

Utah State University

DigitalCommons@USU

---

All Graduate Theses and Dissertations

Graduate Studies

---

5-1958

## A Study of the Holding Power of Utah State University With Respect to a Selected Group of Superior Entering Freshmen

Dan J. Workman  
*Utah State University*

Follow this and additional works at: <https://digitalcommons.usu.edu/etd>



Part of the [Education Commons](#)

---

### Recommended Citation

Workman, Dan J., "A Study of the Holding Power of Utah State University With Respect to a Selected Group of Superior Entering Freshmen" (1958). *All Graduate Theses and Dissertations*. 4867.

<https://digitalcommons.usu.edu/etd/4867>

This Thesis is brought to you for free and open access by the Graduate Studies at DigitalCommons@USU. It has been accepted for inclusion in All Graduate Theses and Dissertations by an authorized administrator of DigitalCommons@USU. For more information, please contact [digitalcommons@usu.edu](mailto:digitalcommons@usu.edu).



A STUDY OF THE HOLDING POWER OF UTAH STATE UNIVERSITY WITH RESPECT  
TO A SELECTED GROUP OF SUPERIOR ENTERING FRESHMEN

by

Dan J. Workman

A thesis submitted in partial fulfillment  
of the requirements for the degree

of

MASTER OF SCIENCE

in

Education

UTAH STATE UNIVERSITY  
Logan, Utah

1978

378.2  
W 8921

## TABLE OF CONTENTS

|  | Page |
|--|------|
| Introduction . . . . .                     | 1    |
| Problem . . . . .                          | 3    |
| Delimitations and definitions . . . . .    | 5    |
| Delimitations . . . . .                    | 5    |
| Definitions . . . . .                      | 6    |
| Review of literature . . . . .             | 7    |
| Procedure . . . . .                        | 11   |
| Analysis of data . . . . .                 | 15   |
| Findings and conclusions . . . . .         | 44   |
| Some inferences and implications . . . . . | 46   |
| Appendix I . . . . .                       | 48   |
| Literature cited . . . . .                 | 49   |

## INTRODUCTION

Current literature may not agree, but it seems safe to say that to the educator, the academically superior student has always held a great deal of interest. All institutions of learning desire to attract and retain students with high scholastic potential. This is evidenced by the present concern as to whether or not superior students are being adequately provided for in the schools.

This present study was undertaken because of the general belief on the part of the college officials that perhaps Utah State University is losing too many capable students before they graduate.

Also influencing the design of the study is the observation that some students seem to believe certain schools of the college attract superior students, while other schools attract the less capable or mediocre. This same idea has been expressed by members of the professional staff. The findings of this study will provide some evidence to bear upon the degree to which each of these statements may be true.

Since research for this thesis was begun, other reports and studies have placed particular emphasis upon the recruitment and retention of superior students. This emphasis seems to be a result, partially at least, of competitive scientific developments in other countries. Whatever the cause, national and local concern has been aroused. The desire to maintain scientific leadership and political influence has focused attention upon the intellectual resources of the nation. Our survival as a nation now more than ever before seems to depend upon the efficiency of our schools.

The study was begun during the school year 1954-55, at Utah State Agricultural College.<sup>1</sup> At that time it was evident from enrollment figures that the so-called "G. I. bulge" in enrollment was over, the years of highest enrollment having been 1946, 1947, and 1948. In order to get a large group of students for study, the entering freshmen of the school years of 1947-48 and 1948-49 were used. A superior group was selected from these high-enrollment classes.

At the time the study was undertaken, it was planned to follow these superior students throughout the four years ordinarily required for graduation and for an additional period of two years. This established the termination date of the study to include the 1955 commencement. However, there was an interruption in the study of about three years. Also, since many of the local students interrupt their education to fulfill L. D. S. missions and meet military obligations, it was decided to extend the period covered by the study to include the graduation exercises of 1957.<sup>2</sup>

- 
1. The name of Utah State Agricultural College was changed to Utah State University of Agriculture and Applied Science in 1957, and will hereafter in this manuscript be referred to as Utah State University. However, schools of the college rather than colleges of the university are designated as they were at the time data were obtained.
  2. Members of the Church of Jesus Christ of Latter-day Saints of college age often interrupt college training and spend two to three years in missionary service for their church.

## PROBLEM

At the outset the central problem of the study was specifically worded:

TO DETERMINE THE HOLDING POWER OF UTAH STATE UNIVERSITY  
WITH RESPECT TO A SELECTED GROUP OF SUPERIOR STUDENTS IN  
THE ENTERING FRESHMAN CLASSES OF 1947 AND 1948.

In addition to this main problem, certain closely related problems were included. Among these are the following:

1. What percentage of the freshman classes of 1947-48 and 1948-49 achieved percentile scores on required entrance tests to justify classifying these students as "superior"?
2. In percentile points, what were the  $Q_1$ ,  $Q_2$ , and  $Q_3$  of this group in terms of range from highest to lowest scores made by each of the selected students on the different entrance tests. In other words, what is the variation of students with respect to ability as measured by the entrance tests?
3. In what schools did these superior students register? How did the percentage of superior students registering in each compare with the percentage of the total freshmen registering in each?
4. Did any particular test score or combination of scores tend to predict the school in which the superior student registered?
5. How many superior students dropped out before graduation? How many years of college work had these dropouts completed before

discontinuing school? How did the various schools compare in their holding power for superior students?

