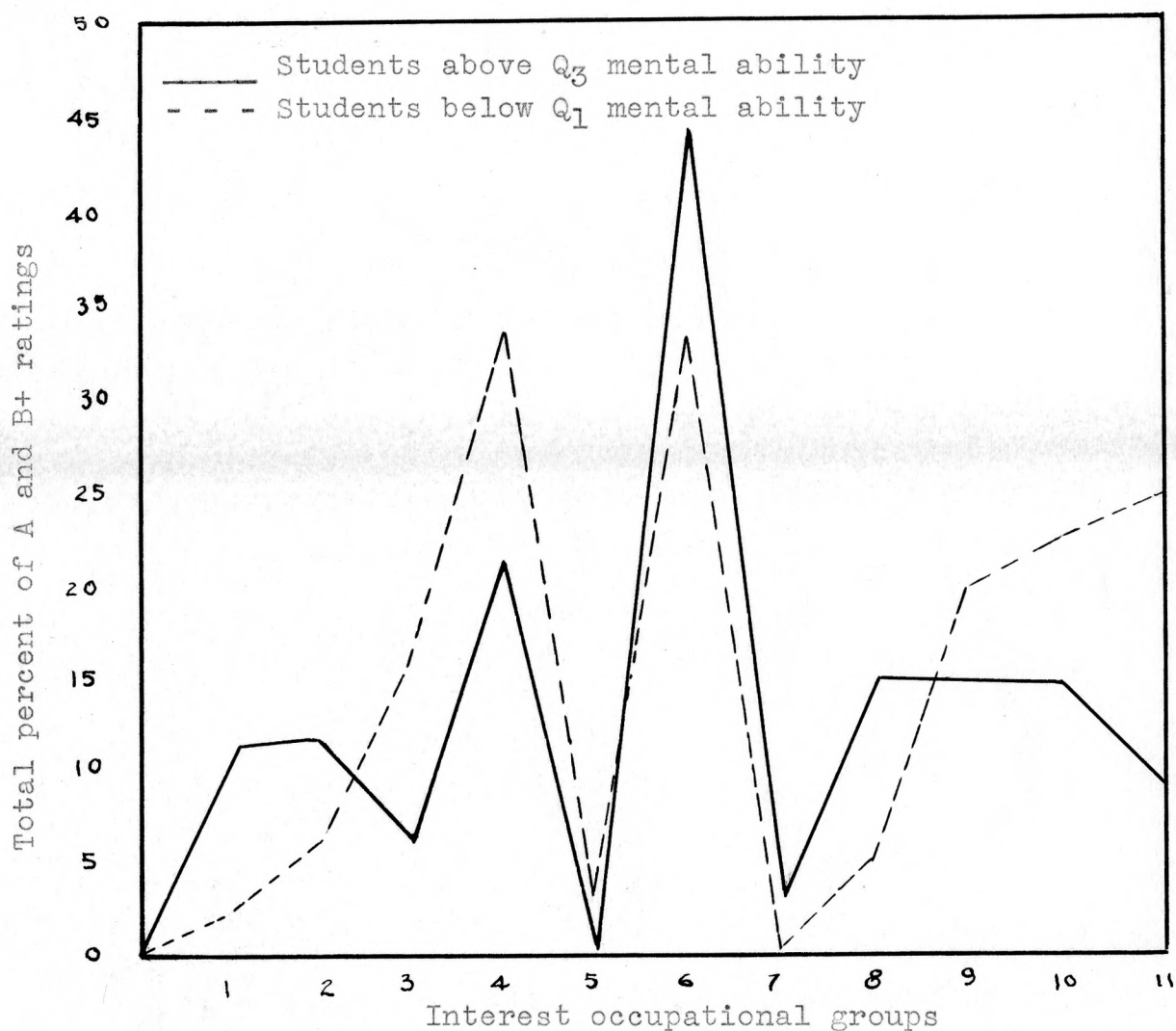


Fig. 2. Comparisons of total A and B+ ratings of students above Q_3 mental ability and students below Q_1 mental ability.

Comparisons of Specific Occupation Rankings of Students

The next comparison made was to find out how the students of the upper quartile of ability who made "A" and "B+" interest ratings ranked in specific occupations in comparison with the students of the lower quarter of ability. These data are given in Table 16.

Table 16. Specific occupational rankings of students above Q_3 in mental ability who received "A" Interest Ratings. (N = 34).

Occupation	: Rank	: Number of students	: Percent
Farmer	1	13	.38
Musician	2	12	.37
Mortician	3	7	.21
Office man	3	7	.21
Architect	3	7	.21
Physician	3	7	.21
Osteopath	4	6	.20
Real estate salesman	4	6	.20

Table may be read: Thirteen students above Q_3 received "A" ratings in the occupation of farmer. This represented 38 percent of the group. This occupation was the number one rank for the students of this group.

Table 17. Specific occupational rankings of students below Q_1 in mental ability who received "A" Interest ratings. (N = 35).

Occupation	Rank	Number of students	Percent
Farmer	1	18	51
Carpenter	2	12	34
Real estate salesman	2	12	34
Printer	3	10	29
Mortician	3	10	29
Musician	4	9	28

Table may be read: Twelve students received "A" ratings in the occupation of carpenter, and 12 students received "A" ratings in the occupation of real estate salesman. This number represents 34 percent of the group for each of these occupations. These two specific occupations ranked second (tie) for the students of this ability group.

The data in Tables 17 and 18 were studied for purposes of making comparisons of the specific occupational interest rankings of the two ability groups. By making these comparisons the data revealed the students above Q_3 in mental ability and the students below Q_1 in mental ability had the same specific occupation as their number one rank. The occupation of farmer was first for both ability groups. Thirty-eight percent of the students in the high ability ranked "A" in the occupation of farmer as compared to 51 percent of the students in the low ability group.

By ranking the first four occupations in which the students

above Q_3 in mental ability received "A" interest ratings and comparing this ranking with the interest rankings of the students below Q_1 in mental ability, these data showed that 8 different occupations were included in the former group and 6 different occupations were in the latter group. The occupations of farmer, musician, mortician, and real estate salesman appeared in both ability groups.

The "B+" interest ratings, which the students above Q_3 in mental ability received in specific occupations, were next compared with the "B+" interest ratings, which the students below Q_1 received in specific occupations. The data have been presented in the following tables.

Table 18. Specific occupational rankings of students above Q_3 in mental ability who received "B+" interest ratings. (N = 34).

Occupation	: Rank	: Number of students	: Percent
Artist	1	9	26
Real estate salesman	2	8	25
Mortician	2	8	25
Farmer	3	7	24
Carpenter	3	7	24
Printer	3	7	24
Pharmacist	4	6	23
YMCA secretary	4	6	23

Table may be read: Twenty-six percent of the students above Q_3 in mental ability ranked first in the occupation of artist, etc.

Table 19. Specific occupational rankings of students below Q_1 in mental ability who received "B+" interest ratings. (N = 35).

Occupation	: Rank :	Number of students	: Percent
Real estate salesman	1	13	35
Mortician	2	7	20
Advertising man	3	6	19
Author-Journalist	3	6	19
Vocational Agr. teacher	3	6	19
Aviator	4	5	18

Table may be read: Thirty-five percent of the students below Q_1 in mental ability ranked first in the occupation of real estate salesman, etc.

By comparing Tables 18 and 19, the data reveal the occupations of real estate salesman and mortician ranked high in both ability groups. It was also found that the occupations of farmer, carpenter, and printer were "B+" ratings for the high ability group, and the same occupations were "A" ratings for the low ability group. Since "A" and "B+" interest ratings are considered as primary interest patterns, the similarities of interest ratings in the specific occupations are apparent for both of these ability groups.

Relationship Between Ability and Occupational Level

After comparing the relationship of interest and ability the problem was studied further by computing correlation coefficient between ability and occupational level scores. The obtained coefficient was .0096. This negligible coefficient showed no relationship between ability and occupational level.

Relationship Between Ability and Interest Maturity

To learn whether or not any relationship existed between scholastic aptitude and interest maturity a correlation coefficient was also computed. The coefficient found was .0058. This coefficient denoted no relationship between ability and interest maturity.

RELATIONSHIP BETWEEN INTEREST AND ACHIEVEMENT

In this phase of the study consideration was given to the relationship between interest and achievement. The problem in mind was to find out whether or not the students ranking above Q_3 in achievement had different interest group ratings than those students who ranked below Q_1 in achievement.

Any student whose average grades were above 3.295 (3.30) were included in the upper quartile of achievement; and those students whose average grades were below 2.08 were included in

the lower quartile of achievement. There were 36 students who ranked above Q_3 and 37 students who ranked below Q_1 . The data for these group rankings are given in the two following tables.

Table 20. Distribution of Occupational Group Rankings of students above Q_3 in achievement. (N = 36).

Occupational: group	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	To- tals
"A" Ratings	3	4	2	1	0	12	1	3	1	2	2	31
"B+" Ratings	3	0	0	4	5	4	0	5	7	5	4	38
"B" Ratings	5	2	3	4	5	4	2	6	7	7	5	50
"B-" Ratings	7	2	5	8	2	5	6	16	8	8	6	73
Totals	19	8	10	17	12	25	9	30	23	22	17	192

Table may be read: Three students received "A" ratings in group number one, etc.

Table 21. Distribution of Occupational Group Rankings of students below Q_1 in achievement. (N = 37).

Occupational: group	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	To- tals
"A" Ratings	0	1	2	7	0	7	1	2	1	4	3	28
"B+" Ratings	1	2	5	7	0	5	0	5	5	3	7	40
"B" Ratings	9	0	6	4	2	6	0	6	7	6	6	52
"B-" Ratings	11	2	6	4	1	9	3	14	11	6	8	75
Totals	21	5	19	22	3	27	4	27	24	19	24	195

Table may be read: One student, in the lower quartile of achievement, received an "A" rating in occupational group two, etc.

Table 22. Percentages of distribution of Occupational Interest Group Rankings of students above Q_3 in and below Q_1 in achievement. (N = 144).

Occupational: group	I	II	III	IV	V	VI	VII	VIII	IX	X	XI
"A" Ratings											
Above Q_3	8	11	6	3	0	33	3	8	3	6	6
Below Q_1	0	3	6	19	0	19	3	6	3	11	8
"B+" Ratings											
Above Q_3	11	0	0	11	14	11	0	14	19	14	11
Below Q_1	3	6	14	19	0	14	0	14	14	8	19
"B" Ratings											
Above Q_3	14	6	8	11	14	11	6	12	19	19	14
Below Q_1	24	0	16	11	6	16	0	16	19	16	16
"B-" Ratings											
Above Q_3	19	6	14	22	6	14	12	44	22	22	12
Below Q_1	30	6	16	11	3	16	8	38	30	16	22
Totals											
Above Q_3	53	22	28	47	33	69	25	83	65	61	47
Below Q_1	57	14	51	59	8	72	11	72	65	51	65

Table may be read: Three percent of the students above Q_3 in achievement received "A" ratings in group VII and 3 percent of the students below Q_1 in achievement received "A" ratings in group VII, etc.

