A STUDY OF SELECTED JUNIOR COLLEGE STUDENTS WHO TRANSFERRED TO THE UNIVERSITY OF KANSAS.

by

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CHAPTER I

INTRODUCTION

The General Statement

This study is a detailed analysis of the records of three hundred and one junior college students who registered in the University of Kansas during the school year 1927-1928, including the summer session of 1927. Special reference will be given to the kind and quality of the junior college work, the psychology test scores, the choice of schools within the University, the chronological ages, the occupational status of the fathers, and the University scholastic records of these students.

Special attention will be devoted to the adjustment that the junior college student effects in the University. The abilities and attainments of the junior college students will be compared with the averages of the University students of similar classification in their respective schools.

The Problem Justified

This is a subject of great importance to education and society because of the rapid increase in the number and size of junior colleges within the last decade. Few careful studies of this nature have been made. Many statements, however, have been made; some appear to be paradoxical. Most of these statements are opinions,

perhaps prejudices; a few are conclusions based upon careful research.

A few quotations will illustrate how the writers disagree. "In short, the junior college is to all intents and purposes a mere extention of the high school course; and the inevitable result is that its students still receive the treatment and instruction adapted perhaps to the high school age, but little calculated to stimulate the independent thought, the method of original research, and the rational self-control which college life teaches and demands."[1]

An even more radical expression than that previously cited, was taken from an article by Mr. Fredrick L. Whitney in The School Review.[2] "The president of a private junior college for girls expressed the opinion that most of the public junior colleges are 'just glorified high schools.' The writer's reply was, 'on the other hand the first and second years of work in the typical higher institution of learning have been found to be just high-school work--and not glorified!'"

By way of contrast the following is of interest: "Records made by the graduates of these junior colleges in the junior class at the University of California and at Leland Stanford University are.....superior in general to the records of men who have been two years at

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1 Anonymous, "The Junior College Menace." The Atlantic Monthly, Vol. 139, p 810.

2 The School Review, Oct., 1928. p 593-594.

the Universities."[1]

The above quotations indicate that many careful studies regarding the character and quality of the junior college work are needed. There is need also to study the relative effectiveness of the junior college, the liberal arts college, and other types of institutions of higher learning. It is obviously futile to build an educational program around the assumption which has nothing for its foundation except very limited observation and prejudice. Detailed study and analysis of the problem in search of facts, therefore, is necessary.

This study will have been worth while if it will bring some facts to light which will help in this, one of the many great problems of education.

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1 Editorial, "Junior Colleges Steadily Increasing in Favor." School Life, April, 1926. Vol. 11, p 151.

CHAPTER II

REVIEW OF THE RELATED STUDIES

So far as the writer has been able to ascertain, only one study markedly similar to the one proposed by him has been made. This was first found by the writer in the Faculty Bulletin[1] issued by the Registrar's Office, Stanford University. Later the study was published in The School Review.[2]

Another study, which was made at Yale University[3], will be reviewed. It is similar only in the sense that it deals with student transfers from public schools and from private schools to Yale University. The comparison was not restricted to junior college students. Most of the students were certificated high school graduates; some were transfers from other colleges. It will be interesting to see to what extent the results of the measurements of the several groups within the University of Kansas agree with the other studies.

The Stanford Study

Walter Crosby Eells studied the records of the

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1 Eells, Walter C. "The University Records of Students From Junior Colleges." Faculty Bulletin, June 30, 1928.

2 Eells, Walter Crosby. "Records of Junior-College Transfers in The University. The School Review, March, 1929. Vol. 37. p 187-197.

3 Spencer, Llewellyn T. "College Achievement of Private and Public School Entrants." School and Society, Vol. 26. 1927. p 436-438.

students who transferred from junior colleges to Stanford University. A total of 510 junior college students entered Stanford University from 1923-24 to 1927-28 (fall only). There were 317 (60 per cent) who had completed two full years of junior college work. This group was used for the study.

The study was divided as follows: (1) classification of junior colleges, (2) age, (3) mental ability, (4) academic accomplishment. The junior college students were compared with Native Stanford[1] students in the following regards: (1) age, (2) ability, (3) academic accomplishment. The following is a brief summary of Dr. Eells' findings.

1. Classification

The junior college students were divided into groups according to the different types of junior colleges represented: (1) independent district, (2) high school type, (3) teachers college type, and (4) non-California. The California junior colleges were all public institutions.

2. Age

At the time of matriculation, the mean age of the junior college group was 20.52 years. For Native Stanford freshmen the mean age at the time of matriculation was 18.55 years. "The difference is almost exactly two

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1 Native Stanford refers to upper division students who entered the University directly from the high school.

years, and the relative ages of the two groups is not an important factor in this connection."[1]

3. Ability

Scores made on the Thorndike Intelligence Test were taken for one measure of ability. The results of this test show marked superiority on the part of junior college entrants when compared with corresponding Native Stanford groups. The students were divided into three classes: low, medium, and high. The intelligence test scores for these classes were: 0-49, 50-89, and 90-135, respectively.

Proportionately, over twice as many junior college entrants among the men made high scores as Native Stanford men, and five times as many among the women. The opposite is true regarding low scores. Less than one-third as many junior college entrants made as low scores as Native Stanford students.

Other studies made at Stanford give little evidence of any marked increase in Thorndike Intelligence Test scores which can be definitely credited to maturity. The Thorndike scores, therefore, were considered fairly reliable measures of general ability.

The previous academic records of the students were taken as another measure of ability. The junior college

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1 Eells, Walter C. "The University Records of Students From Junior Colleges." The Faculty Bulletin, June 30, 1928.

transcripts were evaluated in terms of the Stanford grade point ratio. It was found that the junior college entrants had distinctly better averages for their junior college work than the Native Stanford students during their work in the Lower Division at Stanford.

Some doubt, however, was expressed concerning the reliability of these averages because of possibly different grading systems. The Thorndike Test scores, therefore, were considered more reliable than the previous academic records.

The conclusion is that Stanford University has secured from junior colleges a group of students who are distinctly superior to the average of those admitted as Native Stanford students.

4. Academic Accomplishment

Comparing the average grades made in the Upper Division of Stanford University for six consecutive quarters, Eells found that the Native Stanford men made a higher average than the junior college entrants for the first quarter only. The scores for the different quarters indicate that the junior college men constantly increase their scores and surpass the Native Stanford students after becoming adjusted to the new conditions. The junior college women made higher scores than a comparable group of Native Stanford women in each quarter except the fourth and fifth.

Stanford University recognizes high scholastic

attainment by conferring honors at graduation upon the upper 15 per cent of the graduating class. This distinction was given to 23.6 per cent of the junior college entrants.

"Where nearly half of the graduates who have come from junior colleges have gone into graduate work at the University, only slightly over a quarter of the Native Stanford group have done so."[1]

The conclusion is that the junior college students, whose records are reviewed here, are superior in general to the Native Stanford students.

The Yale Study

A study of the entrants at Yale University was made by Llewellyn T. Spencer.[2] The men were divided into four groups: public school men, private school men, men who had attended both private and public schools, and transfers from other colleges. Tutoring schools were classified with private schools.

The records were compared in the following regards: (1) high school grades, (2) intelligence test scores, and (3) academic grades in the University. The following is a brief summary of the findings. In all cases the differences between the public school men and the private

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1 Eells, Walter C. The Faculty Bulletin, June 30, 1928.

2 Spencer, Llewellyn T. School and Society, Vol. 26, p 436-438.

school men are at least three times the standard error of the difference.

1. High School Grades

The students from the private schools averaged highest in their high school records, those who had attended both public and private schools were next, and the public school men were lowest.

2. Intelligence Test Scores

Intelligence test scores on Army Alpha and modifications of Alpha were compared. The highest average score was made by the men from both private and public schools, the public school men ranked next, and those from private schools were third. The transfers from other colleges made the lowest average.

3. University Grades

The average grades, for the total time of attendance in college, were compared to estimate the relative degrees of academic achievement. Men from public schools made the highest average, those from both public and private schools were next, the private school men ranked third, and again the transfers from other colleges were lowest.

The superiority was greatest in the freshman year, which seems to show that the consistent superiority of the public school men was not the result of a gradual ascendency compensating for the apparent handicap in their entrance grades.

Other data are given which show that the men from the public schools remained in school with greater freedom from withdrawals and resignations, and graduated with a relatively greater frequency than the students in the other groups.

The conclusion is that the students from the public schools are superior to the students from the private schools in intelligence test scores, academic grades, frequency of graduation, and freedom from resignations.

CHAPTER III

THE SPECIFIC PROBLEM

The purposes of this study are:

(1) To compare the central tendencies and the measures of variability of 301 junior college students[1] with the same measures of the regularly enrolled University of Kansas students in regard to scholastic attainment.[2]

(2) To compare the students from junior colleges with those in the University of Kansas in regard to psychology test decile scores. The comparison will be on the basis of the per cent of the respective groups in each decile.

(3) To compare the central tendencies and the measures of variability of public junior college students with those of private and denominational junior college students, collectively, in the following regards:

a Scholastic attainment:

1. In junior college.

2. In the University. (For the entire year).

b Chronological age. (At registration).

(4) To compare the central tendencies and the measures of variability of the University grades for the first

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1 A junior college student is an individual who has studied in an institution known or classified as a junior college and has received credit for such work.

2 Scholastic attainment means that average weighted grade received by each student in regular university and college courses.

semester with those for the second semester of the students in each group of junior colleges who attended the University during both semesters.

(5) To compare the students from public junior colleges with those from private and denominational junior colleges in regard to their psychology test decile scores. The comparison will be on the basis of the per cent of the respective groups in each decile.

(6) To compare the central tendencies and the measures of variability of the ratings assigned to the occupational status of the fathers of the students from public junior colleges and those from private and denominational junior colleges. The rating will be by the Barr Scale of Occupational Status.

(7) To determine and compare the choice of schools within the University made by students from private and denominational junior colleges and by students from public junior colleges.

(8) To compare the frequency of men and women respectively coming to the University from public junior colleges and from private and denominational junior colleges.

(9) To correlate the standard deviation scores for the junior college work with the standard deviation scores for the work in the University. The correlation will be made for each group of junior college students separately.

CHAPTER IV

SELECTION OF THE DATA

The data, which are presented in this study, were obtained from the records of junior college students who entered the University of Kansas in the summer and fall of 1927, and in the spring of 1928. The records of all junior college students who entered during this time were selected for the study.

The names of the junior college students, the number of hours of junior college work and the grades were obtained from the official files in the office of the Advanced Standing Committee. The names of the junior colleges attended and the dates of transfer were secured also from these records.

The psychology test decile scores were obtained from the Department of Psychology. Eleven students had failed to take the psychology test.

The grades for the work in the University were secured from the records of the deans of the various schools represented. The records of a few students were not located at the time; therefore their grades were procured from the permanent records in the registrar's office.

Each student's father's occupational status was secured from the office records of the Dean of Men or the Dean of Women. The records of inactive students, however, were not found in their files. The data for these students

were obtained from the office of the registrar.

The data for sex, and chronological age were obtained in the manner described above for occupational status, except that the chronological age was checked with the information on the psychology test record cards.

The above data were checked for accuracy and omissions. They are as complete as the records of the University make possible.

CHAPTER V

THE METHOD OF PROCEEDURE

It was indicated in the statement of the specific problem that the junior college students will be compared with the students in the University of Kansas in certain regards. The writer intends, also, to compare the students from public junior colleges with the students from private and denominational junior colleges. A statistical method will be used for presentation of the several measures.

It was necessary to select some means of deciding which institutions were junior colleges. The College Blue Book[1] was used as the criterion. Regardless of the accrediting agency, if the name of the school appeared in the list of junior colleges, the school was designated a junior college and was used in this study. There is an exception to this statement. Two of the junior colleges represented in this study were not found in this book. Sufficient evidence, however, was secured from the Advanced Standing Committee regarding them to classify each as a junior college.

The writer then proceeded:

To classify the institutions and students according to the size of the school represented.

To classify the students in groups: (1) A--public

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1 The College Blue Book, 1928.

junior college students, (2) B--private and denominational junior college students, and (3) C--University of Kansas students.

To compare the percentages of A, and B (collectively and separately) with C in the following regards:
(1) Those choosing each school in the University,
(2) Men and women.

To weight the grades received both in junior college and university academic work. The grades were weighted according to the system suggested by Wood.[1] The weights for the various grades are as follows: 11, 8, 6, 4, and 1 for A, B, C, D, and F, respectively. These values give a wide range and eliminate troublesome negative calculations.

To use a standard deviation technique[2] on the weighted grades. This is the technique that Professor Miller used on raw IQs.[3] First the average and the standard deviation of the distribution must be found. Then the raw scores, in this case weighted grades, can be translated into tenths of a SD with 50 as the mean and 0 at 5 SD negative. Hereafter the translated grades will be referred to as SD scores.

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1 Wood, Ben D. Measurement in Higher Education, p 74-76.

2 Turney, Austin H. "A study of Achieving and Non-Achieving High-School Pupils." The School Review, April 1927.

3 Miller, W. S. "The Variation and Significance of Intelligence Quotients Obtained From Group Tests." The Journal of Educational Psychology, Sept., 1924. p 364.

To compare A and B collectively and separately with C in regard to the psychology test decile scores. The comparison will consider the percentage of the respective groups in each decile.

To compare A and B collectively and separately in regard to scholastic attainment, considering the average grades.

To compare A and B in the following regards: (1) the number of men and women, (2) the chronological age, (3) the occupational status of the fathers according to the Barr rating, (4) the amount of junior college credit in semester hours, (5) the average and variability of the junior college grades, (6) the psychology test decile scores, (7) the choice of schools within the University, and (9) the correlation of the SD scores of the junior college grades with the SD scores of the University grades.

CHAPTER VI

PRESENTATION AND INTERPRETATION OF THE DATA.