6. Is there any observable relationship between dropout rate and place of residence?

7. Did superior students tend to stay in schools in which they originally registered or to transfer to other schools within the college?

8. If they transferred, from what and to what school did they transfer?

9. What was the "drawing power" and "holding power" of the several schools?

## DELIMITATIONS AND DEFINITIONS

### Delimitations

The study is limited to entering freshmen of Utah State University classes of 1947-48 and 1948-49.

It is limited to superior students, including all individuals who scored above the sixty-seventh percentile on two of the three entrance tests given by the college that year. A total of 519 students, or 19.14 percent of the two entering freshman classes were included in this category.

The students were "followed" from the time of their first enrollment until graduation or until they dropped out before graduation; however, the Utah State University graduation lists and registration records consulted were limited to the initial enrollment in 1947 through the commencement exercises of June, 1957.

Another limitation of the study is that those who may have transferred to and graduated from other institutions were not followed. These students are numbered among the dropouts.

The number of changes in major for each student was calculated from fall quarter registrations only. Therefore, just one change per year is recorded. Because of the rarity of more than one change within a single year, the study is probably influenced very little by this limitation.

The study does not in any way deal with reasons why students may have discontinued school, changed majors, or remained in school



until graduation. It is concerned with records of dropout, changes in school in which registered, and the percent which graduate.

Definitions

1. Those students whose scores placed them in the percentile rank of sixty-seven or above in the majority of their examinations, are defined as, and will be referred to as "superior students" or "the superior group".

2. All students who permanently withdraw from Utah State University are designated as "dropouts".

## REVIEW OF LITERATURE

Many articles have been written and studies made about the gifted or highly capable student of the college level. These reports and investigations have been concerned with planning for special acceleration, instituting special classes, accelerating by examination, setting up honor programs, providing methods for identifying, and providing special counseling services for the superior student.

No studies were found which dealt specifically with a follow-up of superior college students. Nevertheless, many reports emphasized the need for further study about superior students.

There is likewise a general concern over the college dropout rate of all students. This is evidenced by many studies which have been made upon the subject in the past few years. Although these studies on dropouts are not confined to superior students, but deal generally with the overall dropout rate of a particular school or group of schools, a few will be referred to in interpreting the data reported by this thesis.

In 1951, Walter C. Johnson made a study of three hundred Utah State University students of the 1946-47 freshman class (9). This group was selected from an alphabetical listing of those who took the entrance examinations. Johnson chose every sixth student. His purpose was to evaluate various methods of predicting success, but much of his data and information are related to the present study if used for comparison purposes. He reports the dropout rate of his

group, and gives pertinent information about the withdrawal rate of local and non-local students. He also reports data on the number and percentage of students in his study in each of the different schools of the college.

He found that at the end of five years, 38 percent of his group had graduated. Thirty-six percent of the local students had graduated while 48 percent of the non-local students had. He concluded that a large percentage of the students who drop out are capable of college success.

Granville B. Johnson, Jr. made a study entitled "A Proposed Technique for the Analysis of Dropouts at a State College"(8). In the unnamed college of his study, the dropout rate was found to be excessively high. Approximately 68 percent of the freshmen students studied dropped out of school the first year. In a questionnaire returned from seventeen out of twenty-seven other colleges to which inquiry was made, there was an average dropout rate of 34 percent in the freshman year, with a range from 12 to 55 percent. Since the college Johnson was studying had an excessively high rate of dropout, he concluded that it was an abnormal year.

A. Vernon Obray made a study of registration trends at Utah State University in 1940 (10). Statistics from his study showed continued increase in number and percentage of out-of-state students from 1910 to 1940 and gradual decrease in the percentage of students from Cache Valley during that time. In his conclusions Obray states that there is a marked tendency for out-of-state enrollment to increase in proportion to the total student body enrollment. Also he states that prior to 1935, freshman and sophomore students showed the greater rate

of growth. Since that time upperclassmen have shown a tendency to maintain the higher rate. This fact is due to two things; viz., more people are staying in school until graduation, and more junior college graduates are going into senior colleges.

R. Baird Shuman in 1956 wrote an overview of college dropouts (11). In it he states that about half of the entering freshmen of American colleges withdraw before graduation. He refers to studies on dropout rate of various colleges and universities made by Archibald MacIntosh, Long and Perry, H. H. Armsby and many others. He found from these various colleges that dropout rates ranged from 26 percent to 67 percent and averaged somewhere near 50 percent.

LeRoy Alfred Blaser has made an extensive study of factors relating to enrollment and retention of freshmen students at Utah State University (2). His study compares total class registrations with graduations, which limits its use in relation to this study since the group considered here is a select one and individual students are followed. Information is given in his study, however, about dropout according to sex and location of home.

In a bulletin issued by the American Council on Education, Higher Education and National Affairs, dated April 15, 1958, a report made on student dropout is summarized (1). The study was made by the U. S. Office of Education, and is entitled "Retention and Withdrawal of College Students". It covers the college careers of more than 12,000 students who initially registered in 1950. The report was prepared by Robert E. Iffert of the Office of Education staff.

The study shows that about one out of four students who enter college drop out by the end of the first year. The number of students who stop their education the first year is about equal to the total who drop out during the following three years combined. Some of those who drop out of college at one time or another later re-enter. Altogether about six out of ten who enter college graduate, four of them from the institution in which they first enroll. More than one-fifth of those who drop out of college permanently were in the top 20 percent of their high school graduating class.