After an analysis of Table 22, taking into consideration the "A" ratings, it was found the students above Q_3 in achievement ranked first in the occupational group number VI which includes the field of music. The students below Q_1 in achievement also ranked first in group VI, however, the students above Q_3 in achievement had a greater percentage ranking--33 percent as compared to 19 percent for the lower achievement group. Both groups had identical rankings of "A" ratings in occupational groups III, V, VII, and IX. The students of the

high achievement group did receive a greater percentage ranking in the professional group I and the professional technical group II, but the students of the low achievement group received a greater percentage of "B+" ratings in group II.

The data in Table 22 have been presented in Fig. 3 to enable one to make additional comparisons.

Relationship Between Achievement and Occupational Level

While in the process of making comparisons to find the relationship between interest and achievement, the relationship between achievement and the occupational level scores was determined. This matter was studied by computing correlation coefficient between achievement, and occupational level scores. By this computation a coefficient of .5211 with a standard error of $\pm .06$ was found. This coefficient indicated a significant relationship between achievement and interest occupational level.

Relationship Between Achievement and Interest Maturity

As the last phase of this study was concluded, the correlation coefficient between achievement and interest maturity was computed to find the relationship between these two factors. The coefficient found was .0042. According to the obtained

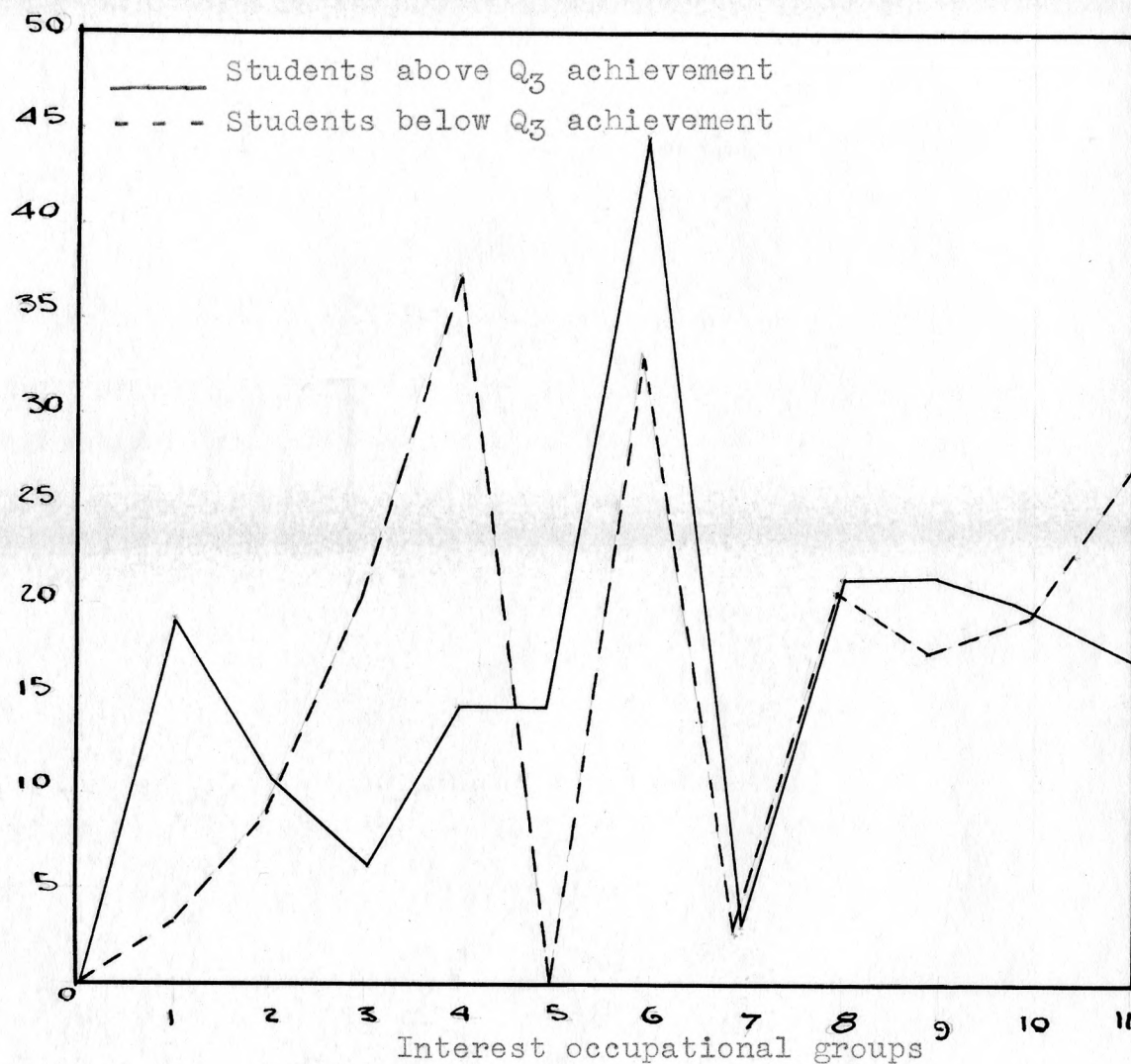


Fig. 3. Comparisons of total A and B+ ratings of students above Q₃ in achievement and below Q₃ in achievement.

coefficient no relationship existed between achievement and interest maturity.

CONCLUSIONS

As the study was pursued with the major purpose in mind of learning of the relationship between: scholastic aptitude and achievement; interest and scholastic aptitude; and achievement and interest, the following conclusions were interpreted from the findings.

Scholastic Aptitude and Achievement

1. As a correlation coefficient of .59 with a standard error of .05 was found between average grades and mental ages of the students, one may conclude that according to these findings there is a marked or substantial relationship between these two factors. Consequently, one may interpret this finding to mean that students with high mental ability tend to receive high grades and students with low mental ability tend to receive lower grades. The obtained coefficient for mental age scores and average grades of the students is similar to the coefficient found by Howard. Howard found "a correlation coefficient of .58 between senior high school grades and test scores. The test used was the Peterson Uniform Test of Mental

Performance, time 15 minutes."¹

Interest and Scholastic Aptitude

2. In the comparisons made to find the relationship between interest and scholastic aptitude, no majority of identical responses and no definite pattern of response in the rankings by the two ability groups were found; consequently, one would conclude that there is no relationship between interest and scholastic aptitude as shown by these data.

3. The correlation coefficient between mental age scores and occupational interest level scores was .0096; consequently one would conclude that the relationship between ability and occupational interest level is negligible.

4. A correlation coefficient of .0058 was found between mental age scores and interest maturity scores from the Strong Test. This coefficient is too small to be considered of any significance, likewise, it is believed no relationship exists between ability and maturity of interest.

Achievement and Interest

5. In the comparisons of "A" interest group ratings of the students of high and low achievement, no distinct pattern

¹ C. W. Howard, "The Prediction of High School Scholarship from Junior High School Grades and Mental Tests." Unpublished M. S. thesis, Kansas State College, Manhattan, Kansas. 1928.

of differentiation in occupational interest groups was found; however, both groups of students ranked first in occupational group VI, but the students in the low achievement group had a tie in this rank with group IV. On the basis of the similarities in group ranks of these two achievement groups, it is thought no relationship exists between achievement and interest.

6. A coefficient of correlation of $.52 \pm .06$ was found between achievement and occupational interest level. One may conclude there is a significant relationship between these two factors.

According to Stead and Shartle:

In the field of vocational testing the coefficients between test batteries and measures of aptitudes represented by various criteria rarely rise above .50 and coefficients above this figure would be considered exceptionally promising.¹

7. In the study of the relationship between achievement and interest maturity, it was found a correlation coefficient of .0042 existed. Accordingly, one concludes that no significant relationship exists between achievement and maturity of interest.

Sex Differences

8. The girls in the study were younger, as a group, than the boys since their mean age was 17.49 with a standard deviation

¹ Stead, W. H. and C. L. Shartle, Occupational Counseling Techniques, Chapter 7.

of .68 as compared with the mean age of 17.90 with a standard deviation of .95 for the boys.

9. The mean mental age of the girls was higher than that of the boys. The mean difference was 3.65. The mean difference was computed for statistical significance and the "t" function of 1.77 was found to be non-significant at the .01 level of confidence. Therefore, one cannot conclude with certainty that the girls were more intelligent than the boys.

10. The mean grade of achievement for the girls was 2.90 with a standard deviation of .69, and the mean grade of achievement of the boys was 2.52 with a standard deviation of .71. Testing the mean difference of .38 for statistical significance, a "t" function of 3.36 was found. The obtained difference was statistically significant at the .01 level of confidence; therefore, for the purpose of generalization one may conclude that by making future samplings of the high school population of this school, one would find the same condition existing regarding achievement of the boys and girls.

11. The girls had more musical interest than the boys. Forty-six percent of the girls received "A" interest ratings as compared to 16 percent of the boys.

12. The boys had greater interest than the girls in occupational group two which includes the occupations of mathematician, physicist, engineer, and chemist.

13. The interest of the boys in occupational group four was more predominate than those of the girls. The occupations

in this group are usually considered occupations of men.

14. The Strong's Vocational Interest Test gives information not given by the Henmon-Nelson Test of Mental Ability and is a good test to be used in a counseling and guidance program.

SUMMARY

Concluding this research it has been found that a significant relationship exists between scholastic aptitude and achievement. This relationship was expressed by a correlation coefficient of $.59 \pm .05$. A fairly significant relationship between achievement and occupational interest level was found which was represented by a coefficient of $.52 \pm .06$.

No relationship between interest maturity and achievement was found. The coefficient of correlation was $.0042$. Also no relationship was found between interest maturity and mental ages, and occupational level and mental ages. The coefficients of correlation were $.0058$ and $.0096$, respectively.

While the coefficients found between interest maturity and achievement; interest maturity and mental age; and mental ages and occupational level are not statistically significant, one should keep in mind that the "A" interest group patterns were slightly better established in the students of better ability. In spite of this fact counselors and students should not confuse interests with abilities or achievements because the relationship is not too close; moreover, since people, in general usually

like to do things which interest them, it is very important while in the process of counseling high school students to learn whether or not they will probably like to do the work of the occupation which they are considering providing they have the aptitude.