Introduction

In this chapter the presentation and the interpretation of the data will be given under the following headings: (1) classifications, (2) chronological ages, (3) the fathers' occupational status, (4) the junior college work, (5) psychological test results, (6) the work in the University of Kansas.

Classifications

Table I

DISTRIBUTION OF PUBLIC JUNIOR COLLEGES, AND PRIVATE AND DENOMINATIONAL JUNIOR COLLEGES BY STATE.

State	Public	Private	Total
Alabama		1	1
California	1	1	2
Colorado	1	1	2
Illinois	1	4	5
Iowa		1	1
Kansas	8	4	12
Michigan	1		1
Mississippi		1	1
Missouri	2	12	14
New Mexico	1		1
Oklahoma	2		2
Tennessee		1	1
Virginia		1	1
Total	17	27	44

Note. Private refers to private and denominational junior colleges.

The junior college students, whose records are used in this study, represent forty-four junior colleges. Of this number, seventeen are public, and twenty-seven are private and denominational junior colleges.

Table I presents a frequency distribution of the public junior colleges, and the private and denominational junior colleges according to the states in which these institutions are located, e. g., two of the junior colleges are in California. One of these is a public school, the other is in the group of private and denominational junior colleges.

It is of interest to note that thirteen states are represented by these junior colleges. They cover a very wide range of territory, from Virginia in the East to California in the West, and from Michigan in the North to Alabama and New Mexico in the South.

Two states, Kansas and Missouri, contain over half of these junior colleges; and it is surprising that the Missouri schools represented in this study outnumber the Kansas junior colleges. This is perhaps due in part to the size and popularity of the Kansas City, Missouri Junior College. It is obvious that a much larger number of private and denominational junior colleges are represented, than public junior colleges.

Table II

FREQUENCY DISTRIBUTION OF THE KANSAS AND NON-KANSAS JUNIOR COLLEGES

State	Public	Private	Total
Kansas	8	4	12
Non-Kansas	9	23	32
Total	17	27	44

Table III

FREQUENCY DISTRIBUTION OF THE STUDENTS FROM THE KANSAS AND NON-KANSAS JUNIOR COLLEGES

State	A	B	Total
Kansas	97	12	109
Non-Kansas	120	72	192
Total	217	84	301

Unless it is definitely stated otherwise, whenever mention is made of public, or private and denominational junior colleges, schools, institutions, or junior college students, the writer refers only to those junior colleges, schools, institutions, or students which are represented in this study.

Table II shows the number of Kansas junior colleges compared with that in all the other states collectively. The number of colleges of the two types is nearly equal. There are nearly six times as many Non-Kansas as Kansas institutions of the private and denominational type represented in this study.

The Kansas students are outnumbered by the Non-Kansas students. There are 109 junior college students from Kansas, and 192 from other states. The Non-Kansas students maintain their majority in each group. The difference is comparatively small in group A; but in group B the Kansas students are outnumbered 6 to 1 by the Non-Kansas students.

This relatively large number of Non-Kansas students appears to be somewhat complimenting to the University of Kansas. It would be of interest, however, to determine how many Kansas junior college students left the state to attend other universities during the same period of time.

Table IV

FREQUENCY DISTRIBUTION OF JUNIOR COLLEGES AS TO SIZE

Students	A	B	A & B
1000-up	2		2
500-999		3	3
300-499	3	2	5
200-299		5	5
150-199	3	5	8
100-149	5	6	11
50-99	2	5	7
0-49	2	1	3
Total	17	27	44
Median	145	165	

Table V

THE AVERAGE PER SCHOOL, THE NUMBER, AND PER CENT OF ALL THE JUNIOR COLLEGE STUDENTS IN GROUPS A, AND B

Group	Average	Number	Per Cent
A	12.76	217	72
B	3.11	84	28
Total	6.84	301	100

Table IV presents a frequency distribution of the two groups of junior colleges according to the size of the school as measured by its registration. The 1928 Edition of the College Blue Book, however, did not give the number of students in each school for about one fifth of the junior colleges. The writer wrote to the registrar of each junior college requesting him to state the number of students which were registered during 1926-1927 and obtained data concerning the students whose last year in junior college was 1926-1927.

From Table IV, it is clear that the majority of the junior colleges in each group had student bodies of less than 200. The size of the school which most frequently appears for each group has from 100 to 149 students enrolled. The size of the median public junior college is 145; while the size of the median school in the private and denominational group is 165. From these data it appears that the private and denominational junior colleges are not smaller (enrollment) than the public junior colleges.

Table V gives the average number of students from each junior college; and the number, and the per cent of all the junior college students groups A, and B.

By comparing the average number of students from each junior college, it is found that there are more than four times as many students from public institutions as from the private and denominational schools, e. g., 12.76

and 3.11 respectively.

Although the number of public junior colleges is less than the number of private and denominational schools, the number of students coming to Kansas from public junior colleges is high enough to make the number of students in group A much greater than the number of students in group B. Of the 301 students in the two groups 217, or 72 per cent, are from public institutions, and 84 or 28 per cent are from private and denominational junior colleges.

Table VI gives the frequency distribution of the students according to the size of the junior college from which they come. The junior colleges with a registration of 1000 and up are represented with the greatest frequency in group A. In group B, the junior colleges with a registration of 500-999 are represented most frequently. This is a questionable measure statistically because each of these intervals is the highest step in the range for its group, and the distribution in the lower intervals does not tend to group toward this step interval.

For group A, the median student comes from a junior college of 368.27 students. The median student in group B comes from a junior college of 218.75 students. From these data, it appears that group A represents larger schools than group B when the number of students for the various sizes of junior colleges is considered.

Table VI

FREQUENCY DISTRIBUTION OF THE JUNIOR COLLEGE STUDENTS ACCORDING TO THE SIZE OF THE SCHOOL WHICH THEY REPRESENT

Number in Junior College	A	B	A & B
1000-up	92		92
500-999		20	20
300-499	52	9	61
200-299		16	16
150-199	9	8	17
100-149	46	15	61
50-99	15	13	28
0-49	3	3	6
Total	217	84	301
Median	368.27	218.75	

Table VII

THE NUMBER OF MEN AND WOMEN FROM EACH GROUP OF JUNIOR COLLEGES.

Group	Men	Women	Total
A	125	92	217
B	18	66	84
A & B (total)	143	158	301

Table VIII

THE PER CENT OF MEN AND WOMEN FROM A, B, A & B, AND C.

Group	Men	Women	Total
A	58	42	100
B	21	79	100
A & B	48	52	100
C	61	39	100

Table VII gives the number of men and women respectively in each group, and the total. For the whole group there are a few more women than men. In group A, the men outnumber the women; but in group B, the women much outnumber the men.

Table VIII gives the same facts by percentages as are presented in Table VII by crude numbers. Comparison of the two groups of junior college students with C, the University of Kansas, is now possible. The percentages of men and women for C were computed for all students in the University of Kansas except those in the Graduate School.

The per cent of men and women respectively in groups A, and C, correspond very closely. It seems, therefore, that the public junior college students have relatively the same number of men and women as does the University.

The comparison of group B, with C, is very much different from the comparison of A with C. There are nearly three times as many men in group C as in group B; and there are relatively twice as many women in group B as there are in group C.

By comparing both groups of junior college students, A and B, with C, it is clear that there are relatively more women and fewer men among the junior college students than among the University students.

It appears, therefore, that the junior colleges have proportionately more women than there are in the University; and group B has a very high proportion of women.

Chronological Ages

Table IX

FREQUENCY DISTRIBUTION OF CA FOR GROUPS A, AND B

Age	A	B
35.5-36.5	1	
-		
32.5-33.5	1	
-		
27.5-28.5	1	1
26.5-27.5	2	
25.5-26.5	1	1
24.5-25.5	5	2
23.5-24.4	3	3
22.5-23.5	7	
21.5-22.5	20	8
20.5-21.5	42	9
19.5-20.5	63	30
18.5-19.5	46	16
17.5-18.5	22	12
16.5-17.5	2	2
Total	216	84
No record	1	

Table IX presents a frequency distribution of the chronological ages of each group of junior college students. The greatest frequency in each distribution is 20 years. Turning to the lower part of Table X, it is clear that group A averages a little older than group B. The difference between the means of the two distributions, D, is .29 of a year. The SD of the distribution is considerable lower for group B than for group A.

The SD of the mean of group A is .152. By interpreting this measure of reliability, it was found that the chances are 68 in 100 that the true mean will fall within 20.622 and 20.318, i. e., 1 SD positive and 1 SD negative. Likewise, the SD of the mean is .213 for group B. The true mean, therefore, will fall within 20.393 and 19.967 68 times in 100. From these figures it is evident that there is some possibility of an overlapping of the means.

The SD of the difference of the two means is .26. As stated above, D is .29. The resultant reliability quotient is 1.12. This quotient should be 3.00 to insure complete reliability that the difference between the means of the two distributions will always be greater than 0. There are 86 chances in 100 that this is a true difference. The difference between group A and group B, therefore, is not completely reliable; it indicates only a tendency for group B to be younger than group A.

Table X

AVERAGE CA IN EACH SCHOOL; THE MEASURES OF CENTRAL TENDENCY, VARIABILITY, AND RELIABILITY, OF GROUPS A, AND B

School	A	B
Business	20.12	21.16
College	20.23	20.05
Education	21.54	20.56
Engineering	20.57	20.40
Fine Arts	21.71	20.57
Law	20.57	20.50
Medicine	21.50	
Group Mean	20.47	20.18
" SD	2.24	1.95
SD av.	.152	.213

D = .29

SD diff. = .26

$\frac{D}{SD\ diff.} = 1.12$ 86 chances in 100 that D is a real difference.

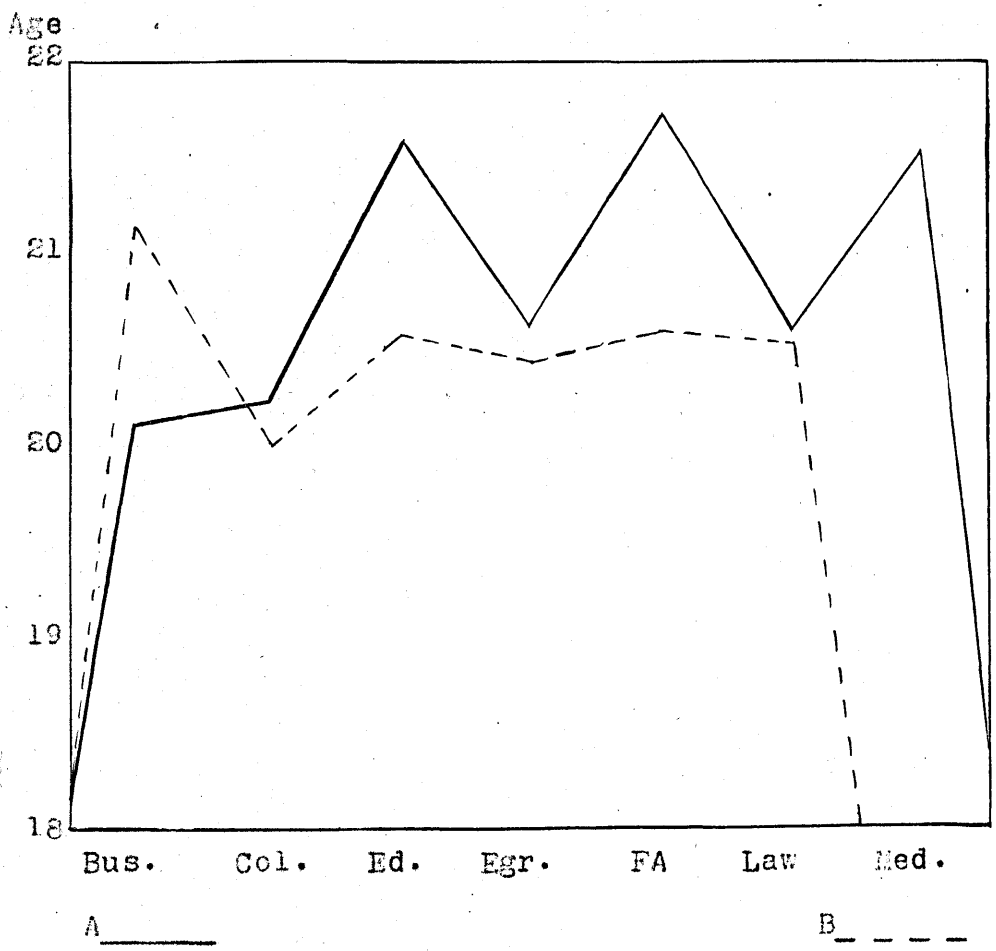

Fig. 1. COMPARING THE AVERAGE CA OF A, AND B, IN EACH REPRESENTED SCHOOL.

The first part of Table X shows the average age of each group in each school within the University. Group A, in the School of Fine Arts, has the highest average age. The lowest average age is in the College, group B.

Figure I shows clearly the differences given in Table X. Group B has a higher average age only in the School of Business. The differences between the two groups are insignificant in the College, Engineering, and Law. Substantial differences are found in Business, Education, and Fine Arts.

Occupational Status of The Fathers

Table XI

FREQUENCY DISTRIBUTION OF THE BARR SCALE SCORES FOR EACH STUDENT'S FATHER'S OCCUPATION. GROUPS A, AND B.

Scores	A	B
17-17.9		1
16-16.9	15	9
15-15.9	21	6
14-14.9	7	3
13-13.9	29	14
12-12.9	9	2
11-11.9	49	24
10-10.9	7	6
9-9.9	6	
8-8.9	25	9
7-7.9	10	1
6-6.9	1	
5-5.9	1	
4-4.9		
3-3.9	2	
Total	182	75
Omitted	35	9
Mean	11.97	12.53

Table XII

THE MEASURES OF CENTRAL TENDENCY, VARIABILITY, AND RELIABILITY FOR THE DISTRIBUTIONS IN TABLE XI

Measure		A	B
Mean		11.97	12.53
SD		2.84	2.49
SD of mean		.21	.287
D	.56		
SD of diff.	.356		
$\frac{D}{\text{SD of diff.}}$	= 1.56	- 94 chances in 100 that D is a real difference.	