The findings of the studies reviewed above seem to show the following:

1. About 38 percent of the students who entered Utah State University in 1946 had graduated by 1951.
2. A greater percentage of local students drop out at Utah State than non-local students.
3. A large percentage of students who drop out are capable of college success.
4. About four out of ten students who enter colleges in American graduate from the institution in which they first enrolled.
5. More than one-fifth of those who drop out of college permanently were in the top 20 percent of their high school graduating class.

## PROCEDURE

The first step needed in investigating a group of students of high potential at Utah State University was to find a valid method of selecting such a group. In order to obtain a relatively large sample of students it was decided to select the group from two freshman classes with large enrollments. The freshman classes of 1947-48 and 1948-49 were chosen because the classes were large and because sufficient time had elapsed before the study was begun to allow the members of these classes ample time to have graduated.

The percentile rank of the student on the entrance examinations which were administered by the college was the criterion chosen to select the group of superior students. These tests were (a) The United States Armed Forces Institute Test of General Educational Development (high school level) Correctness and Effectiveness of Expression, (b) United States Armed Forces Institute Test of Interpretation of Reading Material in the Natural Sciences, and (c) The Utah State Agricultural College Mathematics Test.

Several methods of using percentile rank to select the superior group were considered. One method might be to average an individual's three percentile ratings and select those above a given point on this combined average. This method was discarded, however, as being inconsistent with statistical procedures. The method finally chosen was to designate as superior all individuals whose percentile scores on two out of the three entrance tests placed them in the upper one-third of the class.

A card was filled out for each student thus selected, giving the following data: Name, age, sex, year of entrance into college, high school last attended, intended major, and percentile rank achieved on each of the three entrance tests. This information was obtained from the entrance test records in the files of the Department of Psychology.

The registration files of the Registrar's Office were then consulted to obtain the additional information necessary to follow this superior group through their four-year course. From these files records were made of the student's home residence, school of the college in which the student initially registered, changes from one major field of study to another, dropout or withdrawal information, data of graduation and rank in graduating class according to quartile rating.

Tables were drawn up giving the following information:

1. The number of male and female students in the freshman classes of 1947-48 and 1948-49, and the total number of students in the two classes; also the number of persons, male and female, who were selected as superior students and the percentage considered superior.
2. Various ranges from highest to lowest percentile rank with the number of students whose individual ratings on the three entrance tests were found to be within the bounds of each range.
3. The schools of the college in which the members of the total freshman classes registered and the schools in which the superior students registered. These tables give number and percentage of males, females, and total who registered in each school of the college.
4. The number and percentage of superior students in each school of the college who had percentile ratings of sixty-seven or over in all three entrance tests. Those students who achieved percentile ratings over sixty-seven in only two of the tests were arranged according to the two tests in which they scored highest. Numbers and percentages are given for the three possible combinations of tests; natural science and English,

mathematics and English, and mathematics and natural science.

5. The dropout rate of superior students with relation to year of dropout, sex, and field of study.
6. Relationship of permanent residence to dropout. Various zones of residence were defined. These zones are: Logan City, Cache Valley (excluding Logan), Utah (excluding Logan and Cache Valley), Idaho, other states, and other countries. Tables were prepared giving the number and percentage of superior students who were from each of these zones. Also given are the number and percentage from each zone who discontinued school and the number of years attended.
7. The number of students who originally registered in each school of the college and graduated without making any change in major, and the number from each school who changed their major and the school to which they changed. A table was also prepared to show the percentage in each school who had no major change, who had one major change, who had two major changes, and percentage changing to each school.
8. Comparison of the percentage of graduates of the total classes of 1951 and 1952 in each school with the percentage of the superior group who graduated in each school. With an uninterrupted and unabbreviated course, these superior freshmen of 1947 and 1948 would graduate in 1951 and 1952. Thus the commencement programs of 1951 and 1952 were consulted for the number and percentage of the total graduating classes graduating from each school of the college.
9. The results of the three entrance examinations, reported in percentile rank, averaged for each member of the superior group who graduated. The quartile rank for each of these individuals at graduation was obtained from their records. A table was prepared to show the relationship of rank on the entrance examinations and class standing at graduation.
10. Number and percentage of these superior students who graduated each year. This table was prepared so as to differentiate between the two freshman classes of 1947-48 and 1948-49. This table includes all of the members of the superior group who graduated from the time of the commencement exercises held in June of 1950 to the exercises of June, 1957, inclusive.

At the outset it was planned to terminate the follow-up study with the graduation exercises of 1955. It was found, however, that it



would be more realistic to extend the study to the graduation of 1957. This nine-year period has allowed for either a two or three year interruption for an L. D. S. mission or two or three years of military service or both before the student completed the four years normally required for graduation.

Tables as indicated above will be presented and the data analyzed in the following section.

### ANALYSIS OF DATA

In presenting the analysis of the data, the sequence set forth in the questions on pages three and four will be followed.

What percentage of the freshman classes of 1947-48 and 1948-49 achieved percentile scores on required entrance tests to justify classifying these students as superior?

Table 1 shows the number of male students in the two classes to be 2,006, and the number of females to be 706. A total of 2,712 freshmen students registered in the two fall quarters of 1947-48 and 1948-49. Of this group, 379 male and 140 female students were rated at the sixty-seventh percentile or above in at least two of the three guidance tests required. A total of 519 students qualified as superior by the criteria used in this study. These 519 students represented 19.14 percent of the total freshman group.