It is necessary, to be sure to remember that both ability and interest contribute to the success and satisfaction of anyone in a selected occupation. As a guiding point of view in counseling high school students, one should keep in mind the conclusion of R. M. Hubbard: "Interest and abilities seem to be independent variables, each one contributing its own quota to the ultimate success."¹

¹ R. M. Hubbard, "A Measurement of Interest." Journal of Genetic Psychology. 35: 249. 1928.

ACKNOWLEDGMENTS

The writer is indebted to Dr. V. L. Strickland for his patient and inspiring guidance in directing this study.

Appreciation is also expressed to Drs. H. Leigh Baker and J. C. Peterson for valuable suggestions and criticisms. Thanks are extended to Dr. M. C. Moggie for his invaluable suggestions concerning the statistical treatment of the data.

To Mr. Herbert Bishop and Mr. Ralph Rogers of the Manhattan High School, gratitude is expressed for their kind cooperation in making available the data for this study. I am also deeply indebted to my wife, James Anna Wilhoite, whose kind cooperation and encouragement aided me materially.

BIBLIOGRAPHY

- (1) Bell, H. M. Matching Youth and Jobs. New York: American Council on Education. 247 p. 1940.
- (2) Bingham, Walter VanDyke. Aptitudes and Aptitude Testing. New York: Harper and Brothers. 390 p. 1937.
- (3) Cole, Luella. Psychology of Adolescence. New York: Rinehart and Company. 650 p. 1948.
- (4) Darley, John G. Clinical Aspects and Interpretation of the Strong Vocational Interest Blank. New York: Psychological Corporation. 72 p. 1941.
- (5) Darley, John G. Testing and Counseling in the High School Guidance Program. Chicago: Science Research Associates. 222 p. 1950.
- (6) Fryer, Douglas. The Measurement of Interests in Relation to Human Adjustment. New York: Henry Holt and Company. 488 p. 1931.
- (7) Garrett, Henry E. Statistics in Psychology and Education. New York: Longmans, Green and Company. 487 p. 1949.
- (8) Hull, Bertha Iutizi. Aptitude Testing. Chicago: World Book Company. 535 p. 1928.
- (9) Jones, Arthur J. Principals of Guidance. New York: McGraw-Hill Company. 592 p. 1945.
- (10) Ross, C. C. Measurement in Today's Schools. New York: Prentice-Hall Company. 597 p. 1941.
- (11) Super, Donald Edwin. Appraising Vocational Fitness. New York: Harper and Brothers Company. 727 p. 1949.
- (12) Super, Donald Edwin. Vocational Interest Patterns. Stanford: Stanford University Press. 148 p. 1940.
- (13) Strong, Edward K. Vocational Interests of Men and Women. Stanford: Stanford University Press. 746 p. 1945.
- (14) Traxler, Arthur E. Guidance in Public Secondary Schools. New York: Education Research Bureau. 345 p. 1939.

Periodicals

- (1) Dusen, A. C. Van. "Permanence of Vocational Interest." Jour. Educ. Psych. 31: 401-424. 1940.
- (2) Dunlap, J. W. "Preferences as Indications of Specific Academic Achievement." Jour. Educ. Psych. 26: 411-415. 1935.
- (3) Fleege, V. H. and H. J. Malone. "Motivation in Occupational Choice Among Jr-Sr. High School Students." Jour. Educ. Psych. 37: 77-86. 1946.
- (4) Fryer, D. "Occupational Intelligence Standards." School and Society. 16: 273-277. September, 1922.
- (5) Hubbard, R. M. "A Measurement of Interest." Jour. Genet. Psych. 35: 229-249. 1928.
- (6) Jones, E. S. "Relation of Ability to Preferred and Probable Occupations." Educational Administration and Supervision. 26: 220-236. 1940.
- (7) Laleger, G. E. "The Vocational Interests of High School Girls." Teachers College Columbia University Contributions to Education. No. 857. p. 74. 1942.
- (8) Procter, W. M. "Intelligence and Length of Schooling in Relation to Occupational Levels." School and Society. 42: 783-786.
- (9) Strong, E. K. "Diagnostic Value of the Vocational Interest Test." Educational Record. 10: 58-68. 1929.
- (10) Strong, E. K. "Interest Maturity." Personnell Journal. 12: 77-90. 1933.

Unpublished

Howard, C. W. "The Prediction of High School Scholarship from Junior High School Grades and Mental Tests. Master's Thesis, Kansas State College, Manhattan, Kansas. 1929.

APPENDIX

Table 23. Sex, chronological age, mental age, and grade average for all students in study.

Student: number	:	Sex	:	Age	:	Mental age :(Raw score):	:	Mental age (years)	:	Grade average
1		M		16- 9		56		16-10		3.70
2		M		16- 4		74		19- 4		3.95
3		F		17- 0		59		16-10		2.00
4		F		16- 6		54		16- 6		3.57
5		M		17- 6		40		14- 3		1.69
6		F		18- 0		57		17- 0		3.33
7		F		17-10		55		16- 8		2.83
8		F		17- 4		51		16- 2		3.09
9		F		17- 7		63		17-10		3.74
10		M		17- 3		49		15-10		2.00
11		M		21- 1		65		18- 1		1.59
12		M		17- 6		38		13- 9		1.93
13		M		19- 1		19		11- 3		1.00
14		F		17- 3		63		11- 3		2.35
15		M		17- 5		64		18- 0		3.00
16		M		18- 0		55		16- 8		3.00
17		M		17- 7		58		17- 2		2.84
18		F		17-10		48		15- 8		2.71
19		F		17- 1		47		15- 6		3.15
20		F		17-10		48		15- 8		1.50
21		M		18- 9		36		13- 5		1.93
22		F		18- 0		66		18- 3		2.75
23		F		17- 8		64		18- 0		3.67

Table 23. (cont.)

Student: number	:	Sex	:	Age	:	Mental age :(Raw score):	:	Mental age (years)	:	Grade average
24		M		17-11		36		13- 5		1.93
25		M		17-11		78		20- 0		2.80
26		F		17-10		51		16- 2		3.06
27		M		22- 8		45		15- 2		2.62
28		F		17- 7		79		20- 1		4.00
29		F		17- 2		46		15- 4		2.06
30		M		17- 2		69		18- 8		2.89
31		M		18- 1		49		15-10		1.81
32		F		16-11		84		21- 4		3.76
33		M		18- 0		49		15-10		2.44
34		F		17- 7		60		17- 5		2.95
35				(did not take the interest test)						
36		F		17- 1		65		18- 1		2.56
37		M		17- 8		65		18- 1		1.93
38		F		17- 9		61		17- 7		3.21
39		F		19- 1		34		13- 2		2.53
40		M		17- 2		67		18- 4		2.84
41		M		16- 8		83		21- 2		3.39
42		F		18- 0		60		17- 5		2.33
43		F		17-11		54		16- 6		1.67
44		M		17- 8		66		18- 3		3.00
45		F		17- 4		60		17- 5		3.31
46		M		17- 4		74		19- 4		2.83

Table 23. (cont.)

Student: number	:	Sex	:	Age	:	Mental age (Raw score)	:	Mental age (years)	:	Grade average
47		M		17- 5		54		16- 6		2.75
48		M		18- 6		57		17- 0		2.10
49		M		18- 3		63		17-10		2.94
50		M		17- 4		66		18- 3		3.53
51		F		17- 8		71		19- 0		3.37
52		M		17- 0		70		18-11		3.58
53		F		17- 1		66		18- 3		2.11
54		M		17-11		65		18- 1		3.22
55		M		17- 8		58		17- 2		3.16
56		F		17- 5		65		18- 1		2.35
57		F		17- 2		69		18- 8		3.88
58		F		17- 8		74		19- 4		3.85
59		F		17-11		67		18- 4		2.84
60		M		16- 8		56		16-10		1.77
61		M		18- 1		42		14- 8		2.13
62		M		17- 7		64		18- 0		1.61
63		M		18- 6		24		12- 0		1.36
64		M		17- 7		45		15- 2		2.29
65		F		18- 0		49		15-10		1.88
66		M		18- 5		27		12- 3		2.25
67		M		16-10		60		17- 5		2.24
68		M		17- 4		39		14- 0		2.39
69		F		17- 7		63		17-10		3.69
70		M		18- 0		44		15- 0		2.31

Table 23. (cont.)

Student: number	:	Sex	:	Age	:	Mental age (Raw score)	:	Mental age (years)	:	Grade average
71		M		17- 3		62		17- 8		3.20
72		M		17- 2		68		18- 1		3.94
73		F		17- 2		49		15-10		2.23
74		F		18- 0		55		16- 8		3.00
75		M		17-11		65		18- 1		2.63
76		M		18- 3		52		16- 3		2.25
77		F		17- 3		46		15- 4		2.59
78		F		17-10		48		15- 8		1.75
79		M		17- 0		46		15- 4		3.31
80		F		17- 1		82		20-10		3.29
81		F		17- 2		63		17-10		3.50
82		M		17- 8		71		19- 0		2.37
83		F		16-10		45		15- 2		1.67
84		F		17- 1		63		17-10		2.44
85		M		17- 4		60		17- 5		2.22
86		F		17-10		62		17- 8		3.93
87		M		17- 9		71		19- 0		3.38
88		F		17- 6		59		17- 4		3.53
89		F		16- 0		89		23- 8		3.13
90		F		17-10		55		16- 8		1.94
91		M		17- 3		53		16- 4		1.87
92		M		17- 9		60		17- 5		2.56
93		F		17- 1		69		18- 8		3.06
94		F		16- 2		82		20-10		2.69

Table 23. (cont.)

Student: number	:	Sex	:	Age	:	Mental age (Raw score)	:	Mental age (years)	:	Grade average
95		M		17- 7		73		19- 2		2.53
96		F		17- 3		65		18- 1		3.42
97		F		17- 4		57		17-10		2.55
98		M		18- 0		71		19- 0		3.89
99		F		17-10		66		18- 3		3.32
100		M		17-11		51		16- 2		2.69
101		F		17-10		69		18- 8		3.78
102		F		17- 3		45		15- 2		1.65
103		M		18- 3		74		19- 4		3.95
104		M		17- 9		68		18- 6		3.58
105		M		18- 3		46		15- 4		1.61
106		F		17- 9		53		16- 4		3.53
107		F		18- 2		48		15- 0		1.81
108		M		17-11		76		19- 8		2.08
109		M		17- 9		60		17- 5		2.57
110		M		16- 7		63		17-10		1.86
111		F		17- 5		71		19- 0		3.33
112		M		18-11		51		16- 2		2.56
113		F		17- 1		60		17- 5		3.47
114		F		17- 4		65		18- 1		3.19
115		M		17- 9		52		16- 3		2.41
116		M		19- 9		36		13- 5		2.13
117		M		17-10		49		15-10		2.00
118		F		17- 3		73		19- 2		3.81

Table 23. (cont.)