The Barr Scale of Occupational Status[1] was devised to find a hierarchy of the occupations with respect to the relative demands which they make upon intelligence. Mr. F. E. Barr drew up a list of 100 representative occupations and had 30 judges rate them according to the grade of intelligence, which each was believed to demand. Each occupation was definitely and concretely described.[2] The P. E. values were computed after the ratings had been distributed.

1. Terman, Lewis M. Genetic Studies of Genius, Vol. 1. p. 66.
2. See Appendix A.

The P. E. values express for each occupation the number of units of intelligence which the occupation is thought to demand for success in life. This P. E. value is based on the composit opinion of the thirty judges.

To use the scale it is necessary only to compare the occupation to be rated with occupations whose values are already known and assign the value possessed by the occupation which it most nearly matches in the scale. Judged values must be used for occupations which do not appear in the scale.

Table XI gives the frequency distribution of the fathers' occupational status for each group of junior college students. The writer arranged these data simply to determine whether or not a significant difference could be found between group A, and group B, in this regard.

Some of the students did not give their father's occupation on their registration cards; others gave such vague and indefinite names of occupations that it was a very difficult task to assign P. E. values. Many gave the mothers' occupation; no attempt was made to rate these, because the majority of these were listed as housewives. The result, therefore, is that 35 students in group A, and 9 in group B, are omitted in this study.

In order to avoid a constant error because of personal bias, about 20 occupations were rated independently by four men. These occupations were the most indefinite

ones, for which no corresponding occupations could be found in the Barr Scale. Two University professors, one college senior, and a graduate student rated these indefinite occupations. Then a composite of the assigned scores was found for each occupation and the P. E. value ascertained from the Barr Scale.

The frequency distribution in Table XI does not show a very definite trend for the scores in either group. It will be noticed, however, that the step-intervals 7-7.9, 11-11.9, 13-13.9, 15-15.9, and 16-16.9, have very high frequencies in each group.

Group A has a mean of 11.97; and the mean for group B is 12.53. The difference is .56 in favor of group B. The SD for group B is lower than the same measure for group A, but the number of cases is much smaller in group B. The SDs of the means were computed, and the SD of the difference of the means. The difference of the means, .56, was divided by the SD of the difference, .36; and the resultant quotient is 1.56. This is interpreted by Garrett[1] to mean that there are 94 chances in 100 that the true difference between the mean of group A, and the mean of group B will always be greater than 0.

To insure complete reliability of a difference between the means of the two groups, the difference between the means should be 3 times .36 or 1.08. The reliability of a true difference is high, but not high enough for

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1. Garrett, Henry E. Statistics in Psyc. & Ed. p 134.

The Junior College Work

Table XIII

THE NUMBER OF EACH GROUP THAT ATTENDED JUNIOR COLLEGE FOR THE VARIOUS PERIODS OF TIME

Semesters	A	B	Total
1	13	11	24
2	39	19	58
3	24	5	29
4	141	49	190
Total	217	84	301

Table XIV

THE PERCENTAGE OF EACH GROUP THAT ATTENDED JUNIOR COLLEGE FOR THE VARIOUS PERIODS OF TIME.

Semesters	A	B	Total
1	6	13	8
2	18	23	19
3	11	6	10
4	65	58	63
Total	100	100	100

absolute reliability.

Table XIII shows the number of students in each group, and the total number of all the junior college students, who attended a junior college 1, 2, 3, and 4 semesters respectively. In group A, 13 students attended junior college only one semester; and 11 students in group B attended junior college one semester before transferring to the University. Groups A and B, collectively, have 24 students who spent only one semester in junior college.

A greater number of students transferred to the University after two semesters than after one semester in junior college. The number drops considerably for those transferring after three semesters of junior college work, and rises to its maximun for those who attended junior college four semesters.

The above statements apply to both group A and group B. They indicate a tendency for students to transfer to the University either at the end of one or two years. work in junior college, rather than in the middle of either year. It appears that a junior college student is most likely to transfer after two years of junior college work than at any other time.

Table XIV presents the same facts as Table XIII by percentages. The percentages give a better comparison of the relative numbers. Of all the junior college students, 63 per cent had two years in junior college, but they are not necessarily graduates. In the Stanford study, 60

Table XV

FREQUENCY DISTRIBUTION OF JUNIOR COLLEGE GRADES OF GROUPS A, AND B, WITH MEAN AND SD.

Weighted Grade	A	B
11.0		1
10.5-10.99	1	
10.0-10.49	4	2
9.5- 9.99	10	5
9.0- 9.49	10	3
8.5- 8.99	11	4
8.0- 8.49	14	4
7.5- 7.99	17	7
7.0- 7.49	23	18
6.5- 6.99	33	11
6.0- 6.49	34	14
5.5- 5.99	31	10
5.0- 5.49	15	3
4.5- 4.99	3	
4.0- 4.49	4	
3.5- 3.99	2	1
3.0- 3.49	4	1
2.5- 2.99	1	
Total	217	84
Mean	6.91	7.23
SD	1.60	1.43

Table XVI

THE MEASURES OF CENTRAL TENDENCY, VARIABILITY, AND RELIABILITY FOR THE DISTRIBUTIONS IN TABLE XV

Measure	A	B
Mean	6.91	7.23
SD	1.60	1.43
SD of mean	.109	.156
D	.32	
SD of diff.	.19	
$\frac{D}{\text{SD of diff.}}$ =	1.68 - 96 chances in 100 that D is a real difference.	

per cent of the junior college transfers were graduates.

Table XV shows the frequency distribution of the weighted junior college grades for group A, and group B. The weighting system was described in Chapter V, namely, 11, 8, 6, 4, and 1 for grades A, B, C, D, and F, respectively.[1] Using these weights as the multipliers for the number of hours of the various grades which each student had earned, an average weighted grade was found for each individual student. All the junior college work was considered in computing the averages, except the courses under various names in physical education. This work was given

1. Wood, Ben. D. loc. cit.

credit in some junior colleges, and was discredited in others. It was omitted, therefore, from the calculation of these average weighted grades.

The range of the weighted junior college grades is about the same for each group. The grades have a tendency to group toward the center of the distributions. Group A has an average weighted grade of 6.91; this is surpassed by group B with an average of 7.23. These averages both tend to be about half way between a C and a B grade. The SD for group B is smaller than the same measure for group A; consequently the grades are grouped more closely around the mean in group B, than in group A. It follows that the mean of group B represents its group better than the mean of group A represents its group.

The SD of the mean of each group was computed. This measure, as shown in Table XVI, is .109 for group A, and .156 for group B, which indicates that the mean of group A is more reliable than the mean of group B. The difference between the two means is .32, and the SD of the difference is .19, with the resultant quotient of 1.68. It follows that there are 96 chances in 100 that D, the difference between the means of the two groups, is a real difference, and will always be greater than 0.

From this, therefore, it is possible to state that there is a definite tendency for the students in group B to make higher junior college grades than the students in

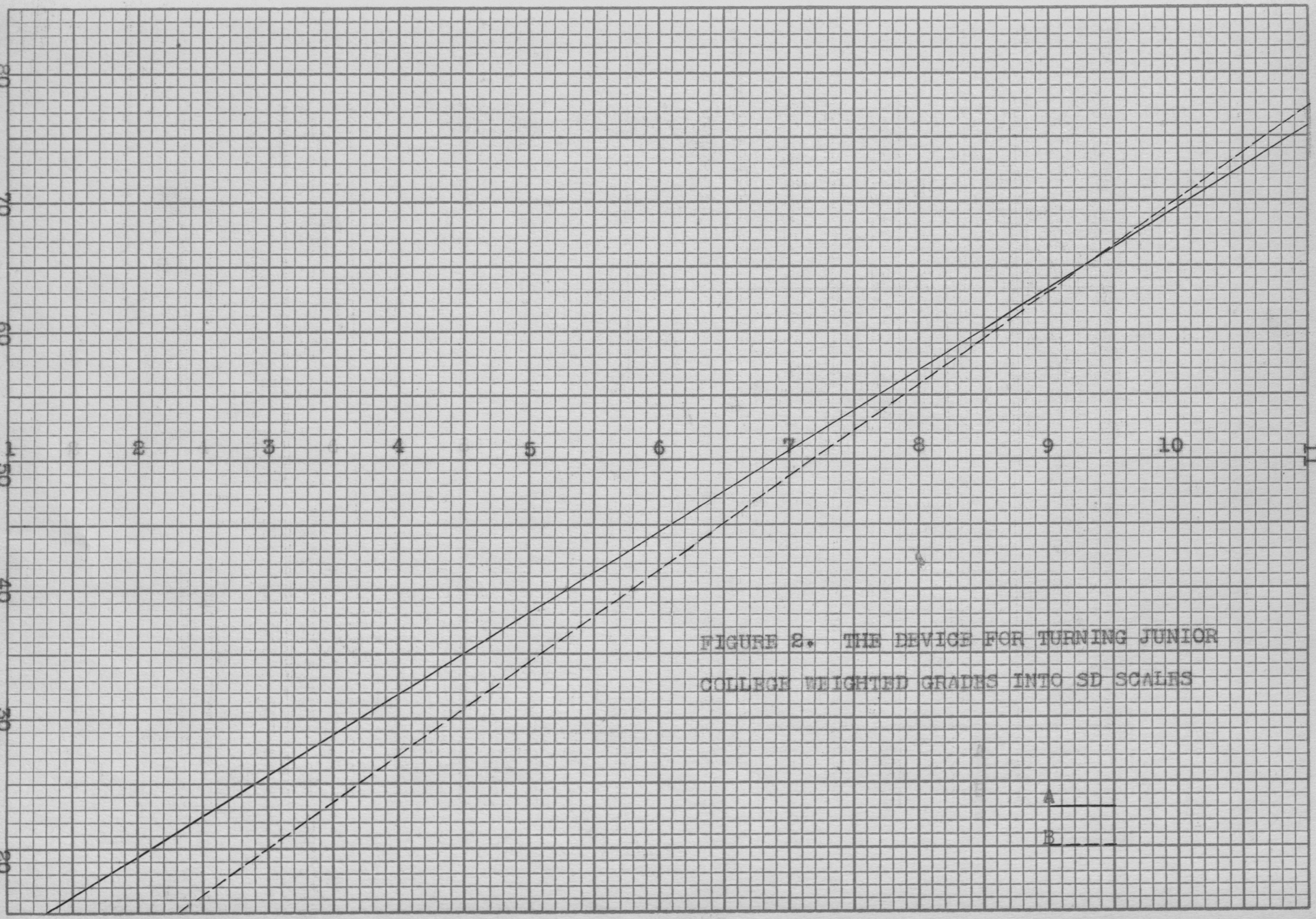

FIGURE 2. THE DEVICE FOR TURNING JUNIOR COLLEGE WEIGHTED GRADES INTO SD SCALES

group A; but one can not be sure that that this difference will always continue in favor of group B.

Figure 2 shows the line for each group by which the SD scores are determined for the junior college weighted grades. For example, the solid line is for group A. This line passes through the mean, and two points representing 1 SD above the mean and 1 SD below the mean. The mean is on the horizontal line 50 at the intersection of the vertical line 6.9; this represents the mean of the distribution of the junior college grades, 6.91, at its nearest tenth.

Each horizontal line measures a tenth of a SD. Since 0 is at 5 SD negative, the line 50 is 0 SD with the negative lines below and the positive lines above. The SD of the distribution is 1.60. Adding this to the mean gives the point for 1 SD positive at 85; therefore the line passes through the vertical line 85 at the intersection of the horizontal line 60, which is 10 tenths or 1 SD above line 50. This marks the limits of 1 SD positive. To find the point for 1 SD negative, substract 1.60 from the mean and count ten spaces below the line.

To illustrate the procedure: take an average weighted junior college grade of 7.70 for a student in group A. Find 7.0 on the horizontal line 50, then count 7 spaces to the right. This reaches the vertical line 77; now follow this line until it intersects with the line which was drawn through the three points. The horizontal line,

which is nearest to this point, is number 55. The number of this line becomes the SD score for that student's junior college grade. It means that his average weighted grade is 5 tenths SD above the mean of his group. If this student holds the same relative position in his group for his work in the University, his SD score will be the same as for his junior college work.

By comparing these scores it is easy to determine whether or not a particular student does relatively superior or inferior work in the University as compared with his junior college work. The SD scores of the junior college work are in Table XXV and XXVI with the SD scores of the University work.

The criticism may be raised that different grading systems are used in the various junior colleges. This is overcome, in part at least, by the fact that each transcript had been checked by the Advanced Standing Committee, and all grades were transcribed in terms of the system used in the University of Kansas.

It is doubtful whether there are any greater differences in the grades given in different schools, than the differences which exist in the grading by different professors in the same school.

It is assumed that, with the large number of cases, chance differences are balanced, and no known factors remain which might disturb the data.

Further judgment is suspended until the two groups are compared on the basis of their university grades.

The Psychological Test Results

A psychological test is required of all students, except graduates, when they enter the University. If this requirement is not met promptly, a deposit of five dollars must be made. It appears that some students prefer to forfeit the deposit rather than take the test at a later time.

The test, Psychological Examination for High-School Graduates and College Freshmen, is prepared by L. L. Thurstone, of The University of Chicago. It is published by The American Council on Education, Washington D. C.

In the summer of 1927, the 1925 edition of this test was used. The 1926 edition was used in the fall of 1927, and in the spring of 1928. The raw scores were not available for all the students who took the test. Since the same edition was not used for all the students in this study it is possible that the raw scores would not be comparable, if they were available. The decile scores therefore, are used. The scores are arranged by tenths from the lowest, decile 10, to the highest, decile 1. By virtue of this division, 10 per cent of those who were examined are in each decile, taking the University students at large.

Table XVII

THE PER CENT OF PSYCHOLOGY TEST DECILE SCORES IN EACH DECILE FOR GROUPS A, B, A & B.