Table 1. Showing number of students in the freshman classes of 1947-48 and 1948-49, and number of students from these classes selected as superior

|              | Freshmen<br>registering | Selected as<br>superior | Percent<br>superior |
|--------------|-------------------------|-------------------------|---------------------|
| Male         | 2,006                   | 379                     | 18.89               |
| Female       | 706                     | 140                     | 19.84               |
| <b>TOTAL</b> | <b>2,712</b>            | <b>519</b>              | <b>19.14</b>        |

The tests used at Utah State University for entering students in 1947 and 1948 were the United States Armed Forces Institute English and Natural Science Tests, and the Utah State Agricultural College Mathematics Test. The validity of these tests has been confirmed by several extensive studies (3) (4) (5).

The ratio of males to females was the same in the superior group as in the total class membership. This would indicate that Utah State University is drawing superior students from both sexes. Assuming this is the case, the same facts would seem to indicate that abilities measured by the three tests are evenly distributed between the sexes.

How do superior students vary in their abilities measured by these three tests? More precisely stated; in percentile points, what were the  $Q_1$ ,  $Q_2$ , and  $Q_3$  of the group in terms of range from highest to lowest scores made on the different entrance tests?

In order to answer this problem the range of scores or percentile points of each superior student on the three tests was calculated. The findings are shown in table 2.

Table 2. Showing the range in percentile points achieved by each individual on the three entrance tests

| Range between highest and lowest score | Number of students | Percentage of students |
|--|--------------------|------------------------|
| Less than 10 units                     | 88                 | 17.0                   |
| 10 to 20 units                         | 108                | 20.8                   |
| 20 to 30 units                         | 107                | 20.6                   |
| 30 to 40 units                         | 68                 | 13.0                   |
| 40 to 50 units                         | 57                 | 11.2                   |
| 50 to 60 units                         | 45                 | 8.7                    |
| 60 to 70 units                         | 37                 | 7.1                    |
| 70 to 80 units                         | 5                  | 0.9                    |
| 80 to 90 units                         | 3                  | 0.5                    |
| 90 to 100 units                        | 1                  | 0.2                    |
| TOTAL                                  | 519                | 100.0                  |

It was found that eighty-eight students, or 17 percent of the group had a range of less than ten. This means that the percentile ratings on all three of their tests were within a range of ten percentile units.

The above data are also presented in graphical form, in figure 1. The  $Q_1$  for this particular group was calculated to be 13.9, meaning that one-fourth of the group have ranges of less than 13.9 percentile units separating their highest rating and their lowest rating. Fifty percent of the students of this group had ranges of less than 25.9 percentile units, and 75 percent had ranges of less than 43.1 percentile units.

It was found that three students had ranges of over eighty in their percentile ranks on the three tests. This would seem to substantiate the conclusion of Smith that variables can easily upset the accuracy of a single test (12). It would be a rare student who would, in actual knowledge, place in the highest 10 percent of over a thousand freshmen in one area, and in the lowest 10 percent of the same group in another area. It should be kept in mind, however, that these percentile ratings give no indication of raw score on the actual examination.

This graph shows that these superior students were relatively consistent in every area of examination, or above average in the various commoner fields of study.

In what schools did these superior students register?  
How did the percentage of superior students registering in each differ from the percentage of the total freshmen registering in each?

Data pertaining to this question are shown in tables 3 and 4. The schools of the college are listed together with the distribution among them in number and percentage of the superior students of these two classes among the seven schools of the college.

A study of these two tables indicates that in these classes certain schools enrolled a larger percentage of superior students than they did of the total group, while others registered a larger percentage of the total group than they did of the superior.