Student: number	:	Sex	:	Age	:	Mental age (Raw score)	:	Mental age (years)	:	Grade average
119		M		18- 1		61		17- 7		3.00
120		F		17- 3		55		16- 8		3.41
122		F		17- 2		53		16- 4		3.00
123		F		17- 2		51		16- 2		2.53
124		M		19- 1		41		14- 6		1.73
125		M		17- 0		63		17-10		3.13
126		F		17- 6		61		17- 7		3.50
127		F		19- 0		33		13- 0		1.93
128		M		17- 3		48		15- 8		2.32
129		M		18- 0		69		18- 8		2.50
130		M		17- 8		57		17- 0		2.67
131		M		18- 9		38		13- 9		1.52
132		F		19- 7		54		16- 6		3.13
133		M		18- 5		34		13- 2		1.87
134		M		18- 1		47		15- 6		1.93
135		F		18- 9		62		17- 8		3.00
136		F		17-10		63		17-10		3.56
137		F		17- 9		68		17- 0		2.30
138		M		19- 3		55		16- 8		2.07
139		M		18- 4		53		16- 4		3.06
140		F		18- 9		48		15- 8		2.13
141		M		18- 3		39		14- 0		.92
142		F		17- 8		55		16- 4		2.00
143		M		17- 6		75		19- 6		3.80

Table 23. (concl.)

Student: number :	:	Sex :	Age :	:Mental age :(Raw score):	:Mental age: (years)	:Grade average
144		M	17- 8	67	18- 4	1.91
145		M	18- 1	54	16- 6	1.27

Table 24. Mean interest occupational group score, interest maturity score, occupational level score, and masculinity-femininity score for all students in study.

Student: number :	:Mean Interest Occupational Group Score(Hankes Answer Sheet)													
	Groups													
	I :	II:	III:	IV:	V :	VI:	VII:	VIII:	IX :	X :	XI:	IM:	OL:	MF
1	35	28	34	41	31	33	20	33	23	22	20	58	48	51
2	37	25	29	29	27	27	32	40	37	28	30	52	55	37
3	20	14	35	30	25	32	22	44	43	23	36	48	47	37
4	63	26	18	33	27	60	17	31	25	40	30	46	45	5
5	30	25	33	39	19	48	11	31	31	30	25	34	37	51
6	35	28	31	27	11	21	24	36	32	28	36	36	57	38
7	31	15	18	30	11	35	19	34	41	39	41	34	46	27
8	31	13	17	18	17	44	44	31	43	48	37	37	55	21
9	22	12	25	27	18	41	17	42	39	30	30	40	45	29
10	31	18	27	32	14	48	24	38	41	34	34	35	45	45
11	33	27	35	51	21	44	5	34	24	23	38	41	33	63
12	33	26	37	41	14	25	4	28	30	32	30	34	42	59
13	33	26	25	26	0	24	20	26	41	45	56	22	58	37
14	23	12	17	23	12	39	22	40	42	33	31	40	47	26
15	20	7	25	48	34	45	20	44	34	16	21	57	34	44

Table 24. (cont.)

Student: number :	:Mean Interest Occupational Group Score(Hankes Answer Sheet)													
	Groups													
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	IM	OL	MF
16	30	48	40	47	9	31	35	32	18	26	39	32	44	62
17	20	26	34	48	40	32	12	42	31	22	15	52	30	31
18	29	12	20	30	31	50	29	44	42	36	28	50	44	19
19	21	8	24	12	25	41	25	27	41	40	40	40	60	7
20	30	17	28	20	10	36	12	30	39	44	40	27	51	30
21	26	22	28	40	28	49	9	28	20	25	12	48	28	52
22	23	7	31	23	18	38	26	44	48	36	39	42	52	16
23	18	12	29	19	28	24	27	41	41	37	43	54	60	29
24	38	22	34	42	22	32	8	28	24	29	31	38	42	58
25	29	39	39	31	37	49	19	31	38	36	22	52	50	39
26	42	27	17	24	28	46	28	22	28	43	53	50	53	25
27	20	30	46	36	26	26	33	38	24	21	33	53	49	60
28	29	23	11	22	21	57	39	32	31	36	28	48	53	18
29	31	21	24	29	19	45	28	31	32	36	31	39	46	34
30	24	19	45	46	28	40	14	43	32	27	23	52	35	59
31	37	40	45	38	7	26	15	31	30	33	41	25	47	53
32	18	17	21	18	11	25	49	38	44	45	45	33	56	28
33	32	31	44	17	17	38	15	34	31	26	30	35	37	61
34	16	15	24	38	27	46	5	38	27	20	15	53	37	43
35														
36	27	24	36	26	12	32	26	35	31	32	42	39	51	42
37	28	19	44	56	26	33	10	36	31	14	25	51	32	66
38	32	27	17	26	15	44	32	29	32	39	50	41	54	31

Table 24. (cont.)

:Mean Interest Occupational Group Score(Hankes Answer Sheet)														
Student:	Groups													
number :	I :	II:	III:	IV:	V :	VI:	VII:	VIII:	IX :	X :	XI:	IM:	OL:	MF
39	35	16	22	25	32	45	13	33	37	41	29	41	46	26
40	36	17	23	25	24	45	13	33	37	41	29	41	46	27
41	29	28	34	41	29	51	17	39	25	23	14	54	36	48
42	44	36	20	30	25	62	31	24	23	38	22	50	51	39
43	28	20	19	15	3	30	27	28	38	43	43	25	57	22
44	45	18	7	30	27	59	12	24	39	44	26	45	50	26
45	23	14	23	25	23	36	33	46	39	25	34	51	48	26
46	43	27	22	22	26	55	30	22	35	52	27	45	55	30
47	34	31	42	45	24	30	18	38	22	37	35	44	40	53
48	38	47	47	38	7	26	16	26	21	27	39	33	49	61
49	32	47	36	31	3	18	22	30	30	29	39	27	25	59
50	18	7	35	32	44	38	19	40	44	29	20	60	48	46
51	24	14	11	24	25	54	16	34	33	39	27	49	48	21
52	48	35	31	43	20	38	15	21	29	32	20	45	45	65
53	23	9	18	24	21	49	17	36	43	35	30	46	48	28
54	23	20	43	38	32	33	13	39	36	24	31	48	46	46
55	50	34	23	29	10	51	24	22	33	40	36	36	51	46
56	27	9	21	24	5	38	22	37	43	40	40	30	53	31
57	32	16	21	44	35	56	16	29	26	30	16	54	46	27
58	31	16	22	34	34	56	16	36	31	31	16	53	46	28
59	38	35	11	26	28	58	24	20	27	41	23	44	53	23
60	31	23	30	33	8	18	7	26	32	30	33	33	48	60
61	26	27	59	42	21	16	16	34	21	19	31	47	46	60

Table 24. (cont.)

:Mean Interest Occupational Group Score(Hankes Answer Sheet)														
Student:	Groups													
number :	I :	II:	III:	IV:	V :	VI:	VII:	VIII:	IX :	X :	XI:	IM:	OL:	MF
62	7	6	39	27	20	5	30	47	47	27	41	54	51	63
63	35	34	38	62	11	37	0	33	25	25	23	33	36	68
64	36	25	29	31	8	38	21	27	41	38	39	25	48	45
65	36	25	28	29	8	37	21	33	41	38	39	25	48	45
66	15	13	28	21	18	23	39	31	33	37	31	41	50	46
67	24	30	37	30	27	28	27	30	32	35	34	46	49	48
68	27	32	32	37	19	32	23	34	28	25	25	43	46	58
69	21	4	22	23	44	31	23	46	48	26	32	62	49	24
70	26	19	36	44	27	28	5	38	31	20	40	49	36	54
71	15	3	32	25	25	13	16	40	55	32	37	45	50	43
72	33	45	36	31	10	24	29	27	26	24	36	31	56	50
73	16	14	18	15	23	46	27	29	46	44	40	40	53	23
74	30	12	20	33	32	51	5	32	32	30	21	51	43	30
75	22	19	37	36	17	34	10	36	32	23	25	46	40	55
76	24	14	25	47	22	32	3	42	35	17	33	47	32	65
77	28	23	23	26	21	49	18	33	37	34	33	41	49	23
78	24	9	14	27	23	39	11-	40	42	28	28	43	41	23
79	27	34	57	48	14	28	15	37	30	21	44	40	46	67
80	15	7	27	22	32	19	35	45	47	27	35	58	51	40
81	21	14	20	24	17	29	24	34	38	33	31	41	52	32
82	21	10	32	50	39	47	10	35	29	22	7	58	33	59
83	33	21	23	21	18	44	27	30	43	48	32	34	54	30
84	23	14	23	22	30	55	34	38	43	38	27	45	54	22

Table 24. (cont.)

:Mean Interest Occupational Group Score(Hankes Answer Sheet)														
Student:	Groups													
number :	I :	II:	III:	IV:	V :	VI:	VII:	VIII:	IX :	X :	XI:	IM:	OL:	MF
85	23	7	24	16	18	31	28	35	58	43	45	42	45	34
86	18	17	32	30	36	34	28	51	34	18	21	60	43	38
87	33	29	35	34	17	41	29	31	28	35	24	43	49	54
88	31	15	25	26	15	43	11	33	37	41	28	38	51	32
90	26	30	18	21	24	48	26	38	34	37	32	43	49	19
91	8	4	28	25	21	28	17	44	50	29	33	45	43	50
92	36	43	51	50	8	30	11	24	27	23	40	35	39	70
93	24	1	16	22	30	39	25	34	50	41	33	56	55	26
94	27	19	25	15	8	31	33	35	44	33	50	32	55	27
95	26	23	28	33	20	37	26	27	29	31	23	45	47	43
96	46	23	24	36	40	52	20	32	28	33	19	54	48	25
97	29	20	15	18	9	47	27	31	36	40	34	32	53	21
98	17	18	29	40	30	25	21	32	31	17	17	55	43	50
99	41	24	22	19	18	36	29	34	36	40	36	38	58	24
100	40	37	53	44	11	29	10	36	35	26	43	32	45	62
101	41	22	24	25	37	57	14	31	32	36	26	53	52	18
102	24	16	19	20	9	41	32	34	34	38	40	29	52	29
103	26	20	28	31	22	28	4	33	37	26	39	42	54	43
104	34	47	29	34	22	40	32	24	17	30	26	49	56	50
105	28	28	50	40	7	6	5	33	37	25	46	32	49	60
106	36	35	23	31	17	52	31	33	26	34	21	40	48	27
107	31	15	19	39	28	52	14	28	26	24	13	43	21	33
108	36	36	37	45	10	34	2	20	32	24	29	33	36	59

Table 24. (cont.)