Decile	A	B	A & B
1	16	15	15
2	17	11	15
3	10	17	12
4	10	15	12
5	11	17	12
6	9	5	8
7	9	1	7
8	8	6	8
9	5	8	6
10	5	5	5
Total	100	100	100
Number having no record	6	5	11

Table XVII shows the per cent of the students in group A, and group B, separately, and collectively in each of the ten deciles. Each group has a high per cent in each of the five highest deciles. Group A has a higher per cent in deciles 1 and 2; but group B is superior in deciles 3, 4, and 5. By considering the per cent of each group in the five highest deciles, it is apparent that group A has 64 per cent, and group B has 75 per cent. This indicates that group B is a little superior to group A in this regard. It follows that each group has less than its quota of 10 per cent in each of the five lowest deciles.

Since C has 10 per cent in each decile it is easy to compare each group with C. By comparing the per cent in the five highest deciles, it is clear that A and B together have 66 per cent, and C has 50 per cent in these five deciles. A greater per cent of A and B, than C, therefore, have high scores on the psychological examination.

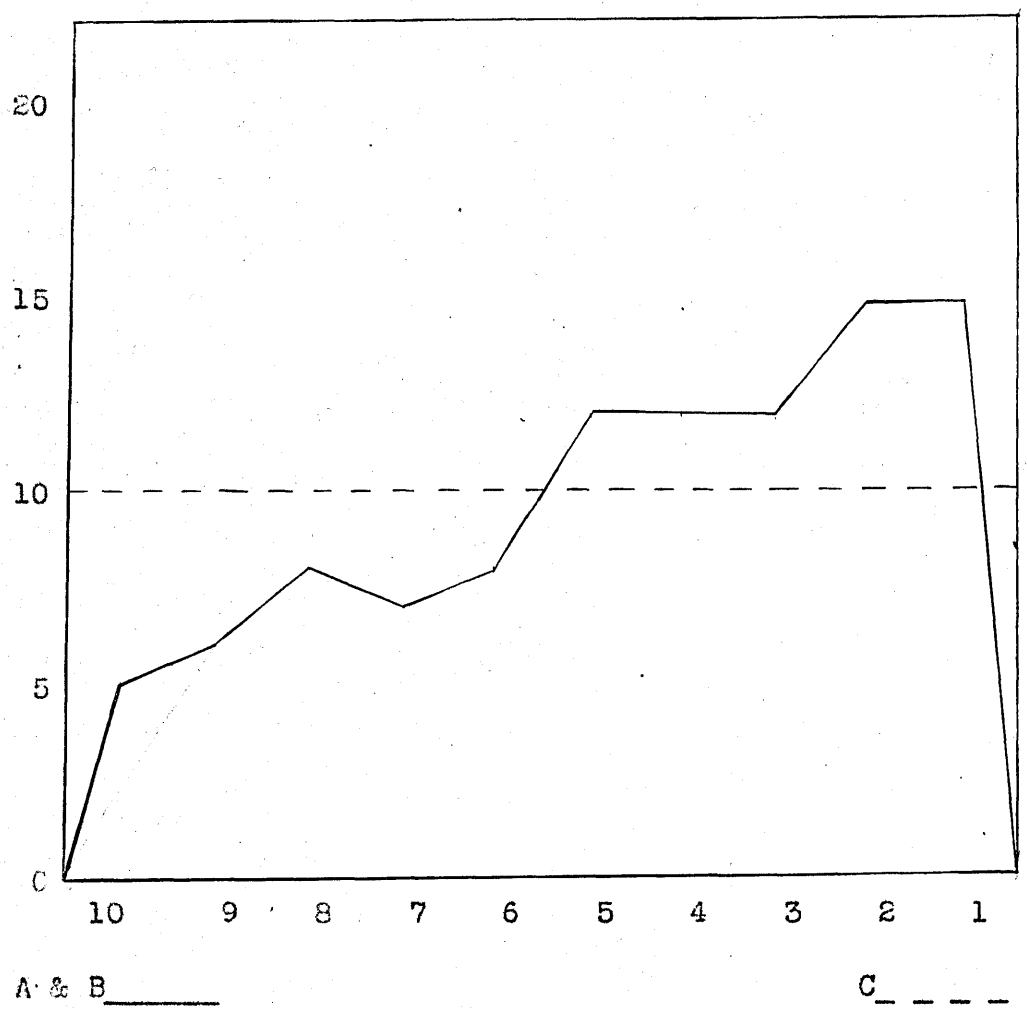

Fig. 3. COMPARISON OF PSYCHOLOGY TEST DECILE SCORES FOR A & B AND C. THE PER CENT OF EACH GROUP IN THE VARIOUS DECILES.

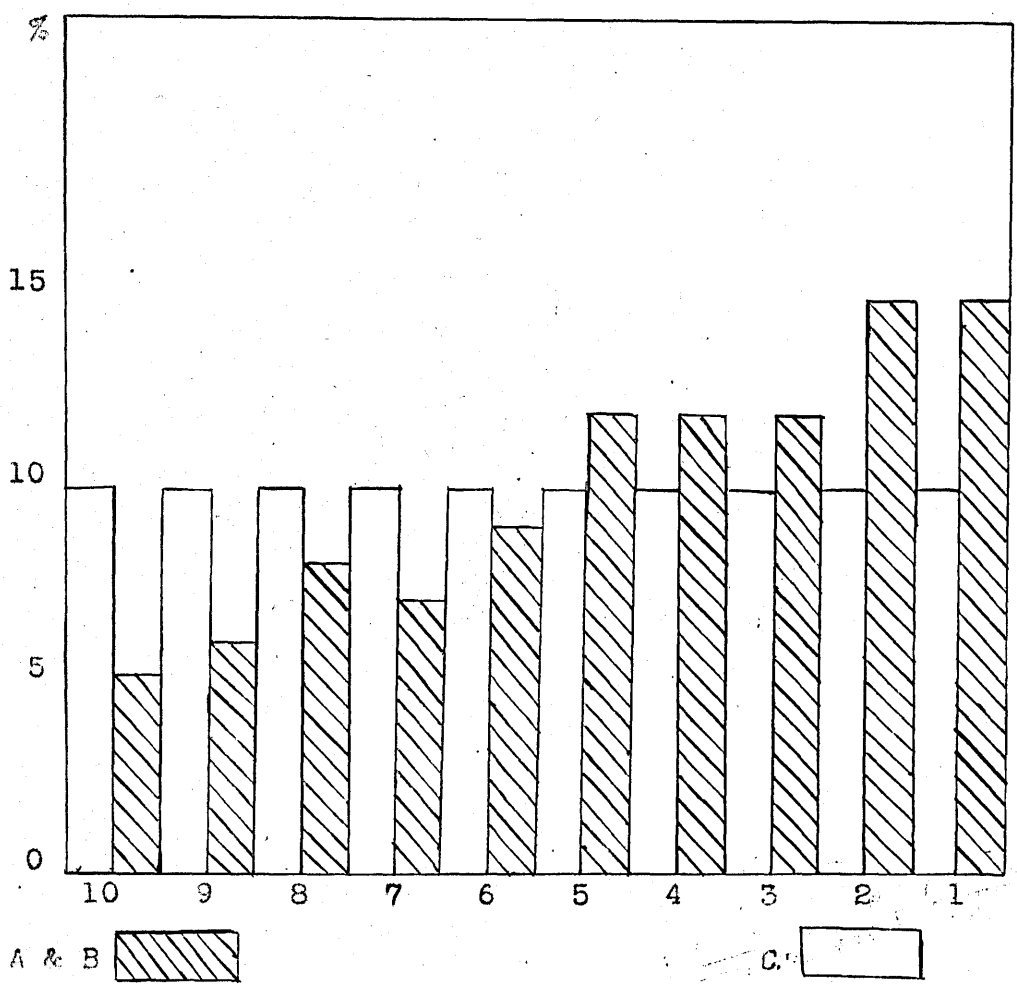

Fig. 4. COMPARISON OF PSYCHOLOGY TEST DECILE SCORES FOR A & B AND C. THE PER CENT OF EACH GROUP IN THE VARIOUS DECILES.

Figure 3 shows the comparison of the per cent of A and B, collectively, with C, in each decile. This frequency surface shows the general trend of the decile scores for A, and B. Since C has 10 per cent in each decile, the broken line is at the same level for all the different deciles. A glance at this figure shows that the junior college students have a smaller per cent of low decile scores than C, and a greater number of high decile scores.

Figure 4 supplements Figure 3, and gives a closer comparison of A, and B, with C in each decile.

Figures 5 and 6 supplement each other, and show the percentages for group A, and group B, in each decile as given in Table XVII. This data was discussed above. Each figure clearly shows a definite superiority of groups A, and B, over C in regard to the per cent of scores in the first five deciles.

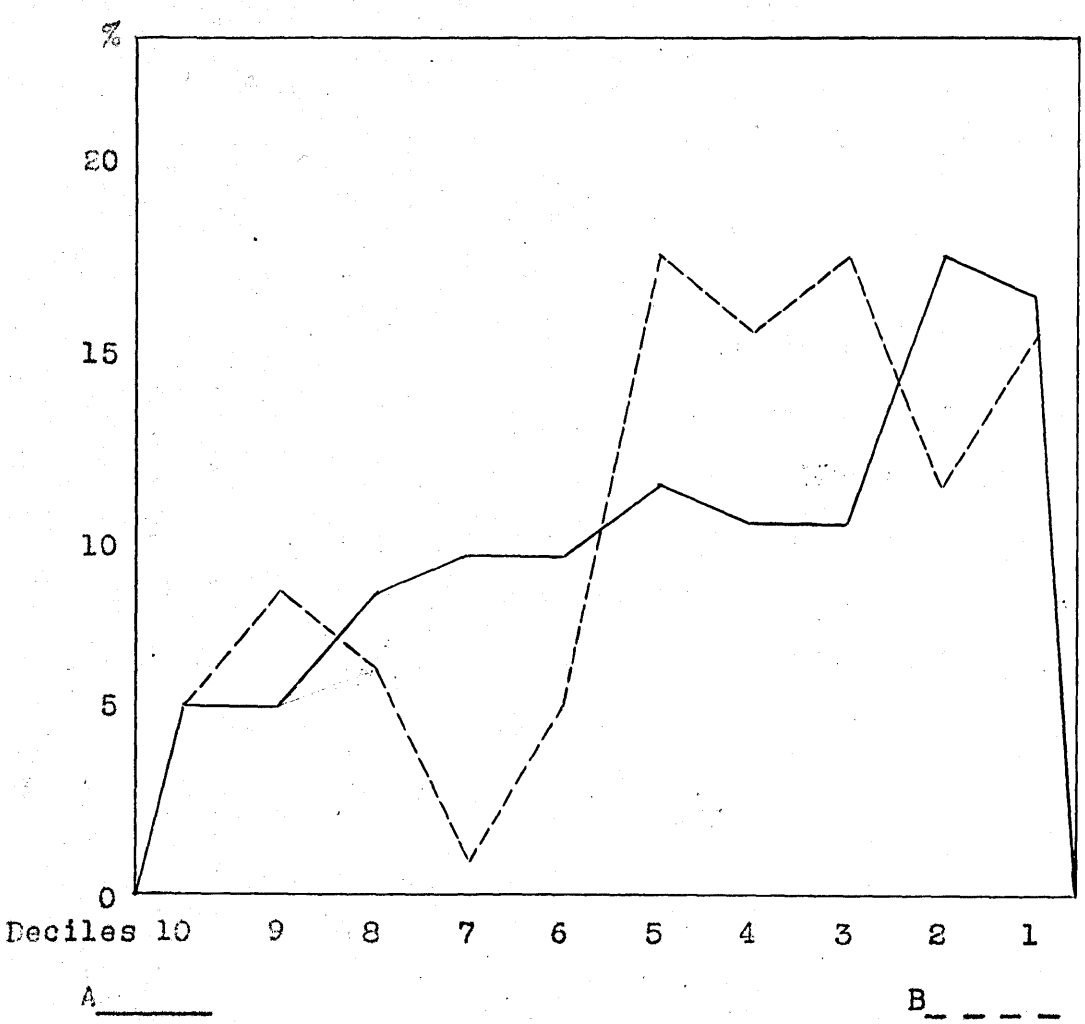

Fig. 5. COMPARISON OF PSYCHOLOGY TEST DECILE SCORES FOR A AND B. THE PER CENT OF EACH GROUP IN THE VARIOUS DECILES.