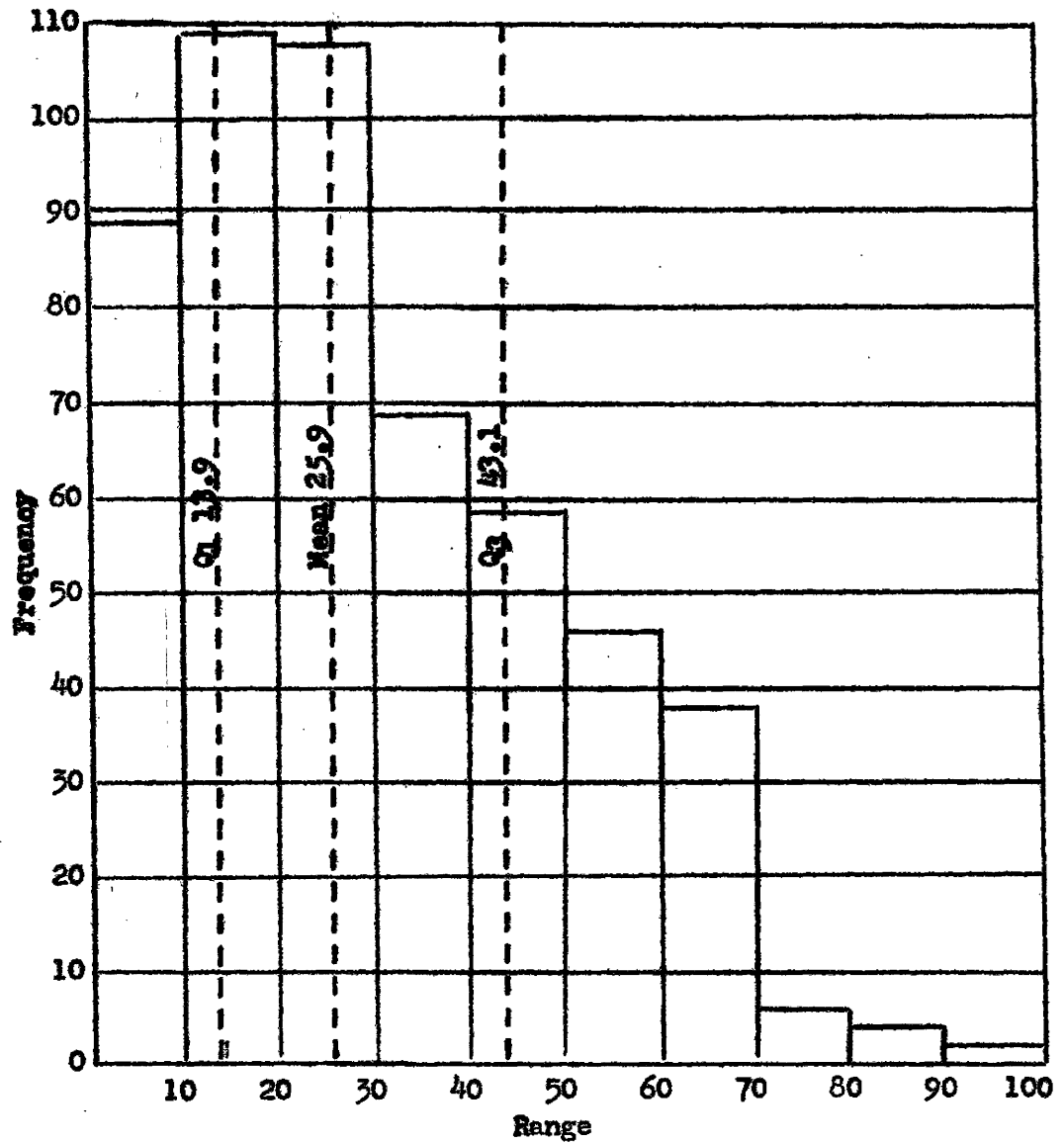


Figure 1. Distribution of students according to range of individual percentile ratings

Table 3. Distribution of freshman enrollment, classes of 1947 and 1948, according to schools

| School          | Number registering in each school |        |       | Percent registering in each school |        |       |
|-----------------|-----------------------------------|--------|-------|------------------------------------|--------|-------|
|                 | Male                              | Female | Total | Male                               | Female | Total |
| Arts & Sciences | 400                               | 228    | 628   | 14.8                               | 8.4    | 23.2  |
| Agriculture     | 470                               | 4      | 474   | 17.3                               | 0.1    | 17.4  |
| Engineering     | 454                               | 1      | 455   | 16.7                               | 0.0    | 16.7  |
| Commerce        | 251                               | 149    | 400   | 9.3                                | 5.5    | 14.8  |
| Education       | 203                               | 129    | 332   | 7.5                                | 4.8    | 12.3  |
| Forestry        | 228                               | 0      | 228   | 8.4                                | 0.0    | 8.4   |
| Home Economics  | 0                                 | 195    | 195   | 0.0                                | 7.2    | 7.2   |
| TOTAL           | 2,006                             | 706    | 2,712 | 74.0                               | 26.0   | 100.0 |

Table 4. Distribution of superior group according to schools

| School          | Number registering in each school |        |       | Percent registering in each school |        |       |
|-----------------|-----------------------------------|--------|-------|------------------------------------|--------|-------|
|                 | Male                              | Female | Total | Male                               | Female | Total |
| Arts & Sciences | 99                                | 53     | 152   | 19.0                               | 10.2   | 29.2  |
| Engineering     | 89                                | 0      | 89    | 17.2                               | 0.0    | 17.2  |
| Commerce        | 46                                | 28     | 74    | 8.8                                | 5.4    | 14.2  |
| Agriculture     | 59                                | 1      | 60    | 11.4                               | 0.2    | 11.6  |
| Forestry        | 56                                | 0      | 56    | 10.8                               | 0.0    | 10.8  |
| Education       | 30                                | 22     | 52    | 5.8                                | 4.2    | 10.0  |
| Home Economics  | 0                                 | 36     | 36    | 0.0                                | 7.0    | 7.0   |
| TOTAL           | 379                               | 140    | 519   | 73.0                               | 27.0   | 100.0 |

In this particular group, the School of Agriculture was chosen less often by the superior students by a ratio of seventeen to eleven.

More superior students registered in Forestry by a ratio of eleven to eight. Superior students did not choose Commerce quite as readily as did the average student. Education was chosen less by the superior group by a ratio of twelve to nine. Engineering and Home Economics enrolled about the same percentage of both superior and average students. Arts and Sciences was chosen more by the superiors by a ratio of three to two.

Did any particular combination of high scores tend to predict the school in which the superior student registered?

In an effort to study this relationship the data were arranged into tables 5 and 6. These tables show the number and percentage of students in each school whose test scores on all three tests placed them in ranks above sixty-seven. As it was necessary to achieve at least two ratings of sixty-seven or above to qualify, the remainder of the superior group was arranged to show the number of superior students with sixty-seven or above in their two best areas, and the school in which they initially registered.

The superior students in each school were divided into four groups: (1) those who had a percentile rank of sixty-seven or more in all three tests, (2) those who had a percentile rank of sixty-seven or over in the natural science and English tests, but ranked below sixty-seven in mathematics, (3) those who ranked above sixty-seven in mathematics and English but below sixty-seven in natural science, and (4) those who ranked high in mathematics and natural science but below sixty-seven in English.