:Mean Interest Occupational Group Score(Hankes Answer Sheet)														
Student:	Groups													
number :	I :	II:	III:	IV:	V :	VI:	VII:	VIII:	IX :	X :	XI:	IM:	OL:	MF
109	22	24	35	42	23	38	11	33	34	19	30	46	38	60
110	31	23	42	41	7	31	6	40	32	28	36	35	43	55
111	42	45	23	36	17	6	7	26	18	28	27	41	48	26
112	23	19	41	41	14	23	14	42	34	17	34	46	45	62
113	35	23	29	23	40	44	31	34	41	40	40	55	56	28
114	27	13	26	32	47	32	32	31	29	31	30	58	48	48
115	43	40	31	44	20	37	18	25	21	29	24	41	49	57
116	30	26	24	40	17	32	7	29	30	26	25	31	39	58
117	31	25	40	51	25	34	1	32	26	20	17	43	32	62
118	22	12	22	20	25	45	35	40	43	35	36	50	56	22
119	16	20	42	35	24	11	24	49	38	14	36	51	45	64
120	40	31	16	15	5	39	21	34	40	41	46	31	58	21
121	43	30	32	39	10	30	1	22	30	31	40	46	45	62
122	33	22	26	34	27	44	19	34	26	26	21	51	49	34
123	22	8	21	22	28	57	35	42	45	38	28	55	45	5
124	25	8	35	46	36	40	6	38	32	16	14	54	29	47
125	29	31	35	22	13	34	25	31	44	41	47	35	56	41
126	25	15	18	18	6	35	17	33	43	39	39	29	46	26
127	25	25	20	16	6	32	27	33	36	40	44	29	58	21
128	33	22	29	40	29	44	12	38	36	25	20	48	43	54
129	32	23	30	36	9	29	7	25	35	29	33	32	42	52
130	26	35	51	37	16	11	18	30	40	28	46	26	49	60

Table 24. (concl.)

:Mean Interest Occupational Group Score (Hankes Answer Sheet)														
Student:	Groups													
number :	I :	II:	III:	IV:	V :	VI:	VII:	VIII:	IX :	X :	XI:	IM:	OL:	MF
131	39	41	30	34	4	22	14	27	26	34	49	7	47	58
132	16	0	22	27	37	48	24	39	39	32	18	60	44	27
133	24	32	27	33	9	28	8	27	31	29	26	31	44	56
134	38	29	26	24	3	34	19	26	38	46	43	6	48	45
135	21	13	22	22	19	41	34	45	39	34	44	46	53	26
136	34	11	16	21	39	52	30	25	35	49	27	52	53	8
137	29	15	20	31	38	55	9	41	25	21	10	53	35	36
138	26	21	40	48	37	41	54	37	22	18	9	61	34	52
139	23	21	37	39	27	30	18	35	28	19	27	40	51	59
140	26	8	11	24	32	46	25	33	43	43	34	53	49	19
141	43	48	41	42	5	22	12	27	24	28	48	25	44	62
142	28	15	16	25	22	50	30	31	35	39	35	42	50	24
143	21	51	48	35	8	22	27	34	24	20	44	43	52	63
144	30	24	23	26	11	35	18	28	39	39	35	23	46	32
145	29	21	35	41	35	38	26	38	22	28	28	58	41	39

Group..... Key number.....

VOCATIONAL INTERIBy ED
Professor of

Published by STANFO

It is possible with a fair degree of accuracy
pations or not. The test is not one of intelligenc
agree or disagree with those of successful men

Your responses will, of course, be held stri

1. Name.....

4. Address to which correspondence should be sent....

If you are still attending school or expect to return to
Any additional remarks may be entered at 21

5. Grade I am now in: Grammar School 1 2 3 4

6. School grade I expect to complete.....

7. School subjects I am now most interested in.....

8. School subjects I expect to specialize in later on....

9. Occupation I am planning to enter.....

11. Jobs I have been employed at (e.g., clerical, retail

12. Occupations I have formerly considered entering..

To be Answered

13. Last grade you finished in school (e.g., Grammar

14. What technical or business courses have you take

15. Occupation (e.g., Carpenter).....

17. Just what do you do?.....

18. Why did you select the above occupation?.....

19. What occupations, other than your present one,

20. What occupations, if any, have you in mind enter

21. Remarks

Occupation	Artist	Psychol ogist
Raw Score		
Standard Score		
Rating		
Occupation	Carpenter	Printer
Raw Score		
Standard Score		
Rating		
Occupation	Minister	Musician
Raw Score		
Standard Score		
Rating		
Occupation	Advertising Man	Lawyer
Raw Score		
Standard Score		
Rating		
Occupation		
Raw Score		
Standard Score		
Rating		

VOCATIONAL INTEREST BLANK FOR MEN (Revised)

By EDWARD K. STRONG, JR.
Professor of Psychology, Stanford University

Published by STANFORD UNIVERSITY PRESS, Stanford, California

It is possible with a fair degree of accuracy to determine by this test whether one would like certain occupations or not. The test is not one of intelligence or school work. It measures the extent to which one's interests agree or disagree with those of successful men in a given occupation.

Your responses will, of course, be held strictly confidential.

Date.....

1. Name..... 2. Age..... 3. Sex.....
4. Address to which correspondence should be sent.....

If you are still attending school or expect to return to school, answer items 5-12; if you have left school, answer items 13-20.
Any additional remarks may be entered at 21.

5. Grade I am now in: Grammar School 1 2 3 4 5 6 7 8 High School 1 2 3 4 College 1 2 3 4 5 6 7
(PUT A CIRCLE AROUND APPROPRIATE GRADE)

6. School grade I expect to complete.....
7. School subjects I am now most interested in.....
8. School subjects I expect to specialize in later on.....
9. Occupation I am planning to enter..... 10. Sure of this..... Not sure.....

11. Jobs I have been employed at (e.g., clerical, retail selling, farming, giving number of months employed at each).....
.....
12. Occupations I have formerly considered entering.....
.....

To be Answered by Those Who Have Left School

13. Last grade you finished in school (e.g., Grammar 6th, High School 2nd, College 4th).....
14. What technical or business courses have you taken? (Underline those you finished).....
.....
15. Occupation (e.g., Carpenter)..... 16. Years of experience in it.....
17. Just what do you do?.....
.....
18. Why did you select the above occupation?.....
.....
19. What occupations, other than your present one, have you at one time or another engaged in?.....
.....
20. What occupations, if any, have you in mind entering? Why?
.....
21. Remarks

Part I. Occupations. Indicate after each occupation listed below whether you would like that kind of work or not. Disregard considerations of salary, social standing, future advancement, etc. Consider only whether or not you would like to do what is involved in the occupation. You are not asked if you would take up the occupation permanently, but merely whether or not you would enjoy that kind of work, regardless of any necessary skills, abilities, or training which you may or may not possess.

Draw a circle around L if you like that kind of work

Draw a circle around I if you are indifferent to that kind of work

Draw a circle around D if you dislike that kind of work

Work rapidly. Your first impressions are desired here. Answer all the items. Many of the seemingly trivial and irrelevant items are very useful in diagnosing your real attitude.

1 Actor (not movie).....	L	I	D	46 Jeweler	L	I	D
2 Advertiser	L	I	D	47 Judge	L	I	D
3 Architect	L	I	D	48 Labor Arbitrator	L	I	D
4 Army Officer	L	I	D	49 Laboratory Technician	L	I	D
5 Artist	L	I	D	50 Landscape Gardener	L	I	D
6 Astronomer	L	I	D	51 Lawyer, Criminal	L	I	D
7 Athletic Director	L	I	D	52 Lawyer, Corporation	L	I	D
8 Auctioneer	L	I	D	53 Librarian	L	I	D
9 Author of novel.....	L	I	D	54 Life Insurance Salesman.....	L	I	D
10 Author of technical book.....	L	I	D	55 Locomotive Engineer	L	I	D
11 Auto Salesman	L	I	D	56 Machinist	L	I	D
12 Auto Racer	L	I	D	57 Magazine Writer	L	I	D
13 Auto Repairman	L	I	D	58 Manufacturer	L	I	D
14 Aviator	L	I	D	59 Marine Engineer	L	I	D
15 Bank Teller	L	I	D	60 Mechanical Engineer	L	I	D
16 Bookkeeper	L	I	D	61 Mining Superintendent	L	I	D
17 Building Contractor	L	I	D	62 Musician	L	I	D
18 Buyer of merchandise.....	L	I	D	63 Music Teacher	L	I	D
19 Carpenter	L	I	D	64 Office Clerk	L	I	D
20 Cartoonist	L	I	D	65 Office Manager	L	I	D
21 Cashier in bank.....	L	I	D	66 Orchestra Conductor	L	I	D
22 Certified Public Accountant.....	L	I	D	67 Pharmacist	L	I	D
23 Chemist	L	I	D	68 Photo Engraver	L	I	D
24 Civil Engineer	L	I	D	69 Physician	L	I	D
25 Civil Service Employee.....	L	I	D	70 Playground Director	L	I	D
26 Clergyman	L	I	D	71 Poet	L	I	D
27 College Professor	L	I	D	72 Politician	L	I	D
28 Consul	L	I	D	73 Printer	L	I	D
29 Dentist	L	I	D	74 Private Secretary	L	I	D
30 Draftsman	L	I	D	75 Railway Conductor	L	I	D
31 Editor	L	I	D	76 Rancher	L	I	D
32 Electrical Engineer	L	I	D	77 Real Estate Salesman.....	L	I	D
33 Employment Manager	L	I	D	78 Reporter, general	L	I	D
34 Explorer	L	I	D	79 Reporter, sporting page.....	L	I	D
35 Factory Manager	L	I	D	80 Retailer	L	I	D
36 Factory Worker	L	I	D	81 Sales Manager	L	I	D
37 Farmer	L	I	D	82 School Teacher	L	I	D
38 Floorwalker	L	I	D	83 Scientific Research Worker.....	L	I	D
39 Florist	L	I	D	84 Sculptor	L	I	D
40 Foreign Correspondent	L	I	D	85 Secretary, Chamber of Commerce....	L	I	D
41 Governor of a State.....	L	I	D	86 Secret Service Man.....	L	I	D
42 Hotel Keeper or Manager.....	L	I	D	87 Ship Officer	L	I	D
43 Interior Decorator	L	I	D	88 Shop Foreman	L	I	D
44 Interpreter	L	I	D	89 Social Worker	L	I	D
45 Inventor	L	I	D	90 Specialty Salesman	L	I	D

Part I. Occupations, continued.