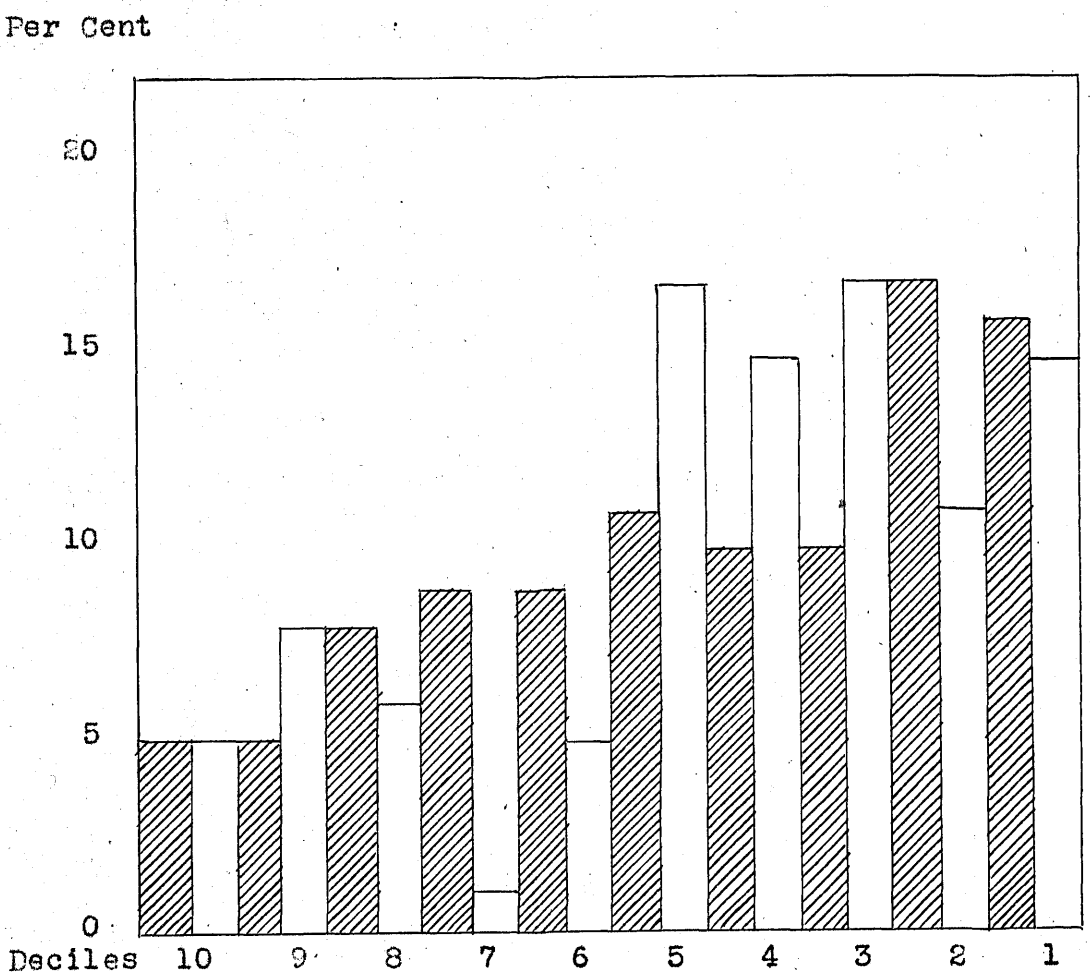

Fig. 6. COMPARISON OF PSYCHOLOGY TEST DECILE SCORES FOR A AND B. THE PER CENT OF EACH GROUP IN THE VARIOUS DECILES.

A

B

The apparent superiority of the junior college students over the University students on the psychological examination may be caused by different factors. The junior college students are more mature chronologically; they possibly have had similar tests in junior college; and, having had some college work, they may approach the examination with confidence, and lack of emotional inhibition. The selection of the junior college students, and the elimination of the inferior students before they reach the University, is another factor. It is possible that these factors have some influence on the results of this test.

These conditions, however, should apply equally to group A, and group B. It appears, therefore, that group B has a superior record on this test over group A.

It is concluded that the results of this test indicate a superior selection of junior college students. Group B appears to be slightly superior to group A in whatever ability or abilities are measured by this test.

The Work In The University

THE PER CENT OF GROUPS A, B, A & B, AND C, CHOOSING EACH SCHOOL IN THE UNIVERSITY.*

School	A	B	A & B	C
Business	8	5	7	4
College	53	68	57	57
Education	11	11	11	6
Engineering	19	6	15	12
Fine Arts	3	8	5	9
Law	3	2	3	3
Medicine	3		2	7
Pharmacy				2
Total	100	100	100	100

* The per cent of C is exclusive of the Graduate School.

The academic work in the University of Kansas may be the most reliable criterion for comparing the two groups of junior college students. The students in each group entered the University at the same time; and the academic work was taken under the same conditions for both groups. It is possible, however, that there are considerable differences among the average grades of the different schools within the University, and within single schools.

It is of interest to determine what per cent of each group of junior college students chose each of the various schools within the University. Table XVIII gives the per cent of groups A, B, and C, enrolled in each school. The per cent of A and B together is given for convenience in comparing the two groups of junior college students collectively with group C. The choice of a school within the University means that the student registered in a certain school. If a student transferred to another school after the summer term or at the end of the first semester, the student was counted also in the school to which he transferred. The number of these transfers, however, is almost negligible.

By comparing A and B, collectively, with C, it is evident that the largest per cent of each group is in the College; 57 per cent of each group are in this school. The School of Engineering has the next largest per cent of each group. There are 15 per cent of the junior college students

in this school, and 12 per cent of the University students taken as a composite. The School of Pharmacy appears to be the least popular of any school in the University. Only 2 per cent of group C is in this school, and none of the junior college students entered Pharmacy.

The per cent of A and B, and of C, is the same in the College, and in Law. In Medicine and in Fine Arts, group C has a greater per cent than A and B. A relatively greater number of junior college students than University students are in the Schools of Business, Education, and Engineering.

By comparing group A with group B, it is found that the majority of the students in each group are in the College. There are 68 per cent of group B in the College; this is the highest per cent of either group in any one school. Group A has 53 per cent in this school. A high per cent of group A is in the School of Engineering. None of the group B students is in the School of Medicine.

In the School of Education, the per cent of group A is the same as of group B. Group A has a higher per cent than group B in Business, Engineering, Law, and Medicine. Group B has a higher per cent than group A only in the College and in Fine Arts.

Table XIX

FREQUENCY DISTRIBUTION OF THE UNIVERSITY GRADES OF GROUPS A, AND B.

Weighted Grade	A	B
11.0	1	
10.5-10.99	1	1
10.0-10.49	5	2
9.5- 9.99	6	1
9.0- 9.49	3	3
8.5- 8.99	18	3
8.0- 8.49	18	4
7.5- 7.99	19	6
7.0- 7.49	15	8
6.5- 6.99	27	10
6.0- 6.49	28	16
5.5- 5.99	19	5
5.0- 5.49	12	3
4.5- 4.99	10	5
4.0- 4.59	8	2
3.5- 3.99	9	3
3.0- 3.49	3	2
2.5- 2.99	2	
2.0- 2.49	1	1
1.5- 1.99	1	
1.0- 1.49	2	3
Total	208	78

Table XX

THE MEASURES OF CENTRAL TENDENCY, VARIABILITY, AND RELIABILITY, OF THE DISTRIBUTIONS IN TABLE XIX

Measure		A	B
Mean		6.67	6.42
SD		1.84	1.96
SD of Mean		.128	.222
D	.25		
SD of diff.	.256		
$\frac{D}{SD \text{ of diff.}} =$	.98	There are 84 chances in 100 that D is a real difference.	

Table XIX gives the frequency distribution of the average weighted University grades of group A, and of group B. The distribution for each group appears to be somewhat symetrical. The step-interval 6.0-6.49 has the greatest frequency in each distribution. Nine students in group A, and 6 students in group B withdrew from the University before any grades were earned. The measures of central tendency, the variability, and the reliability, of these distributions are given in Table XX.

The average weighted grade is 6.67 for group A, and 6.42 for group B. The difference, D, is .25 in favor of group A. There is less variation from the mean in

group A than in group B. The SD of group A is 1.84, compared with 1.96 for group B.

The SD of the mean is .128 for group A, and .222 for group B. This assumes that 68 times in 100 the true mean of group A will be within 6.67 plus and minus .128; and the chances are the same that the true mean of group B will be within 6.42 plus and minus .222. The mean of group A, therefore, is less variable than the mean of group B.

The SD of the difference of the means is .256. The quotient, .98, is found by dividing D by the SD of the difference of the means. This interpreted[1] means that there are 84 chances in 100 that the difference between the means of the two distributions is a real difference and one can be sure that the difference will always be greater than 0.

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1. Garrett Henry C. loc. cit. p. 134

Table XXI

AVERAGE WEIGHTED UNIVERSITY GRADE IN EACH SCHOOL.
GROUPS A, B, A & B, AND C.

School	A	B	A & B	C
Business	7.25	4.75	6.88	6.76
College	6.86	6.54	6.77	6.46
Education	7.15	6.85	7.07	6.78
Engineering	5.51	5.25	5.46	6.02
Fine Arts	8.75	7.18	7.90	7.08
Law	4.89	4.50	4.81	6.42
Medicine	7.08		7.08	7.08
Pharmacy				5.56
Group Mean	6.67	6.42	6.60	6.58

Table XXII

STANDARD DEVIATION OF WEIGHTED UNIVERSITY GRADES IN EACH SCHOOL GROUPS A, B, AND A & B.

	Bus.	Col.	Ed.	Egr.	FA	Law	Med.	All
A	1.67	1.64	1.19	2.05	1.71	1.81	1.07	1.84
B	1.08	2.13	.70	1.10	1.32	1.25		1.96
A & B	1.83	1.89	1.09	1.98	1.70	1.71	1.07	1.88

Table XXI gives the average weighted grade of each group in each school represented within the University. The average grades of group C was worked out in the Registrar's office for the school year 1927-28. The weights 3, 2, 1, 0, and negative 1, were used for the grades A, B, C, D, and F, respectively. No attention was given to incomplete courses. This tends to give the University students a slight advantage, because incomplete courses were weighted as failures in the averages of the junior college students.

The average weighted grades of group C, therefore, had to be translated in terms of the weighting system used on the grades of the junior college students. This was comparatively simple since the weighting systems are relatively the same. For example, a C grade is either 6 or 1; a B grade, is either 8 or 2. The difference between a C and a B grade, in the system used by the writer, is 2.00; in the other weighting system the difference is 1.00. The intermediate values between a C and a B grade, therefore, were found on the ratio of 2 to 1. The writer will illustrate by transposing the average grade of group C, which is 1.29 or 6.58. The value 1.00 represents a C grade and becomes 6.00; and .29 is .29 of the difference between a C and a B grade, if they are weighted 1, and 2, respectively. If the respective weights for these grades are 6, and 8, the .29 becomes a .58 of the difference between a C and a B grade. The value of 1.29, therefore, becomes 6.58. The

average weighted grade of group C in each school was transposed in this manner.

The average weighted University grade of groups A and B, collectively, is 6.60 and 6.58 for group C. The difference is in favor of the junior college students, but it is almost negligible.* The average of group C in Medicine is the same as in Fine Arts. The differences in the averages of group C in the other schools are as great or greater than between A and B, and C. Similar differences in group A, and group B, are found among the averages of the various schools in the same group. This suggests that the differences within the groups are greater than the differences between any two groups.

In the School of Medicine the average grade of group A and B is the same as the average of group C. Group C has a higher average than the junior college students in Engineering, and in Law. The junior college students have higher averages than group C in the Schools of Business, the College, Education, and Fine Arts.

The average weighted grades of group A, and B, in each school are compared in Table XXI. In each represented school, the average of group A excells the average of group B. Figure 7 shows the comparison of these averages. The differences are quite large in Business and in Fine

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* The difference has a little more significence because of the omission of the incomplete grades which were made by the University students.

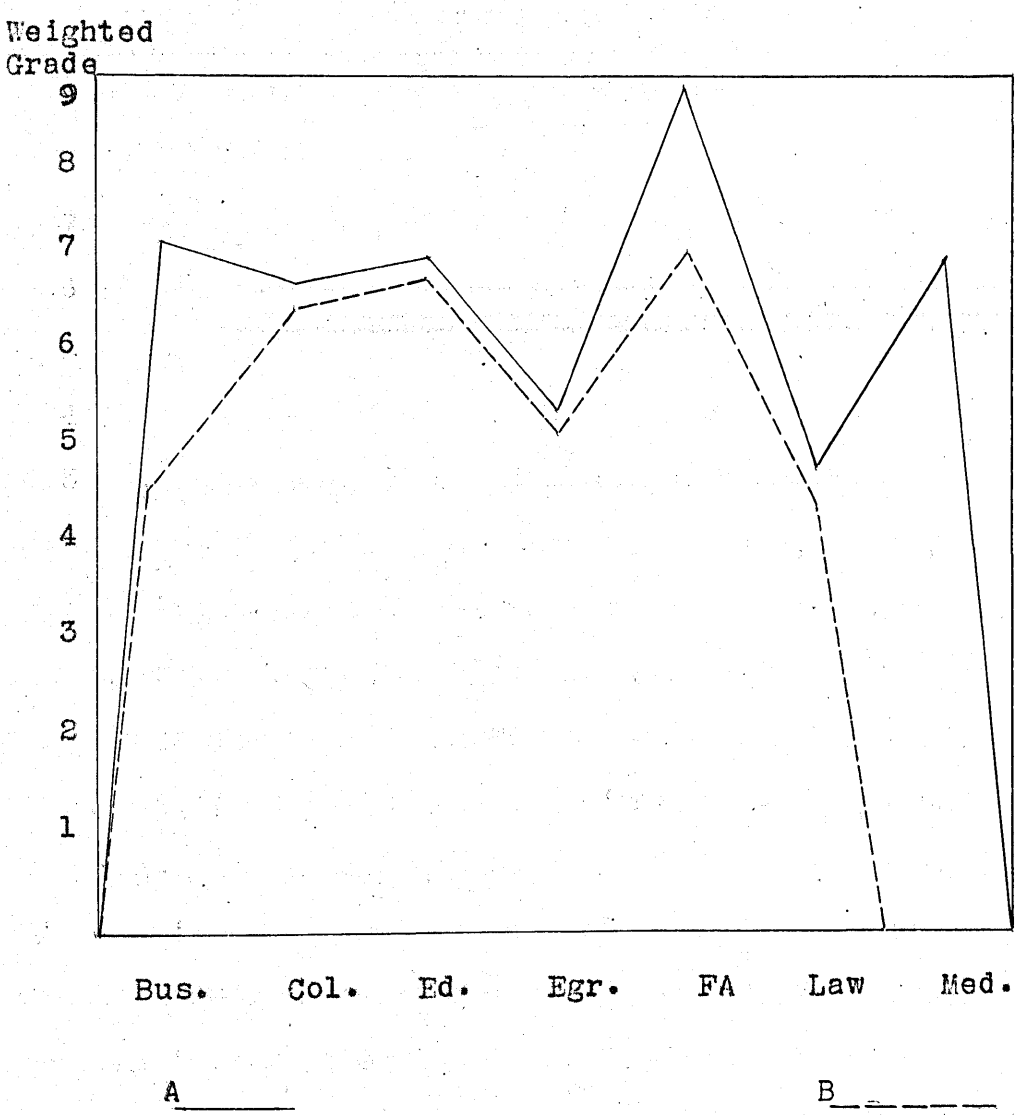

Fig. 7 COMPARING THE AVERAGE WEIGHTED GRADES OF GROUPS A, AND B, IN EACH SCHOOL.