Table 5. Combinations of tests on which individuals scored above the sixty-seventh percentile, according to schools

| School<br>regis. in | All tests<br>67 or above |                | Nat.Sci. & Eng.<br>above 67 |           | Math & Eng.<br>above 67 |           | Math & Nat.Sci.<br>above 67 |          |
|---------------------|--------------------------|----------------|-----------------------------|-----------|-------------------------|-----------|-----------------------------|----------|
|                     | M                        | F <sup>a</sup> | M                           | F         | M                       | F         | M                           | F        |
| Agriculture         | 16                       | 1              | 12                          | 0         | 5                       | 0         | 26                          | 0        |
| Forestry            | 27                       | 0              | 10                          | 0         | 3                       | 0         | 16                          | 0        |
| Arts & Sci.         | 42                       | 18             | 14                          | 11        | 8                       | 20        | 35                          | 4        |
| Commerce            | 18                       | 15             | 10                          | 7         | 8                       | 5         | 10                          | 1        |
| Education           | 15                       | 8              | 2                           | 8         | 3                       | 6         | 10                          | 0        |
| Engineering         | 42                       | 0              | 6                           | 0         | 9                       | 0         | 32                          | 0        |
| Home Econ.          | 0                        | 16             | 0                           | 7         | 0                       | 11        | 0                           | 2        |
| <b>TOTAL</b>        | <b>160</b>               | <b>58</b>      | <b>54</b>                   | <b>33</b> | <b>36</b>               | <b>42</b> | <b>129</b>                  | <b>7</b> |

a. Male and female are abbreviated to M and F in this and some future tables.

Table 6. The percentage of students in each school which scored high in each of the four possible combinations of tests

| School<br>regis. in | All tests<br>67 or above | Nat.Sci. & Eng.<br>above 67 | Math & Eng.<br>above 67 | Math & Nat.Sci.<br>above 67 |
|---------------------|--------------------------|-----------------------------|-------------------------|-----------------------------|
|                     | percent                  | percent                     | percent                 | percent                     |
| Forestry            | 48.4                     | 17.8                        | 5.4                     | 28.4                        |
| Engineering         | 47.4                     | 6.8                         | 10.0                    | 35.8                        |
| Commerce            | 44.7                     | 23.0                        | 17.4                    | 14.9                        |
| Home Econ.          | 44.5                     | 19.3                        | 30.6                    | 5.6                         |
| Education           | 44.4                     | 19.2                        | 17.2                    | 19.2                        |
| Arts & Sci.         | 39.5                     | 16.5                        | 18.4                    | 25.6                        |
| Agriculture         | 28.4                     | 20.0                        | 8.3                     | 43.3                        |
| <b>TOTAL</b>        | <b>42.3</b>              | <b>16.7</b>                 | <b>14.6</b>             | <b>26.4</b>                 |

The number of males and females in each group is reported in table 5. In order to compare schools, the numbers were converted into percentage of students registering in each school in table 6.

According to studies on prediction, students having high percentile ratings in certain test subjects will be inclined to choose related fields (3). Of those superior students in Engineering, over 93 percent had a percentile rank above sixty-seven in the mathematics test. Of the superior group who chose to study in the other schools of the college less than 80 percent had percentile ranks above sixty-seven in mathematics. Almost 94 percent of those majoring in Home Economics had high scores in English. A significantly smaller percentage of the other superior students had high percentile ranks in English. One immediately apparent observation here is the affinity of the men in the superior group for mathematics and of the women for English. The trends are also definite that those choosing Agriculture and Forestry do well in natural sciences. Those majoring in Arts and Sciences are the strongest in mathematics and the weakest in English, while Commerce students are strongest in English and weakest in mathematics. Only in Education is the proficiency in all fields equally balanced. The greatest variation occurs in Forestry, followed by Engineering and Agriculture.

How many superior students dropped out of school, and from which schools of the college? How many years of college had these dropouts completed before discontinuing school?

Statistics on dropout of superior students are presented in tables 7, 8, 9, 10, 11, and 12.

Table 7. Dropouts by year and school, compared with total graduates in each school

| School       | Total students | Year of dropout |           |           |          | Total      | Total grads |
|--------------|----------------|-----------------|-----------|-----------|----------|------------|-------------|
|              |                | 1st             | 2nd       | 3rd       | 4th      |            |             |
| Agriculture  | 60             | 17              | 9         | 3         | 0        | 29         | 31          |
| Forestry     | 56             | 16              | 9         | 2         | 0        | 27         | 29          |
| Arts & Sci.  | 152            | 54              | 20        | 9         | 0        | 83         | 69          |
| Commerce     | 74             | 30              | 10        | 3         | 0        | 43         | 31          |
| Education    | 52             | 17              | 8         | 2         | 0        | 27         | 25          |
| Engineering  | 89             | 19              | 16        | 3         | 2        | 40         | 49          |
| Home Econ.   | 36             | 14              | 8         | 2         | 0        | 24         | 12          |
| <b>TOTAL</b> | <b>519</b>     | <b>167</b>      | <b>80</b> | <b>24</b> | <b>2</b> | <b>273</b> | <b>246</b>  |