91 Statistician	L	I	D
92 Stock Broker	L	I	D
93 Surgeon	L	I	D
94 Toolmaker	L	I	D
95 Traveling Salesman	L	I	D
96 Typist	L	I	D
97 Undertaker	L	I	D
98 Watchmaker	L	I	D
99 Wholesaler	L	I	D
100 Worker in Y.M.C.A., K. of C., etc...	L	I	D

Part II. School Subjects. Indicate as in Part I your interest when in school.

101 Algebra	L	I	D
102 Agriculture	L	I	D
103 Arithmetic	L	I	D
104 Art	L	I	D
105 Bookkeeping	L	I	D
106 Botany	L	I	D
107 Calculus	L	I	D
108 Chemistry	L	I	D
109 Civics	L	I	D
110 Dramatics	L	I	D
111 Economics	L	I	D
112 English Composition	L	I	D
113 Geography	L	I	D
114 Geology	L	I	D
115 Geometry	L	I	D
116 History	L	I	D
117 Languages, ancient	L	I	D
118 Languages, modern	L	I	D
119 Literature	L	I	D
120 Mathematics	L	I	D
121 Manual Training	L	I	D
122 Mechanical Drawing	L	I	D
123 Military Drill	L	I	D
124 Music	L	I	D
125 Nature Study	L	I	D
126 Philosophy	L	I	D
127 Physical Training	L	I	D
128 Physics	L	I	D
129 Psychology	L	I	D
130 Physiology	L	I	D
131 Public Speaking	L	I	D
132 Shop work	L	I	D
133 Sociology	L	I	D
134 Spelling	L	I	D
135 Typewriting	L	I	D
136 Zoölogy	L	I	D

Part III. Amusements. Indicate in the same manner as in Part I whether you like the following or not. If in doubt, consider your most frequent attitude. *Work rapidly.* Do not think over various possibilities. Record your first impression.

137 Golf	L	I	D
138 Fishing	L	I	D
139 Hunting	L	I	D
140 Tennis	L	I	D
141 Driving an automobile	L	I	D
142 Taking long walks	L	I	D
143 Boxing	L	I	D
144 Chess	L	I	D
145 Poker	L	I	D
146 Bridge	L	I	D
147 Observing birds (nature study)	L	I	D
148 Solving mechanical puzzles	L	I	D
149 Performing sleight-of-hand tricks ...	L	I	D
150 Collecting postage stamps	L	I	D
151 Drilling in a company	L	I	D
152 Chopping wood	L	I	D
153 Amusement parks	L	I	D
154 Picnics	L	I	D
155 Excursions	L	I	D
156 Smokers	L	I	D
157 "Rough house" initiations	L	I	D
158 Conventions	L	I	D
159 Full-dress affairs	L	I	D
160 Auctions	L	I	D
161 Fortune tellers	L	I	D
162 Animal zoos	L	I	D
163 Art galleries	L	I	D
164 Museums	L	I	D
165 Vaudeville	L	I	D
166 Musical comedy	L	I	D
167 Symphony concerts	L	I	D
168 Pet canaries	L	I	D
169 Pet monkeys	L	I	D
170 Snakes	L	I	D
171 Sporting pages	L	I	D
172 Poetry	L	I	D
173 Detective stories	L	I	D
174 "Time"	L	I	D
175 "Judge"	L	I	D
176 "New Republic"	L	I	D
177 "System"	L	I	D
178 "National Geographic Magazine" ...	L	I	D
179 "American Magazine"	L	I	D
180 "Popular Mechanics"	L	I	D
181 "Atlantic Monthly"	L	I	D
182 Educational movies	L	I	D
183 Travel movies	L	I	D
184 Social problem movies	L	I	D
185 Making a radio set	L	I	D

Part IV. Activities. Indicate your interests as in Part I.

186 Repairing a clock.....	L	I	D
187 Adjusting a carburetor.....	L	I	D
188 Repairing electrical wiring.....	L	I	D
189 Cabinetmaking	L	I	D
190 Operating machinery	L	I	D
191 Handling horses	L	I	D
192 Giving "first aid" assistance.....	L	I	D
193 Raising flowers and vegetables.....	L	I	D
194 Decorating a room with flowers.....	L	I	D
195 Arguments	L	I	D
196 Interviewing men for a job.....	L	I	D
197 Interviewing prospects in selling...	L	I	D
198 Interviewing clients	L	I	D
199 Making a speech.....	L	I	D
200 Organizing a play	L	I	D
201 Opening conversation with a stranger	L	I	D
202 Teaching children	L	I	D
203 Teaching adults	L	I	D
204 Calling friends by nicknames.....	L	I	D
205 Being called by a nickname.....	L	I	D
206 Meeting and directing people.....	L	I	D
207 Taking responsibility	L	I	D
208 Meeting new situations.....	L	I	D
209 Adjusting difficulties of others.....	L	I	D
210 Drilling soldiers	L	I	D
211 Pursuing bandits in sheriff's posse..	L	I	D
212 Doing research work.....	L	I	D
213 Acting as yell-leader.....	L	I	D
214 Writing personal letters.....	L	I	D
215 Writing reports	L	I	D
216 Entertaining others	L	I	D
217 Bargaining ("swapping")	L	I	D
218 Looking at shop windows.....	L	I	D
219 Buying merchandise for a store.....	L	I	D
220 Displaying merchandise in a store..	L	I	D
221 Expressing judgments publicly regardless of criticism.....	L	I	D
222 Being pitted against another as in a political or athletic race.....	L	I	D
223 Methodical work	L	I	D
224 Regular hours for work.....	L	I	D
225 Continually changing activities.....	L	I	D
226 Developing business systems.....	L	I	D
227 Saving money	L	I	D
228 Contributing to charities.....	L	I	D
229 Raising money for a charity.....	L	I	D
230 Living in the city.....	L	I	D
231 Climbing along edge of precipice...	L	I	D
232 Looking at a collection of rare laces.	L	I	D
233 Looking at a collection of antique furniture	L	I	D

Part V. Peculiarities of People. Record your first impression. Do not think of various possibilities or of exceptional cases. "Let yourself go" and record the feeling that comes to mind as you read the item.

234 Progressive people	L	I	D
235 Conservative people	L	I	D
236 Energetic people	L	I	D
237 Absent-minded people	L	I	D
238 People who borrow things.....	L	I	D
239 Quick-tempered people	L	I	D
240 Optimists	L	I	D
241 Pessimists	L	I	D
242 People who are natural leaders.....	L	I	D
243 People who assume leadership.....	L	I	D
244 People easily led.....	L	I	D
245 People who have made fortunes in business	L	I	D
246 Emotional people	L	I	D
247 Thrifty people	L	I	D
248 Spendthrifts	L	I	D
249 Talkative people	L	I	D
250 Religious people	L	I	D
251 Irreligious people	L	I	D
252 People who have done you favors...	L	I	D
253 People who get rattled easily.....	L	I	D
254 Gruff men	L	I	D
255 Foreigners	L	I	D
256 Sick people	L	I	D
257 Nervous people	L	I	D
258 Very old people.....	L	I	D
259 Cripples	L	I	D
260 Side-show freaks	L	I	D
261 People with gold teeth.....	L	I	D
262 People with protruding jaws.....	L	I	D
263 People with hooked noses.....	L	I	D
264 Blind people	L	I	D
265 Deaf mutes	L	I	D
266 Self-conscious people	L	I	D
267 People who always agree with you..	L	I	D
268 People who talk very loudly.....	L	I	D
269 People who talk very slowly.....	L	I	D
270 People who talk about themselves...	L	I	D
271 Fashionably dressed people.....	L	I	D
272 Carelessly dressed people.....	L	I	D
273 People who don't believe in evolution	L	I	D
274 Socialists	L	I	D
275 Bolsheviks	L	I	D
276 Independents in politics.....	L	I	D
277 Men who chew tobacco.....	L	I	D
278 Men who use perfume.....	L	I	D
279 People who chew gum.....	L	I	D
280 Athletic men	L	I	D

Part VI. Order of Preference of Activities. Indicate which three of the following ten activities you would enjoy most by checking (✓) opposite them in column 1; also indicate which three you would enjoy least by checking opposite them in column 3. Check the remaining four activities in column 2.

1	2	3	
281 ()	()	()	Develop the theory of operation of a new machine, e.g., auto
282 ()	()	()	Operate (manipulate) the new machine
283 ()	()	()	Discover an improvement in the design of the machine
284 ()	()	()	Determine the cost of operation of the machine
285 ()	()	()	Supervise the manufacture of the machine
286 ()	()	()	Create a new artistic effect, i.e., improve the beauty of the auto
287 ()	()	()	Sell the machine
288 ()	()	()	Prepare the advertising for the machine
289 ()	()	()	Teach others the use of the machine
290 ()	()	()	Interest the public in the machine through public addresses

Indicate in the same way what you consider are the three most important factors affecting your work; also the three least important factors. Check the remaining four items in column 2. Be sure you have marked three items under 1, three items under 3, and four items under 2.

1	2	3	
291 ()	()	()	Salary received for work
292 ()	()	()	Steadiness and permanence of work
293 ()	()	()	Opportunity for promotion
294 ()	()	()	Courteous treatment from superiors
295 ()	()	()	Opportunity to make use of all one's knowledge and experience
296 ()	()	()	Opportunity to ask questions and to consult about difficulties
297 ()	()	()	Opportunity to understand just how one's superior expects work to be done
298 ()	()	()	Certainty one's work will be judged by fair standards
299 ()	()	()	Freedom in working out one's own methods of doing the work
300 ()	()	()	Co-workers—congenial, competent, and adequate in number

Indicate in the same way the three men you would most like to have been; also the three you would least like to have been. Check the remaining four men in column 2.

1	2	3	
301 ()	()	()	Luther Burbank, "plant wizard"
302 ()	()	()	Enrico Caruso, singer
303 ()	()	()	Thomas A. Edison, inventor
304 ()	()	()	Henry Ford, manufacturer
305 ()	()	()	Charles Dana Gibson, artist
306 ()	()	()	J. P. Morgan, financier
307 ()	()	()	J. J. Pershing, soldier
308 ()	()	()	William H. Taft, jurist
309 ()	()	()	Booth Tarkington, author
310 ()	()	()	John Wanamaker, merchant

Indicate in the same way the three positions you would most prefer to hold in club or society; also the three you least prefer to hold. Check the remaining four in column 2.