Arts. In the College, Education, and Law, the differences are not large.

Table XXII gives the SD of the distributions of the average weighted University grades, except those of group C. It is of interest to note that group B is less variable than group A in each school except the College, and yet the SD of group B is greater than the same measure of group A when the whole group is considered.

The results of comparing the averages, and the SDs of each group in the various schools, show that the differences among the schools within groups A, and B, are greater than the difference between the groups. After finding these facts, the writer wonders if the results of the study at Stanford University would be changed if the average grades of the different schools were taken into account. It was found at Stanford that the grades of the junior college students were superior to the grades of the Native-Stanford students; but no account was made of the grades in the different schools in Stanford University,

Table XXIII

FREQUENCY DISTRIBUTION OF AVERAGE UNIVERSITY GRADES BY SEMESTERS FOR ONLY THOSE STUDENTS IN GROUPS A, AND B, WHO WERE IN THE UNIVERSITY DURING BOTH THE FIRST AND SECOND SEMESTERS.

Weighted Grade	A		B	
	1 Sem.	2 Sem.	1 Sem.	2 Sem.
11.0	1	2		2
10.5-10.99	1	1	1	
10.0-10.49	4	4	1	2
9.5- 9.99	4	3	3	
9.0- 9.49	11	6	2	2
8.5- 8.99	6	9	2	3
8.0- 8.49	12	18	6	4
7.5- 7.99	17	11	3	5
7.0- 7.49	19	17	8	12
6.5- 6.99	14	18	3	4
6.0- 6.49	24	18	9	5
5.5- 5.99	6	8	6	6
5.0- 5.49	16	11	5	4
4.5- 4.99	8	8	4	2
4.0- 4.59	3	6		
3.5- 3.99	4	1		
3.0- 3.49	3	3	1	
2.5- 2.99	1	6		2

Continued

Table XXIII (Concluded)

Weighted Grade	A		B	
	1 Sem.	2 Sem.	1 Sem.	2 Sem.
2.0-2.49		1		
1.5-1.99		1		1
1.0-1.49		2		
Total	154	154	54	54
Mean	6.92	6.70	6.97	6.98
SD	1.70	2.00	1.61	1.83

The average University grades, which were discussed above, were computed for the entire year. The discussion covers the grades of all the junior college entrants regardless of how long they remained in the University.

In the last part of Table XXIII, the number of each group is given that remained in the University during both semesters. Group A had 217 entrants; 154 of these students remained in the University during both semesters. In group B, 54 of the original 84 entrants remained during this time. It follows that 29 per cent of group A, and 36 per cent of group B withdrew or in some way dropped their work before the year was over. It appears that the elimination of the junior college entrants is very high.

Group A has the smaller per cent of elimination and is superior to group B in this regard.

Table XXIII gives the frequency distribution of the average University grades of group A, and group B, for the first and second semesters separately. The grades were made by the students who were in the University during both semesters.

When all the University grades of the two groups, A, and B, were compared, it was found that group A is superior to group B. The conclusion must be reversed when the grades of the students, who did not spend both semesters in the University, are omitted. The mean grade of group A for the first semester is 6.92, and of group B, 6.97. The SD is 1.70 and 1.61 for the two groups respectively. The average grades of the two groups, therefore, for the first semester are practically the same. The very small difference is in favor of group B.

The SD of each group increases in the second semester; but the increase is greatest for group A. The mean grade of group A decreased from 6.92 in the first semester to 6.70 in the second semester. The mean grade of group B in the first semester is 6.97 compared with 6.98 in the second semester. The superiority of group B over group A, therefore, increases in the second semester.

After considering the students who remain in the University during both semesters, it appears that those in

Table XXIV

THE AVERAGE WEIGHTED UNIVERSITY GRADES IN THE VARIOUS SCHOOLS FOR THE FIRST AND SECOND SEMESTERS MADE BY THE STUDENTS IN GROUPS A, AND B, WHO ATTENDED THE UNIVERSITY BOTH SEMESTERS.

School	A		B	
	1 Sem.	2 Sem.	1 Sem.	2 Sem.
Business	7.41	6.96	5.34	5.49
College	7.16	7.11	7.22	7.17
Education	6.81	6.73	6.84	6.83
Engineering	6.01	5.46	4.23	3.78
Fine Arts	8.45	7.71	7.22	8.09
Law	5.47	5.31	5.73	5.40
Medicine	6.46	7.56		
Group Mean	6.92	6.70	6.97	6.98
Group SD	1.70	2.00	1.61	1.83

group B make and maintain a more even adjustment in the University. It would be of interest to find the cause of the students in group A making a lower average grade in the second semester than in the first semester.

Table XXIV gives the average weighted grade of group A, and group B, in each school for the first and second semesters. Group A made a better average grade only in the School of Medicine for the second semester over the grade earned in the first semester. In each of the other schools the average grade for the second semester is lower than for the first semester. Group B has a superior average for the second semester in the Schools of Business and Fine Arts. In each of the other schools the first semester averages are higher than in the second semester.

The number of students, in the schools whose averages increased in the second semester, is relatively small. It appears, therefore, that the junior college students are somewhat more likely to earn a lower average grade in the second semester than in the first semester. These comparisons of groups A, and B, indicate that the students in group B are the least likely to lower their average, and they probably will make about the same grades in each semester.

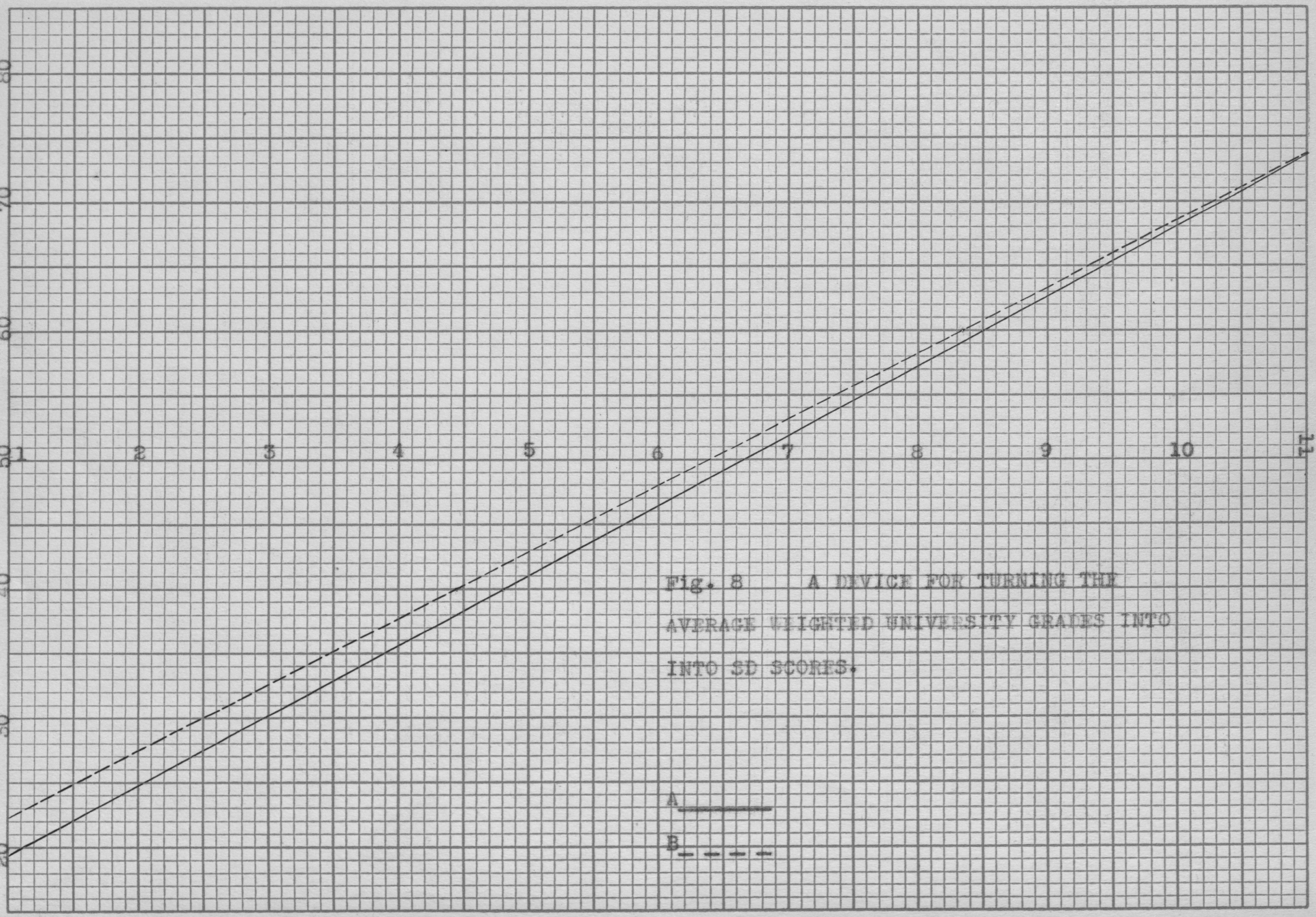

Fig. 8 A DEVICE FOR TURNING THE AVERAGE WEIGHTED UNIVERSITY GRADES INTO INTO SD SCORES.

Figure 8 shows the lines for group A, and group B, passing through the mean of each group and points 1 SD positive and 1 SD negative. This is a device for turning the average grades into SD scores. These scores are in terms of the deviation from the group mean. This figure applies to the grades made in the University by the junior college students.

The device for turning the average junior college grades into SD scores was explained in detail in the discussion of the junior college grades. It is not necessary, therefore, to repeat the explanation here.

Tables XXV and XXVI give the SD scores of the junior college work and the University work for the individual students in parallel columns. By comparing the two scores of an individual student, one can see at once whether or not the student maintained the same relative position in the University as in junior college. For example, student number 5 in Table XXV has a SD score of 54 for his junior college work, and a SD score of 60 for his University work. In relation to the mean of the group, this student did better work in the University than in junior college.

These scores of each group are correlated and discussed later. The correlation will show to what extent each group as a whole has the same SD scores for the University work as for their junior college work.

Table XXV

SD SCORES FOR UNIVERSITY (K.U.) AND JUNIOR COLLEGE (J.C.) GRADES. GROUP B. ARRANGED BY SCHOOLS.

Student	J.C.	K.U.	Student	J.C.	K.U.
BUSINESS			LAW		
1	39		26	44	34
2	47	43	27	39	46
3	44	35			
4	44	46	COLLEGE		
EDUCATION			28	47	
			29	65	
5	54	60	30	39	50
6	46	57			
7	50	48	31	25	22
8	51	52	32	38	22
9	48	48	33	51	64
			34	44	42
10	39	51			
11	49	48	35	49	57
12	49	54	36	54	38
13	48	49	37	50	52
			38	59	64
ENGINEERING			39	46	22
14	45	36	40	48	48
15	49	42	41	50	48
16	41	35	42	60	51
17	51	51	43	60	61
18	54	50	44	50	54
FINE ARTS			45	66	60
			46	45	50
19	77	61	47	54	50
20	46	54	48	53	43
21	44	58	49	44	55
22	66	52			
23	38	42	50	52	52
			51	54	49
24	40	52	52	69	51
25	44	62	53	71	68
			54	45	50

Continued

Table XXV (Concluded)

Student	J.C.	K.U.	Student	J.C.	K.U.
55	41	42	70	46	53
56	44		71	66	58
57	44	43	72	56	64
58	72	66	73	24	29
59	67	70	74	48	50
60	36	46	75	58	38
61	46	50	76	38	40
62	54	47	77	64	54
63	49	56	78	41	44
64	40	46	79	57	52
65	70	57	80	51	55
66	44	72	81	52	55
67	61	49	82	50	
68	37		83	51	58
69	39	48	84	65	58

Table XXVI

SD SCORES FOR UNIVERSITY (K.U.), AND JUNIOR COLLEGE (J.C.) GRADES, ARRANGED BY SCHOOLS. GROUP A.