Table 8. The percent of dropouts and graduates by schools

| School       | Year of dropout |             |            |            | Total dropouts | Total grads |
|--------------|-----------------|-------------|------------|------------|----------------|-------------|
|              | 1st yr.         | 2nd yr.     | 3rd yr.    | 4th yr.    |                |             |
| Agriculture  | 28.3            | 15.0        | 5.0        | 0.0        | 48.3           | 51.7        |
| Forestry     | 28.7            | 16.0        | 3.5        | 0.0        | 48.2           | 51.8        |
| Arts & Sci.  | 35.5            | 13.2        | 5.9        | 0.0        | 54.6           | 45.4        |
| Commerce     | 40.5            | 13.5        | 4.0        | 0.0        | 58.0           | 42.0        |
| Education    | 32.8            | 15.3        | 3.9        | 0.0        | 52.0           | 48.0        |
| Engineering  | 21.3            | 18.0        | 3.4        | 2.2        | 44.9           | 55.1        |
| Home Econ.   | 39.0            | 22.2        | 5.5        | 0.0        | 66.7           | 33.3        |
| <b>TOTAL</b> | <b>32.2</b>     | <b>15.4</b> | <b>4.6</b> | <b>0.4</b> | <b>52.6</b>    | <b>47.4</b> |

Tables 7 and 8 show the schools in which the dropout students had registered, the year they either discontinued school or transferred to another, and the number and percentage who completed school and graduated from Utah State University.

Of the superior group, 32.2 percent dropped out of school the first year. Iffert reported that about one out of four students who enter college drop out by the end of the first year (1). Johnson reported that statistics from seventeen colleges to which he had made inquiry revealed an average dropout of thirty-four percent by the end of the first year (8).

The different schools of the college varied in the percentage of students which dropped out during the first year. Only 21.3 percent of the superior freshmen who registered in Engineering discontinued school during or at the end of their first year. The School of Commerce lost 40.5 percent of its superior students the first year.

Table 7 of this study, when compared with Table VI, page 26, of Johnson's study, shows that the dropout rate in respective schools of the college was less for the superior students of this study than for the random group with which he was working (9).

The overall dropout rate varies in the several schools within the college according to the proportion of men and women students enrolled. Of the superior students who initially registered in Engineering, Agriculture, and Forestry, a greater percentage graduated than of those who registered in other schools. Enrollment in these three schools consists of male students only. On the other hand, the School of Home Economics has the greatest dropout rate of all of the schools.

This is at least partially explained in the fact that the dropout rate is about sixteen percent higher for girls, as shown in table 9.

Table 9. Dropouts in the superior group by sex and year of dropout

| Dropouts        | No. of superior students |        |       | Percent of superior students |        |       |
|-----------------|--------------------------|--------|-------|------------------------------|--------|-------|
|                 | Male                     | Female | Total | Male                         | Female | Total |
| 1st year        | 110                      | 57     | 167   | 29.2                         | 40.7   | 32.2  |
| 2nd year        | 56                       | 24     | 80    | 14.7                         | 17.2   | 15.4  |
| 3rd year        | 15                       | 9      | 24    | 3.9                          | 6.4    | 4.6   |
| 4th year        | 2                        | 0      | 2     | 0.5                          | 0.0    | 0.4   |
| Total dropouts  | 183                      | 90     | 273   | 48.3                         | 64.3   | 52.6  |
| Total graduates | 196                      | 50     | 246   | 51.7                         | 35.7   | 47.4  |
| GRAND TOTAL     | 379                      | 140    | 519   |                              |        |       |

This table shows that a greater percentage of superior women dropped out of school than did superior men. This was true during each of the four years of college experience. During the first year 40.7 percent of the women dropped out, compared to only 29.2 percent of the men. A total of 64.3 percent of the women and 48.3 percent of the men dropped out of school before they were graduated.

Up to and including the graduation exercises of 1957, only 47.4 percent of the superior students had graduated. Table 10 shows the number and percentage of dropouts and the number and percentage of graduates of the superior students from the two separate classes.

Table 10. Comparison of the dropout-graduate ratio of the superior freshmen students in the two classes.

|                  | Dropouts |         | Graduates |         | Total superiors |         |
|------------------|----------|---------|-----------|---------|-----------------|---------|
|                  | No.      | Percent | No.       | Percent | No.             | Percent |
| 1947-48 freshmen | 138      | 48.2    | 147       | 51.8    | 285             | 55.1    |
| 1948-49 freshmen | 135      | 57.5    | 99        | 42.5    | 234             | 44.9    |
| TOTAL            | 273      | 52.6    | 246       | 47.4    | 519             | 100.0   |

There is no evidence to show why the dropout rate for the freshman class of 1947-48 was 9.3 percent lower than for the class of 1948-49.

It was assumed that a large percentage of the superior group would remain in college to graduation. It was found, however, that at Utah State University 52.6 percent of the superior students dropped out before being graduated (tables 7, 8, 9, and 10). This indicates the loss of over half of the superior students. However, Johnson reported that in his study he found over 60 percent of the average students dropped out at Utah State University before graduating (9). Although there are no statistics to support the belief that more superior than average students who dropout transfer to other schools, it is known that some students, such as those in pre-medicine and pre-dentistry, who might be expected to be in the superior group, leave after three years in order to continue in medicine and dentistry at a specialized school. Some of these, however, have one year of their professional work transferred to U. S. U. and thus complete requirements for graduation. In such cases they are counted in this study as graduates rather than dropouts.

An average dropout rate of the college for the years covered by this study was arrived at in order to compare total college dropout with superior-student dropout. Johnson's study also offers dropout figures for comparison (9). The total freshman enrollment for five consecutive years beginning with 1947 and including 1951 was taken from the summary of attendance recorded in the school catalogs for those years. The total number of graduates for the five consecutive years from 1951 to 1955 was also taken from these summaries. As the freshmen of 1947 to 1951 would ordinarily graduate from 1951 to 1955, this group was selected to determine an average dropout rate of the college. The total number of graduates for the years 1951 through 1955 represents 47.2 percent of the total freshman enrollment from 1947 through 1951.