1	2	3	
311 ()	()	()	President of a Society or Club
312 ()	()	()	Secretary of a Society or Club
313 ()	()	()	Treasurer of a Society or Club
314 ()	()	()	Member of a Society or Club
315 ()	()	()	Chairman, Arrangement Committee
316 ()	()	()	Chairman, Educational Committee
317 ()	()	()	Chairman, Entertainment Committee
318 ()	()	()	Chairman, Membership Committee
319 ()	()	()	Chairman, Program Committee
320 ()	()	()	Chairman, Publicity Committee

Part VII. Comparison of Interest between Two Items. Indicate your choice of the following pairs by checking (✓) in the first space if you prefer the item to the left, in the second space if you like both equally well, and in the third space if you prefer the item to the right. Assume other things are equal except the two items to be compared.

Work rapidly.

321 Street-car motorman	()	()	()	Street-car conductor
322 Policeman	()	()	()	Fireman (fights fire)
323 Chauffeur	()	()	()	Chef
324 Head waiter	()	()	()	Lighthouse tender
325 House to house canvassing	()	()	()	Retail selling
326 House to house canvassing	()	()	()	Gardening
327 Repair auto	()	()	()	Drive auto
328 Develop plans	()	()	()	Execute plans
329 Do a job yourself.....	()	()	()	Delegate job to another
330 Persuade others	()	()	()	Order others
331 Deal with things.....	()	()	()	Deal with people
332 Plan for immediate future.....	()	()	()	Plan for five years ahead
333 Activity which produces tangible returns.....	()	()	()	Activity which is enjoyed for its own sake
334 Taking a chance.....	()	()	()	Playing safe
335 Definite salary	()	()	()	Commission on what is done
336 Work for yourself.....	()	()	()	Carry out program of superior who is respected
337 Work which interests you with modest income	()	()	()	Work which does not interest you with large income
338 Work in a large corporation with little chance of becoming president until age of 55.....	()	()	()	Work for self in small business
339 Selling article, quoted 10% below competitor..	()	()	()	Selling article, quoted 10% above competitor
340 Small pay, large opportunities to learn during next 5 years.....	()	()	()	Good pay, little opportunity to learn during next 5 years
341 Work involving few details.....	()	()	()	Work involving many details
342 Outside work	()	()	()	Inside work
343 Change from place to place.....	()	()	()	Working in one location
344 Great variety of work.....	()	()	()	Similarity in work
345 Physical activity	()	()	()	Mental activity
346 Emphasis upon quality of work.....	()	()	()	Emphasis upon quantity of work
347 Technical responsibility (head of a department of 25 people engaged in technical, research work)	()	()	()	Supervisory responsibility (head of a department of 300 people engaged in typical business operation)
348 Present a report in writing.....	()	()	()	Present a report verbally
349 Listening to a story.....	()	()	()	Telling a story
350 Playing baseball	()	()	()	Watching baseball
351 Amusement where there is a crowd.....	()	()	()	Amusement alone or with one or two others
352 Nights spent at home.....	()	()	()	Nights away from home
353 Reading a book.....	()	()	()	Going to movies
354 Belonging to many societies.....	()	()	()	Belonging to few societies
355 Few intimate friends.....	()	()	()	Many acquaintances
356 Many women friends.....	()	()	()	Few women friends
357 Fat men	()	()	()	Thin men
358 Tall men	()	()	()	Short men
359 Jealous people	()	()	()	Conceited people
360 Jealous people	()	()	()	Spendthrifts

Part VIII. Rating of Present Abilities and Characteristics. Indicate below what kind of a person you are right now and what you have done. Check in the *first* column ("Yes") if the item really describes you, in the *third* column ("No") if the item does not describe you, and in the *second* column (?) if you are not sure. (Be frank in pointing out your weak points, for selection of a vocation must be made in terms of them as well as your strong points.)

	YES	?	NO
361 Usually start activities of my group.....	()	()	()
362 Usually drive myself steadily (do not work by fits and starts)	()	()	()
363 Win friends easily.....	()	()	()
364 Usually get other people to do what I want done.....	()	()	()
365 Usually liven up the group on a dull day.....	()	()	()
366 Am quite sure of myself.....	()	()	()
367 Accept just criticism without getting sore.....	()	()	()
368 Have mechanical ingenuity (inventiveness).....	()	()	()
369 Have more than my share of novel ideas.....	()	()	()
370 Can carry out plans assigned by other people.....	()	()	()
371 Can discriminate between more or less important matters.....	()	()	()
372 Am inclined to keep silent (reticent) in confidential and semi-confidential affairs.....	()	()	()
373 Am always on time with my work.....	()	()	()
374 Remember faces, names, and incidents better than the average person	()	()	()
375 Can correct others without giving offense.....	()	()	()
376 Able to meet emergencies quickly and effectively.....	()	()	()
377 Get "rattled" easily.....	()	()	()
378 Can write a concise, well-organized report.....	()	()	()
379 Have good judgment in appraising values.....	()	()	()
380 Plan my work in detail.....	()	()	()
381 Follow up subordinates effectively.....	()	()	()
382 Put drive into the organization.....	()	()	()
383 Stimulate the ambition of my associates.....	()	()	()
384 Show firmness without being easy.....	()	()	()
385 Win confidence and loyalty.....	()	()	()
386 Smooth out tangles and disagreements between people.....	()	()	()
387 Am approachable	()	()	()
388 Discuss my ideals with others.....	()	()	()

Check (✓) in the first, second, or third column at the right according as the first, second, or third statement in each item below applies to you.

	(1st)	(2nd)	(3rd)
389 (1) Feelings easily hurt (2) Feelings hurt sometimes (3) Feelings rarely hurt.....	()	()	()
390 (1) Usually ignore the feelings of others (2) Consider them sometimes (3) Carefully consider them..	()	()	()
391 (1) Loan money to acquaintances (2) Loan only to certain people (3) Rarely loan money.....	()	()	()
392 (1) Rebel inwardly at orders from another, obey when necessary (2) Carry out instructions with little or no feeling (3) Enter into situation and enthusiastically carry out program	()	()	()
393 (1) When caught in a mistake usually make excuses (2) Seldom make excuses (3) Practically never make excuses	()	()	()
394 (1) Best-liked friends are superior to me in ability (2) Equal in ability (3) Inferior in ability.....	()	()	()
395 (1) Handle complaints without getting irritated (2) Become annoyed at times (3) Lose my temper at times..	()	()	()
396 (1) Borrow frequently (for personal use) (2) Borrow occasionally (3) Practically never borrow..	()	()	()
397 (1) Tell jokes well (2) Seldom tell jokes (3) Practically never tell jokes	()	()	()
398 (1) My advice sought by many (2) Sought by few (3) Practically never asked...	()	()	()
399 (1) Frequently make wagers (2) Occasionally make wagers (3) Never make wagers.....	()	()	()
400 (1) Worry considerably about mistakes (2) Worry very little (3) Do not worry.....	()	()	()

Be Sure You Have Not Omitted Any Part: Note Particularly the Second Columns on Pages 2, 3, and 4.

Occupation	Artist	Psychologist	Architect	Physician	Dentist	Mathematician	Engineer	Chemist	Production Manager	Farmer
Raw Score										
Standard Score										
Rating										
Occupation	Carpenter	Printer	Mathematics-Science Teacher	Pollceman	Forest Service	Y.M.C.A. Physical Director	Personnel	Y.M.C.A. General Secretary	Social Science Teacher	City School Superintendent
Raw Score										
Standard Score										
Rating										
Occupation	Minister	Musician	Certified Public Accountant	Accountant	Office Worker	Purchasing Agent	Banker	Sales Manager	Real Estate Salesman	Life Insurance Salesman
Raw Score										
Standard Score										
Rating										
Occupation	Advertising Man	Lawyer	Author-Journalist	President, M'fg Concern	Occupational Level	Masculinity-Femininity	Interest Maturity	Aviator		
Raw Score										
Standard Score										
Rating										
Occupation										
Raw Score										
Standard Score										
Rating										

STRONG VOCATIO

Report

GROUP	OCCUPATION	STANDARD SCALE	C
I	ARTIST		
	PSYCHOLOGIST (REV.)		
	ARCHITECT		
	PHYSICIAN		
	OSTEOPATH		
	DENTIST		
	VETERINARIAN		
II	MATHEMATICIAN		
	PHYSICIST		
	ENGINEER		
	CHEMIST		
III	PRODUCTION MANAGER		
IV	FARMER		
	AVIATOR		
	CARPENTER		
	PRINTER		
	MATH. PHYS. SCI. TEACHER		
	IND. ARTS TEACHER		
	VOC. AGRICULT. TEACHER		
	POLICEMAN		
	FOREST SERVICE MAN		
	V	Y.M.C.A. PHYS. DIRECTOR	
PERSONNEL DIRECTOR			
PUBLIC ADMINISTRATOR			
Y.M.C.A. SECRETARY			
SOC. SCI. H.S. TEACHER			
CITY SCHOOL SUPT.			
MINISTER			
VI	MUSICIAN		
VII	C.P.A.		
VIII	SENIOR C.P.A.		
	ACCOUNTANT		
	OFFICE MAN		
	PURCHASING AGENT		
	BANKER		
	MORTICIAN		
	PHARMACIST		
IX	SALES MANAGER		
	REAL ESTATE SALESMAN		
	LIFE INSURANCE SALESMAN		
X	ADVERTISING MAN		
	LAWYER		
	AUTHOR-JOURNALIST		
XI	PRESIDENT-MFG. CONCERN		
STANDARD SCALE			20
INTEREST MATURITY			
OCCUPATIONAL LEVEL			
MASCULINITY-FEMININITY			

Your occupational interests lines on the scales opposite the

In the example below the interests of artists (note the B

GROUP	OCCUPATION	STANDARD SCALE
I	ARTIST	
	PSYCHOLOGIST (REV.)	
	ARCHITECT	
	PHYSICIAN	

An A rating means that the ests of persons successfully en a C rating means that the per interests; and the ratings B+, person probably has those int so sure of that fact as in the seldom that persons with C occupation, and if so engaged ent successes who are likely ing on the work in some more The latter situation is exempli a rating of C in the interests c gaged as superintendent of a

All high ratings (B+ and One may choose one occupa utilize one's interests in two o Thus, if one scores high in b one might prepare for both an ney, or a lawyer specializing

The higher a score to the the greater the certainty that o acteristic of that occupation. T left of the shaded area the gre does not have the interests o falling within the shaded area help sometimes to show, along general trend of one's interests But generally they can be ign the above diagram the scores fo cian are disregarded, and we vidual has an A rating in the and a B rating in the interests

Occupations included in the highly with one another.

Men's interests change very

STRONG VOCATIONAL INTEREST TEST—MEN

See other side for explanation

NAME M. HANKS JR.