Student	J.C.	K.U.	Student	J.C.	K.U.
BUSINESS			95	49	51
			96	40	51
85	26		97	47	46
86	74	73	98	47	53
87	48	44	99	43	47
88	56	45			
89	44	49	100	54	50
			101	66	59
90	56	70	102	44	56
91	47	49			
92	44	39			
93	48	50	EDUCATION		
94	56	66			

Continued

Table XXVI (Continued)

Student	J.C.	K.U.	Student	J.C.	K.U.
103	50	52	138	40	36
104	49	51	139	40	47
105	52	59	140	57	37
106	48	38	141	48	52
107	50	46	142	47	37
108	62	58	143	38	45
109	67	52	144	46	52
110	41	52	145	34	46
111	49	50	146	60	19
112	45	57	147	34	35
113	50	56	148	42	45
114	46	57	149	48	56
115	44	52	150	29	27
116	48	46	151	39	33
117	41	49	152	46	49
118	43	57	153	59	35
119	46	46	154	68	63
120	42	57	155	44	44
121	44	56	156	37	46
122	45	43	157	46	51
123	52	51	158	57	60
124	49	51	159	37	38
125	56	68	160	58	70
126	42	43	161	44	50
			162	66	
ENGINEERING			163	40	32
			164	55	34
127	32	28			
128	50	62	165	35	37
129	44	50	166	44	62
			167	62	49
130	39	34			
131	41	39	FINE ARTS		
132	32	35			
133	49	39	168	23	50
134	44	55	169	44	
135	47	50	170	44	65
136	26	31	171	55	71
137	44	36	172	27	47

Continued

Table XXVI (Continued)

Student	J.C.	K.U.
173	48	62
174	64	71
	LAW	
175	43	22
176	48	46
177	44	40
178	50	44
179	52	56
180	56	41
181	44	32
	MEDICINE	
182	49	46
183	59	58
184	59	51
185	54	57
186	58	55
187	41	44
	COLLEGE	
188	46	46
189	61	48
190	59	55
191	61	56
192	54	49
193	47	49
194	47	48
195	47	51
196	43	
197	47	37
198	67	60
199	63	57
200	49	45
201	66	58
202	47	45
203	70	61
204	61	52
205	61	40
206	66	63
207	53	52
208	53	47
209	51	50
210	42	61
211	46	46
212	71	60
213	63	56
214	52	40
215	52	60
216	50	54
217	52	38
218	48	55
219	44	43
220	47	52
221	54	48
222	44	40
223	59	61
224	59	41
225	52	56
226	42	
227	52	51
228	43	44
229	64	62
230	49	33
231	53	68
232	42	47
233	58	57
234	63	58
235	45	45
236	54	
237	66	58
238	42	46
239	45	46

Continued

Table XXVI (Concluded)

Student	J.C.	K.U.	Student	J.C.	K.U.
240	49	46	275	48	56
241	55	50	276	56	65
242	41	45	277	42	49
243	44	46	278	42	57
244	58	59	279	55	59
245	54	57	280	48	41
246	66	63	281	47	53
247	56	60	282	39	42
248	64	67	283	54	49
249	67	70	284	62	52
250	52	42	285	47	42
251	52	60	286	52	61
252	45	19	287	47	48
253	42	34	288	40	54
254	40	52	289	45	61
255	44	28	290	56	51
256	40	45	291	67	61
257	60	57	292	50	48
258	55	51	293	43	63
259	47		294	54	56
260	26	54	295	52	45
261	58	56	296	69	62
262	52	68	297	52	45
263	40		298	47	38
264	52	41	299	47	42
265	65	60	300	40	50
266	49	60	301	62	47
267	70	48			
268	62	45			
269	49	46			
270	70	68			
271	63	33			
272	66				
273	50	54			
274	44	45			

Table XXVII gives the correlation of the SD scores of the junior college grades with the SD scores of the University work of group A. Table XXVIII gives the correlation of the same variables for group B.

The correlation is positive and substantial for each group, but it is not high enough for reliable prediction. For group A, r is .47 and the P.E. of r is .037. Since r is more than 4 times its P.E., the r is presumed to be significant.

The value of 1 - k is 1.00 minus .88 or .12. This means that the correlation of these scores gives a predictive value which is only 12 per cent superior to wisest guessing.

The r of the junior college SD scores and the University SD scores of group B is .65, and the P.E. of r is .044. This r is significant because it is more than 4 times its P.E. The value of 1.00 minus .76 is .24. The correlation of these scores, therefore, has a predictive value of 24 per cent over the wisest guessing.

By comparing these measures of the two groups, it is evident that the correlation of the junior college SD scores and the University SD scores of group B is considerably higher than that of group A. The predictive value of r is 100 per cent better for group B than for group A. It follows that the students in group B are more likely than those in group A to do relatively as good work in the University as in junior college.

Table XXVII

SCATTER DIAGRAM OF THE SD SCORES OF THE JUNIOR COLLEGE AND UNIVERSITY GRADES, r, AND P.E. OF r. GROUP A

From / to	18–21	22–25	26–29	30–33	34–37	38–41	42–45	46–49	50–53	54–57	58–61	62–65	66–69	70–73
74–77														1
70–73								1		2		1		
66–69									1		5	4		1
62–65				1			1	2	1	2	3	1	1	1
58–61	1				1	2		1	2	6	3			1
54–57					2	2	1	3	4	3	3	1	2	1
50–53						3	4	3	5	5	4	1	2	
46–49				1	2	4	5	14	13	4	1	1		
42–45	1	1	1	1	2	3	8	7	3	7	2	3		
38–41				2	2	1	5	2	4	1				
34–37					2	1		2						
30–33			1		1									
26–29			1	1				1		1				
22–25									1					

CORRELATION BETWEEN K.U. SCORES (X) AND J.C. SCORES (Y)

r = .47 (See 1) k = $1 - r^2$ or .88

PE = .037 1.00 minus k gives 12% improvement over wisest guessing.

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1 r was found by means of the Otis Correlation Chart. See Otis, Arthur S. Statistical Method In Educational Measurement. p 195, and 202.

Table XXVIII

SCATTER DIAGRAM OF THE SD SCORES OF THE JUNIOR COLLEGE AND UNIVERSITY GRADES r, AND PE of r, GROUP B.

From / to	20 23	24 27	28 31	32 35	36 39	40 43	44 37	48 51	52 55	56 59	60 63	64 67	68 71	72 73
74–77											1			
70–73										1		1	1	
66–69								1	1	1	1		1	
62–65									1	1				
58–61					1			2			1	1		
54–57					1		1	3	1		1	1		
50–53						1		3	6	1		1		
46–49	1					2		6	3	3				
42–45				2	1	2	1	2	1	1	1			1
38–41	1			1		3	3	3	1					
34–37							1							
30–33														
26–29														
22–25	1		1											

CORRELATION BETWEEN K.U. SCORES (X) AND J.C. SCORES (Y)

r = .65 k = .76 1. - k gives

PE = .044 24% improvement over guessing.

CHAPTER VII

SUMMARY AND CONCLUSIONS

The records of 301 junior college students are compared in this study. The students came from 44 junior colleges in 13 states. Seventeen of these institutions are public, and 27 are private and denominational. There are 217 junior college students in group A, and 84 in group B. The Non-Kansas students outnumber those from Kansas. There are 109 junior college students from Kansas, and 192 from the other states.

The median public junior college has an enrollment of 145 students; and the median school of the private and denominational type has an enrollment of 165. Group A contains 72 per cent of the junior college students; and 28 per cent are in group B. The public junior colleges have an average of 12.76 students from each school; but the private and denominational type has an average of 3.11 students. The median student in group A came from a junior college of 368.27 students. The median student in group B is from a school of 218.75 students.

In the University, 61 per cent of the students are men, and 39 per cent are women; but in the junior college group, 48 per cent are men and 52 per cent are women. Fifty-five per cent of the students in group A are men, and 42 per cent are women; but 21 per cent of the students in group B are men, and 79 per cent are women.

The average chronological age of the junior college

students is 20.47 years in group A, and 20.18 years in group B. There are 86 chances in 100 that there is a difference above 0 between the two groups in this regard. The chronological ages of the two groups were compared in each school. Group B has a lower average age than group A in each school within the University except the School of Business.

The mean P.E. value of the fathers occupational status of group A is 11.97, and of group B, 12.53. There are 94 chances in 100 that the difference between the two means is greater than 0.

Sixty-five per cent of group A, and 58 per cent of group B transferred to the University after two years of junior college work. Group A has an average grade of 6.91; and the average of group B is 7.23 for the junior college work. This is the most significant difference which has been found between the two groups in this study but it is not completely reliable. The chances are 96 in 100 that this is a real difference.

The percentages of each group which made psychological test scores in the five highest deciles, were compared. Of group A and B, 66 per cent are in the five highest deciles; and group C has 50 per cent in the same deciles. Group B, which has 75 per cent in the first five deciles, is superior to group A with 64 per cent in the comparable level.

In regard to the choice of schools within the University, the largest per cent of each group is in the College. The per cent of A and B together is the same as for group C in the College, and in Law. Group C has a greater per cent than A and B in Medicine, and Fine Arts. In Business, Education, and Engineering, the per cent of A and B is greater than group C.

Group A has a relatively greater number in Business, Engineering, and Law; but group B has a greater number in the College and in Fine Arts. The two groups are equal in Education.

The average grade of all the junior college students is 6.60; and the average of the University is 6.58. Group C has a higher average than the junior college students only in Engineering and Law. The averages are equal in Medicine.

Group A is superior to group B in regard to the average grade in each school; but the difference is small in the College, Education, Engineering, and Law.

The students who failed to finish both semesters are regarded as eliminated students. The per cent of elimination is very high in each group. The per cent of group A, and B, is 29, and 36, respectively.

The two groups were compared after the grades of the eliminated students had been removed from the averages. For the first semester, the average grade of group A is 6.92, and the average of group B is 6.97. For the second

semester, the average of group A dropped to 6.70, and group B raised its average grade to 6.98.

The results of this study are somewhat similar to the results of the study which was made at Yale University[1] in regard to: (1) previous academic grades, and (2) elimination. The results are similar to the facts which are reported in the Stanford study[2] in the following regards: (1) the psychological or intelligence results, and (2) the university grades.

The writer wishes to make it clear that the conclusions oftthis study are based upon very small differences. In most cases the differences indicate only a tendency, and not a real difference. Because of the low reliability of the differences, the conclusions listed below apply only to these data under the conditions described in this study.

A greater number of private and denominational junior colleges are represented than public institutions.

The median private and denominational junior college is larger than the median public junior college.

The number of students in group A is greater than in group B.

There are relatively more women among the junior college students than among the University students; and group B has more women than group A.

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1 See page 8.
2 See page 4.

The average number of students from the public junior colleges is greater than from the other type.

Group B has an average junior college grade which is superior to that of group A.

The junior college students appear to be superior to the University students in regard to the psychological test results; and group B is superior to group A.

Group B is superior to group A in regard to the fathers occupational status.

The students in group B are younger than those in group A.

When the average grades of all the junior college students are compared, it is found that A and B are very slightly superior to group C; and group A is superior to group B.

Group A is superior to group B in regard to the per cent of students that remain in the University during both semesters.

For the students who remained throughout the year, the average grade of group B is higher than the average of group A; and the superiority of group B over group A increased in the second semester.

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APPENDIX A

BARR SCALE RATINGS OF OCCUPATIONAL STATUS

P.E. Value	Occupation	Description
0.00	Hobo.....	
1.54	Odd jobs.....	
2.11	Garbage collector.....	
3.38	Circus roustabout.....	Does heavy work about circus.
3.44	Hostler.....	Care of horses in livery stables.
3.57	R. R. Section hand.....	Replaces ties, etc., under supervision.
3.62	Day laborer.....	Street, shop, factory as roustabout.
3.99	Track layer.....	Does heavy work under supervision.
4.20	Waterworks man.....	Variety odd jobs, all unskilled.
4.29	Miner.....	Digger, shoveler, etc.
4.81	Longshoreman.....	Loads and unloads cargoes.
4.91	Farm laborer.....	Unskilled, usually inefficient.
4.98	Laundry worker.....	Various kinds of work in laundry. (Practically unskilled).
5.27	Bar tender.....	
5.41	Teamster.....	
5.44	Saw mill worker.....	Heavy work, little skill required.
5.59	Dairy hand.....	Milking and care of stock under supervision.
5.81	Drayman.....	
5.87	Delivery man.....	Delivers groceries, etc. (With team or auto).
6.14	Junkman.....	Collector of junk.
6.42	Switchman.....	Tending switch, R.R. yards.
6.66	Smelter worker.....	Metal pourers, casting, collectors, etc.
6.27	Tire repairer.....	General auto repair shop.
6.85	Cobbler and shoemaker...	Repairman in shoe shop.
6.86	Munition worker.....	Average
6.92	Barber.....	Not owner. Charge of chair.
6.93	Moving picture operator.	Operates machine projecting pictures.
7.02	Vulcanizer.....	Understands process hardening rubber.
7.05	General repairman.....	Repairs broken articles, etc.
7.06	Ship rigger.....	Installing cordage system on sailing vessels under supervision.
7.17	Telephone operator.....	
7.19	Cook.....	In restaurant or small hotel.

P.E. Value	Occupation	Description
7.23	Street car conductor....	
7.24	Farm tenants.....	On small tracts of land.
7.30	Brakeman.....	On freight & passenger trains.
7.33	City fire fighter.....	Handles ordinary fire fighting apparatus.
7.39	R. R. Fireman.....	On freight and passenger trains.
7.54	Policeman.....	Average patrolman.
7.71	Structural steelworker..	Heavy work demanding some skill.
7.73	Telephone and telegraph lineman.....	
7.77	Bricklayer.....	
7.79	Butcher.....	Not owner. Can make proper cuts.
7.91	Baker.....	
8.02	Metal finisher.....	Polishes and lacquers metal fixtures.
8.04	Plasterer.....	Knowledge of materials used necessary.
8.08	General painter.....	Paints houses, buildings, etc.
8.22	Harness maker.....	
8.40	Tinsmith.....	Makes vessels, utensils, etc. from plated sheet metal.
8.49	Letter carrier.....	
8.50	Forest ranger.....	
8.58	Stone mason.....	
8.75	Plumber.....	Average trained plumber employee.
8.89	Gardener, truck farmer..	Owns and operates small plots.
8.99	Electrical repairman....	Repairs electrical utensils, devices, etc.
9.28	Bookbinder.....	Sets up and binds books of all sorts.
9.37	Carpenter.....	Knows the tools. Can follow directions, in various processes wood construction work.
9.37	Potter.....	Makes jars, jugs, crockery, earthenware.
9.54	Tailor.....	Employee in tailor shop.
9.72	Salesman.....	In dry goods, hardware, grocery stores.
10.11	Telegraph operator.....	Small town.
10.21	Undertaker.....	Small town. 6-12 mos. special schooling.
10.26	Station agent.....	Small town. Baggage, freight, operator, etc.
10.27	Mechanical repairman....	In shop or factory. Keeps machines in condition.
10.29	Dairy owner & mgr.....	Small dairy, 50-100 cows.
10.53	Metal pattern maker.....	
10.54	Wood pattern maker.....	
10.56	Lithographer.....	Makes prints from designs which he puts on stone.