AGENCY OR SCHOOL

AGE

DATE

NUMBER 00550

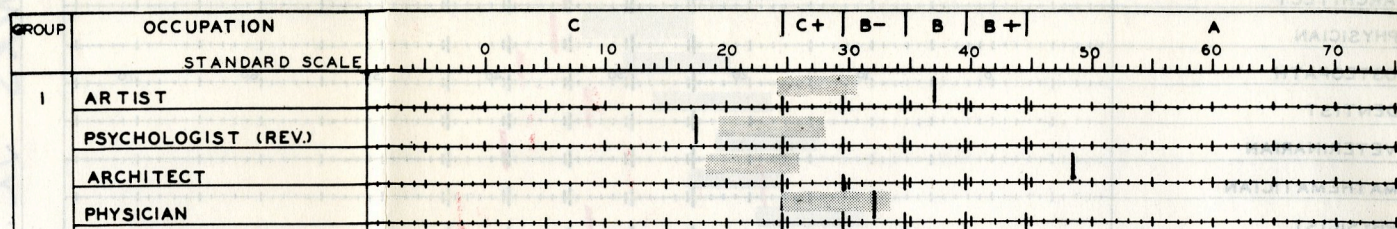
GROUP	OCCUPATION	C	C+	B-	B	B+	A		
STANDARD SCALE		0	10	20	30	40	50	60	70
I	ARTIST								
	PSYCHOLOGIST (REV.)								
	ARCHITECT								
	PHYSICIAN								
	OSTEOPATH								
	DENTIST								
	VETERINARIAN								
II	MATHEMATICIAN								
	PHYSICIST								
	ENGINEER								
	CHEMIST								
III	PRODUCTION MANAGER								
IV	FARMER								
	AVIATOR								
	CARPENTER								
	PRINTER								
	MATH. PHYS. SCI. TEACHER								
	IND. ARTS TEACHER								
	VOC. AGRICULT. TEACHER								
	POLICEMAN								
	FOREST SERVICE MAN								
V	Y.M.C.A. PHYS. DIRECTOR								
	PERSONNEL DIRECTOR								
	PUBLIC ADMINISTRATOR								
	Y.M.C.A. SECRETARY								
	SOC. SCI. H.S. TEACHER								
	CITY SCHOOL SUPT.								
	MINISTER								
VI	MUSICIAN								
VII	C.P.A.								
VIII	SENIOR C.P.A.								
	ACCOUNTANT								
	OFFICE MAN								
	PURCHASING AGENT								
	BANKER								
	MORTICIAN								
	PHARMACIST								
IX	SALES MANAGER								
	REAL ESTATE SALESMAN								
	LIFE INSURANCE SALESMAN								
X	ADVERTISING MAN								
	LAWYER								
	AUTHOR—JOURNALIST								
XI	PRESIDENT—MFG. CONCERN								
STANDARD SCALE		20	30	40	50	60	70		
INTEREST MATURITY									
OCCUPATIONAL LEVEL									
MASCULINITY—FEMINITY									

Report on Vocational Interest Test for Men (Continued)

Your occupational interests are recorded by heavy lines on the scales opposite the appropriate occupations.

In the example below the man has a B rating in the interests of artists (note the B at the top of the report

blank), a C rating in the interests of psychologists, an A rating in the interests of architects, and a B— rating in the interests of physicians.



An A rating means that the individual has the interests of persons successfully engaged in that occupation; a C rating means that the person does not have such interests; and the ratings B+, B, and B— mean that the person probably has those interests but we cannot be so sure of that fact as in the case of A ratings. It is seldom that persons with C ratings are found in the occupation, and if so engaged they are either indifferent successes who are likely to drop out or are carrying on the work in some more or less unusual manner. The latter situation is exemplified by a physician with a rating of C in the interests of a physician who is engaged as superintendent of a hospital.

All high ratings (B+ and A) should be considered. One may choose one occupation so rated or plan to utilize one's interests in two or more such occupations. Thus, if one scores high in both law and engineering one might prepare for both and become a patent attorney, or a lawyer specializing in engineering problems.

The higher a score to the right of the shaded area the greater the certainty that one has the interests characteristic of that occupation. The lower the score to the left of the shaded area the greater the certainty that one does not have the interests of the occupation. Scores falling within the shaded area are indeterminate: they help sometimes to show, along with other scores, the general trend of one's interests in an occupational group. But generally they can be ignored. Consequently, in the above diagram the scores for psychologist and physician are disregarded, and we conclude that the individual has an A rating in the interests of an architect and a B rating in the interests of an artist.

Occupations included in the same group all correlate highly with one another.

Men's interests change very little from 25 to 55 years

of age. They change somewhat from 20 to 25 years and much more so from 15 to 20 years. Consequently, the younger the man, particularly below 20 years of age, the less certainly can his interests be identified in terms of some occupation. Such changes in interests as take place are more likely to result in higher ratings than the reverse. This is particularly true with respect to ratings in Group V.

The ratings from this test should not be viewed as conclusive; they are not guaranteed. Instead they should be viewed as merely suggestive and to be considered in the light of all other information bearing upon one's vocational choice. Occupations rated A and B+ should be carefully considered before definitely deciding against them; occupations rated C, C+, and B— should be carefully considered before definitely deciding to enter them. Remember only a few from among all the hundreds of occupations are reported on here.

Remember also this is a test of your interests. Your abilities must also be considered. Interests point the way you want to go, abilities determine how well you can progress.

Scores on the three special scales (see bottom of report sheet) are for the use of trained counselors and should be explained personally by them. The IM scale expresses maturity of interests. One's age must be taken into consideration in interpreting this score. It applies only to men between the ages of 15 and 20. The OL scale indicates whether one's interests are similar to common workmen (a low score) or to business and professional men (a high score). The MF scale indicates whether one's interests are similar to the interests of men or women. The average man scores 50 on the OL and MF scales. See the author's *Vocational Interests of Men and Women*.

A STUDY OF VOCATIONAL INTEREST ACHIEVEMENT
AND SCHOLASTIC APTITUDE

by

FRED LEE WILHOITE, JR.

B. S., Kansas State Teachers College
of Emporia, 1944

AN ABSTRACT OF A THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

Department of Education and Psychology

KANSAS STATE COLLEGE
OF AGRICULTURE AND APPLIED SCIENCE

1951

grade average, interest maturity score, interest occupational level score, masculine-femininity score, and mean scores for the eleven occupational interests groups with appropriate letter ratings.

The data compiled for the study were treated statistically to determine the relationships. Correlations were made between mental age scores and average grades; mental age scores and occupational interest level scores; mental age scores and interest maturity scores; average grades and occupational interest level scores; and average grades and interest maturity scores. Other comparisons made were comparing the percentage rankings in the interest occupational groups of students above Q_3 in mental ability with the students below Q_1 in mental ability.

After statistical computations were studied the following conclusions were made:

1. A marked or substantial relationship exists between scholastic aptitude and achievement. This relationship was expressed by an obtained correlation coefficient of $.59 \pm .05$.
2. Since no majority of identical responses or definite patterns of responses in interest groups were found differentiating the two ability groups, one would conclude that there is no relationship between interest and scholastic aptitude as shown by these data.
3. The relationship found between ability and occupational interest level was represented by a negligible correlation

The research--"A Study of Vocational Interest, Achievement, and Scholastic Aptitude"--was made with the purpose in mind of ascertaining the relationship between (a) Scholastic Aptitude and Achievement, (b) Interest and Scholastic Aptitude, and (c) Achievement and Interest for the senior students of the Manhattan High School, Manhattan, Kansas.

The basic pattern of study for the research was as follows:

1. Ascertaining the descriptive nature of the group, taking into consideration number of subjects, age, sex, race, and grade classification.

2. Determining the scholastic aptitude of the subjects as denoted by mental age scores from the Henmon-Nelson Test of Mental Ability--Form B.

3. Determining the scholastic achievement of the subjects by averaging their grades earned for five semesters in grades 10, 11 and 12.

4. Determining the interest pattern groupings of the subjects by administering the Strong's Vocational Interest Blank Form M (for Men).

5. Analyzing data found in the first, second, third, and fourth phase to learn what relationships exist, if any, between scholastic aptitude and achievement; interest and scholastic aptitude; and achievement and interest.

As a working procedure for the study, the following information was recorded on numbered three by five index cards: student's name, age, sex, mental score, mental age, I. Q.,

coefficient of .0096.

4. After correlating mental age scores and interest maturity scores, an insignificant coefficient of .0058 was found; likewise it is thought that no relationship exists between these factors.

5. In the comparisons of "A" interest group ratings of the students above Q_3 and below Q_1 in achievement, no relationship was found.

6. A significant relationship was found between achievement and occupational interest level. This relationship was expressed by a coefficient of $.52 \pm .06$.

7. In the study of the relationship between achievement and interest maturity, a correlation coefficient of .0042 was found. Accordingly, one concludes that no significant relationship exists between achievement and maturity of interest.

8. The girls in the study were younger, as a group, than the boys since their mean age was 17.49 with a standard deviation of .68 as compared with the mean age of 17.90 with a standard deviation of .95 for the boys.

9. The mean mental age of the girls was higher than that of the boys. The mean difference of 3.65 was found to be statistically non-significant at the .01 level of confidence.

10. The mean grade of achievement for the girls was 2.90 with a standard deviation of .69, and the mean grade of achievement of the boys was 2.52 with a standard deviation of .71. The mean difference of .38 was statistically significant at the

.01 level of confidence; therefore, for the purpose of generalization one may conclude that by making future samplings of the high school population of this school, one would find the same condition existing regarding achievement of senior girls as compared to senior boys.

11. The girls had more musical interests than the boys. Forty-six percent of the girls received "A" interest ratings as compared to 16 percent of the boys.

12. The boys had greater interest than the girls in occupational group two which includes the occupations of mathematician, physicist, engineer, and chemist.

13. The interest of the boys in occupational group four was more predominate than those of the girls. The occupations in this group are usually considered occupations of men in general.

14. The Strong's Vocational Interest Test gives information not given by the Henmon-Nelson Test of Mental Ability and is a good test to be used in a high school counseling and guidance program.

While the coefficients found between interest maturity and achievement; interest maturity and mental age; and mental ages and occupational level are not statistically significant, one should keep in mind that the "A" interest group patterns were slightly better established in the students of better ability. In spite of this fact counselors and students should not confuse interests with abilities or achievements because the relationship is not too close; moreover, since people, in general

usually like to do things which interest them, it is very important while in the process of counseling high school students to learn whether or not they will probably like to do the work of the occupation which they are considering providing they have the aptitude. It is necessary, to be sure, to remember that both ability and interest contribute to the success and satisfaction of anyone in a selected occupation.