P.E. Value	Occupation	Description
10.76	Linotype operator....	
10.86	Detective.....	Traces clues, etc. Employee of detective bureau.
10.99	Electrotyper.....	Prepares wood cuts.
11.17	Traveling salesman...	Sells drugs, groceries, hardware, drygoods, etc.
11.34	Clerical work.....	Bookkeepers, recorderd, abstractors, etc.
11.35	R.R. passenger cond'r	
11.51	Store keeper and owner.....	Small town retailer.
11.74	Foreman.....	Small factory or shop.
11.78	Stenographer.....	Writer shorthand and uses typewriter.
12.02	Librarian.....	In small institution or public library.
12.06	Nurse and Masseur....	Graduate.
12.74	Chef.....	Employed in large first class hotels.
12.84	Editor.....	Small paper, considerable job work.
12.89	Primary teacher.....	No college training. 2 years special training.
12.96	Landscape gardener...	
13.08	Gram. grade teacher..	Normal graduate. Expects make teaching prof.
13.20	Osteopath.....	Training equal to college graduate.
13.21	Pharmacist.....	In town of 1,000-5,000 population.
13.29	Master mechanic.....	Thorough knowledge his field of mechan.
13.30	Music teacher.....	2-4 years special training. Not college graduate.
13.31	Manufacturer.....	Employs 10-50 men. Makes simple articles.
13.54	Dentist.....	Grad. 2-5 years experience in small town.
13.58	Art teacher.....	In high school. 3-4 yrs. special training.
13.71	Surveyor.....	Transit man. City or country surveyor.
14.31	Train despatcher.....	Must be mentally alert.
14.45	Land owner and operator.....	Very large farms or ranches.
14.70	Musician.....	Successful singer or player in good company.
15.05	Secretarial work.....	Private sec. to high state or national officials.
15.14	High school teacher..	College or Normal graduate. Not most progressive.
15.15	Preacher.....	Minister in town 1000-5000. College graduate.

P.E. Value	Occupation	Description
15.42	Industrial chemist..	Thorough knowledge of the chemistry of manufacturing processes.
15.43	Mechanical engineer.	Designs and constructs machines and tools.
15.71	Teacher in college..	A.B. or A.M. degree. Not most progressive.
15.75	Lawyer.....	In town moderate size. $1000-$5000 income.
15.86	Technical engineer..	Thorough knowledge of the process of an industry.
16.18	Artist.....	High class painter of portraits etc.
16.26	Mining engineer.....	Thorough knowledge of mining and extraction of metals.
16.28	Architect.....	Training equal to college grad.
16.58	Great wholesale merchant.....	Business covering 1 or more states.
16.59	Consulting engineer.	In charge of corps of engineers.
16.64	Educational Administrator.....	Supt. city 2000-5000. College graduate.
16.71	Physician.....	6-8 years prep above high school. Income $5000 up.
16.91	Journalist.....	High class writer or editor.
17.50	Publisher.....	High class mag. & newspaper, periodical.
17.81	University Prof.....	A.M. or Ph.D. Writes, teaches, research.
18.06	Great merchant.....	Owns & operates million-dollar business.
18.14	Musician.....	(Paderewski.)
18.33	High National official.....	Cabinet officer, Foreign minister etc.
18.35	Writer.....	(Van Dyke.)
19.45	Research leader.....	Like Binet or Pasteur.
19.73	Surgeon.....	(Mayo Brothers.)
20.71	Inventive genius....	(Edison type.)

APPENDIX B

TABLE XXIX

INDIVIDUAL AVERAGE WEIGHTED UNIVERSITY GRADES FOR THE SUMMER, FIRST SEMESTER, SECOND SEMESTER, AND THE YEAR. GROUP B, 1-84 GROUP A, 85-301.

Student	Summer	1 Sem.	2 Sem.	Year
		BUSINESS		
1		Wd.		
2		4.93	5.38	5.14
3		3.36		3.36
4		5.75	5.60	5.68
		EDUCATION		
5		9.	7.63	8.29
6			7.75	7.75
7		6.43	5.50	6.00
8		6.	7.41	6.75
9		5.33	6.77	6.00
10		6.14	7.29	6.71
11	8.		5.54	6.00
12		8.13	6.38	7.23
13			6.13	6.13
		ENGINEERING		
14		4.57	2.88	3.67
15		4.93		4.93
16		4.93	1.83	3.50
17		5.67	7.40	6.53
18		6.	6.80	6.40
		FINE ARTS		
19		8.72	8.35	8.53
20		6.60	9.20	7.25
21		8.32	7.55	7.90
22		5.47	8.10	6.76
23		4.87		4.87

Continued

TABLE XXIX (Continued)

Student	Summer	1 Sem.	2 Sem.	Year
24		6.20	6.27	6.23
25		8.25	9.25	8.75
		LAW		
26		3.33		
27		5.73	5.40	5.60
		COLLEGE		
28		Wd.		
29		Wd.		
30			6.40	6.40
31			1.00	1.00
32			1.00	1.00
33		10.60	8.00	9.18
34			4.93	4.93
35		8.73	7.00	7.84
36			4.00	4.00
37		6.40	7.00	6.71
38		8.33	10.00	9.17
39			1.00	1.00
40		5.87	6.27	6.07
41	6.00			6.00
42		6.67	6.53	6.60
43		9.60	7.53	8.57
44		7.07	7.33	7.20
45		8.00	8.56	8.28
46		6.00	7.00	6.50
47		5.87	7.07	6.47
48		5.07	4.77	4.93
49		6.93	7.63	7.29
50		7.60	6.00	6.77
51		7.40	4.87	6.13
52		7.73	5.38	6.52
53			10.06	10.06
54		7.57	5.23	6.44
55		3.79	5.73	4.79
56		Wd.		
57			5.07	5.07

Continued

TABLE XXIX (Continued)

Student	Summer	1 Sem.	2 Sem.	Year
58		9.00	10.36	9.58
59		9.60	11.00	10.30
60		5.54	5.83	5.68
61		6.29		6.29
62		5.79		5.79
63		8.38	7.00	7.64
64		5.29	5.88	5.60
65			7.73	7.73
66		10.36	11.00	10.67
67		6.21		6.21
68		Wd.		
69			6.00	6.00
70		6.15	7.73	7.00
71		7.25	8.93	8.06
72		9.60	8.46	9.07
73		2.25		2.25
74		6.31	6.33	6.32
75		5.17	2.85	3.96
76			4.42	4.42
77		7.33	7.12	7.22
78		4.93	5.71	5.31
79		7.07	6.67	6.87
80		7.25	7.63	7.44
81		7.25	7.63	7.44
82		Wd.		
83		7.07	8.80	7.93
84	8.00			8.00
85				
		BUSINESS		
85		Wd.		
86		11.00	11.00	11.00
87		6.00	5.00	5.56
88		6.00	5.50	5.79
89		6.86	6.25	6.53
90		10.47	10.40	10.44
91		6.00	6.80	6.39
92		4.94	4.40	4.69
93		7.31	6.00	6.66

Continued

TABLE XXIX (Continued)

Student	Summer	1 Sem.	2. Sem.	Year
94		9.31	9.82	9.58
95		7.33	6.50	6.90
96		8.23	5.31	6.77
97		6.00	6.00	6.00
98		7.94	6.38	7.16
99		5.00	7.13	6.10
100		6.80	6.38	6.58
101		8.42	8.25	8.33
102		8.29	7.25	7.73
		EDUCATION		
103		7.25	6.67	6.97
104		7.31	6.44	6.81
105		9.00	7.38	8.29
106		4.00	4.83	4.50
107	6.00			6.00
108		7.63	8.61	8.15
109	7.00			7.00
110	7.00			7.00
111		6.59		6.59
112	8.00			8.00
113			7.80	7.80
114	8.00			8.00
115	7.14			7.14
116			6.00	6.00
117		5.33	7.27	6.54
118	8.00			8.00
119	6.00			6.00
120			8.00	8.00
121		7.75	7.65	7.70
122		5.44		5.44
123		6.80	6.83	6.81
124	6.00	7.00	6.82	6.79
125	10.00			10.00
126		6.00	4.77	5.36

Continued

TABLE XXIX (Continued)

Student	Summer	1 Sem.	2 Sem.	Year
		ENGINEERING		
127		3.41	1.77	2.70
128		9.22	8.44	8.84
129		6.94	6.35	6.63
130		3.31	3.88	3.59
131		4.59		4.59
132		4.56	3.31	3.94
133		5.00	4.33	4.66
134		7.95	7.32	7.64
135		6.22	7.25	6.71
136		3.25		3.25
137			4.12	4.12
138		4.82	3.27	4.09
139	7.20	3.80	7.50	6.07
140		5.33	2.85	4.18
141		7.44	6.67	7.06
142		6.44	2.67	4.35
143		6.00	5.39	5.71
144		6.33	7.82	7.06
145		6.30	5.71	6.01
146		1.00		1.00
147		6.69	1.00	3.85
148		6.58	4.88	5.84
149		7.69		7.69
150		2.92	2.07	2.48
151		3.94	2.82	3.50
152		6.25	6.71	6.48
153		5.16	2.67	3.95
154		9.64	8.50	9.06
155		5.95	5.03	5.49
156		3.15	9.07	5.87
157		7.52	6.23	6.85
158		8.81	8.20	8.54
159		3.67	5.13	4.40
160		10.31	10.32	10.32
161		7.17	6.00	6.64
162		Wd.		
163		3.29		3.29

Continued

TABLE XXIX (Continued)

Student	Summer	1 Sem.	2 Sem.	Year
164		5.65	1.00	3.77
165		3.78	4.93	4.28
166		9.43	8.33	8.89
167		4.78	8.06	6.42
		FINE ARTS		
168		6.36	6.90	6.63
169		Wd.		
170	9.50			9.50
171	10.50			10.50
172		8.09	4.73	6.15
173		9.20	8.40	8.80
174		10.14	10.80	10.48
		LAW		
175		1.60		1.60
176		6.00	6.00	6.00
177		5.07	4.66	4.87
178		4.93	6.00	5.47
179		7.73	7.60	7.67
180		5.07	5.07	5.07
181		4.00	2.50	3.35
		MEDICINE		
182		5.18	6.63	5.94
183		8.41	7.87	8.13
184		6.47	7.37	6.94
185		7.18	8.79	8.03
186		7.00	8.11	7.58
187		4.50	6.58	5.60
		COLLEGE		
188	6.00			6.00
189		6.67	6.29	6.48
190		7.73	7.33	7.53
191		7.60	8.00	7.80

Continued

TABLE XXIX (Continued)

Student	Summer	1 Sem.	2 Sem.	Year
192		6.00	7.07	6.52
193		7.13	5.88	6.48
194		6.67	6.06	6.35
195		7.07	6.80	6.93
196		Wd.		
197		5.33	3.33	4.33
198		8.69	8.40	8.54
199	9.50	7.54	7.44	7.93
200		7.23	4.08	5.65
201		8.50	8.00	8.25
202		5.40	6.00	5.73
203		8.88	8.56	8.73
204		7.20	7.00	7.10
205		4.67		4.67
206		9.15	8.92	9.04
207	7.00			7.00
208		5.60	6.67	6.07
209	6.60			6.60
210	8.60			8.60
211			5.92	5.92
212		9.00	8.06	8.52
213			7.73	7.73
214	4.80			4.80
215		7.67	9.29	8.54
216		7.94		7.94
217	4.50			4.50
218			7.57	7.57
219		5.54	5.08	5.31
220		6.93	7.07	7.00
221		5.23	7.20	6.29
222			4.83	4.83
223		8.88	8.47	8.67
224	5.00			5.00
225		8.07	7.63	7.84
226		Wd.		
227	5.80	7.07	7.41	6.90
228	5.60			5.60
229	8.90			8.90

Continued

TABLE XXIX (Continued)

Student	Summer	1 Sem.	2 Sem.	Year
230	3.50			3.50
231		9.71	10.06	9.90
232		6.93	5.20	6.07
233	8.00			8.00
234		8.31	8.00	8.16
235		6.43	5.20	5.79
236		Wd.		
237	6.00	4.65	8.40	6.31
238		6.00		6.00
239		5.60	6.46	6.00
240		6.14	5.73	5.93
241	6.60			6.60
242		6.00	5.33	5.67
243			6.00	6.00
244		7.73	9.15	8.39
245			8.00	8.00
246		7.07	9.00	8.03
247	7.60			7.60
248		10.31	9.41	9.81
249		9.50	11.00	10.27
250		5.33	4.93	5.13
251		10.60	6.76	8.56
252		1.00		1.00
253			3.69	3.69
254			7.00	7.00
255		2.67		2.67
256		7.33	4.07	5.70
257		8.33	7.60	7.97
258		6.80	6.80	6.80
259		Wd.		
260		6.93	7.73	7.33
261		7.93	7.73	7.83
262			9.93	9.93
263		Wd.		
264			5.00	5.00
265		7.87	9.00	8.43
266		8.27	8.69	8.52
267		6.94	5.50	6.22

Continued

TABLE XXIX (Concluded)

Student	Summer	1 Sem.	2 Sem.	Year
268		6.13	5.38	5.75
269		6.00	6.00	6.00
270		9.88	10.00	9.94
271		3.50		3.50
272		Wd.		
273		7.67	7.14	7.41
274		5.60	5.50	5.56
275		9.00	6.50	7.71
276		9.38	9.65	9.48
277		5.60	7.40	6.53
278		7.33	8.73	8.03
279		8.13	8.60	8.37
280		4.93		4.93
281		7.73	6.67	7.20
282		6.00	4.33	5.17
283		6.43	6.63	6.53
284		7.31	6.92	7.14
285		8.33	2.67	5.24
286	9.87	9.00	7.80	8.71
287		8.00	4.67	6.33
288		7.67	7.23	7.47
289			8.67	8.67
290		6.13	7.62	6.90
291		8.67	8.60	9.63
292		6.77	5.67	6.18
293	11.00	7.67	9.60	8.97
294		7.33	8.33	7.83
295		5.15	6.46	5.81
296		9.13	8.88	8.94
297	2.67	5.23	8.38	5.74
298		4.60	4.08	4.37
299		4.36	6.00	5.14
300		5.00	8.33	6.67
301		6.67	5.60	6.13