Compared with the 47.4 percent of the superior students graduating it would appear that superior students drop out of school before graduation at as great a rate as do the average students. This, however, should not be assumed because the graduating classes include not only the entering freshmen of four years previous, but all transfers from the branch colleges, other junior colleges, and other colleges and universities.

The present study does not include students who transfer in, nor those who transfer out and perhaps graduate from other schools. Iffert reports that two out of every six students who graduate from college, graduate from an institution other than the one in which they initially enrolled(1).

In Johnson's study dealing with 1946 freshmen chosen at random he found that only 38 percent of them completed twelve quarters

of school at Utah State University (9). In the present study, wherein it is shown that 47.4 percent of the superior students are graduated, superior students graduate at a rate approximately 25 percent higher than average students at Utah State University. Haas, in his study at Eau Claire Teachers College, reported that only 26 percent completed twelve quarters (7). Iffert reports that about four out of ten college students graduate from the institution in which they originally enrolled (1).

Granville B. Johnson, Jr. made a study of dropouts at an unnamed state college (8). Of the group he selected to study, 68 percent discontinued college after the first year. To compare his group and its dropout rate with other groups, he sent out twenty-seven questionnaires to various colleges. Seventeen were returned. In these seventeen colleges he found that the average dropout rate for the first year was 34 percent. As shown in table 8 of this study, the first year dropout rate of these superior students was found to be 32 percent.

Is there any observable relationship between dropout rate and place of residence?

In an effort to determine whether or not distance of residence from school has anything to do with dropout rate, tables 11 and 12 are presented.

The tables give a summary of the number and percentage of students from different areas who registered as freshmen and the number and percentage who dropped out each year.



Table 11. Number of dropouts by sex and according to permanent residence and year of dropout

| Residence                  | No. of<br>superior<br>students | Dropouts |    |         |    |         |   |         |   | Total |
|----------------------------|--------------------------------|----------|----|---------|----|---------|---|---------|---|-------|
|                            |                                | 1st yr.  |    | 2nd yr. |    | 3rd yr. |   | 4th yr. |   |       |
|                            |                                | M        | F  | M       | F  | M       | F | M       | F |       |
| Logan                      | 90                             | 5        | 11 | 5       | 6  | 2       | 3 | 1       | 0 | 33    |
| Cache Valley               | 57                             | 14       | 3  | 5       | 2  | 4       | 1 | 0       | 0 | 29    |
| Utah<br>(other than above) | 155                            | 31       | 25 | 18      | 10 | 3       | 2 | 0       | 0 | 89    |
| Idaho                      | 96                             | 29       | 8  | 6       | 4  | 1       | 1 | 1       | 0 | 50    |
| Other states               | 108                            | 27       | 10 | 20      | 2  | 4       | 1 | 0       | 0 | 64    |
| Other countries            | 13                             | 4        | 0  | 2       | 0  | 1       | 1 | 0       | 0 | 8     |
| TOTAL                      | 519                            | 110      | 57 | 56      | 24 | 15      | 9 | 2       | 0 | 273   |

Table 12. Percent of dropouts in relation to permanent residence and year of dropout

| Residence                  | Percent of superiors | Percent of students from each area who drop out |             |            |            |             |
|----------------------------|----------------------|---|-------------|------------|------------|-------------|
|                            |                      | 1st yr.   | 2nd yr.     | 3rd yr.    | 4th yr.    | Total       |
| Logan                      | 17.3                 | 17.8  | 12.2        | 5.6        | 1.1        | 36.7        |
| Cache Valley               | 11.0                 | 30.0  | 12.1        | 9.9        | 0.0        | 51.0        |
| Utah<br>(other than above) | 30.0                 | 36.0  | 18.0        | 3.2        | 0.0        | 57.2        |
| Idaho                      | 18.4                 | 38.6  | 10.4        | 2.1        | 1.0        | 52.1        |
| Other states               | 20.8                 | 34.4  | 20.4        | 4.6        | 0.0        | 59.4        |
| Other countries            | 2.5                  | 30.6  | 15.4        | 15.4       | 0.0        | 61.4        |
| <b>TOTAL</b>               | <b>100.0</b>         | <b>32.2</b>                                     | <b>15.4</b> | <b>4.6</b> | <b>0.4</b> | <b>52.6</b> |

These figures indicate that the former residence of the student bears a relationship to whether or not he completes his education. As might be expected, those who live closer to the college are much more likely to complete school than those who live farther away. A greater percentage of Logan students remain in college than any other group. Next high are Cache Valley students, then Idaho and Utah, then other states, and other nations. It is evident that as the distance from school increases so also does the dropout rate. It is probably among these more removed students that the greatest number who transfer to other schools is found.

Johnson used a different area classification (9). In determining the difference between local and non-local students he writes: "Local students were considered as all students from Utah, Idaho, Western Wyoming and Eastern Nevada." He found that 80 percent of the group he was studying were local students. In the present study it was found that 77 percent of the students were from Utah and Idaho, and if Eastern Nevada and Western Wyoming are included approximately 80 percent were from the local area as defined by Johnson. The percentage of local students as defined by Johnson is thus the same for the random group with which he was working as for the superior students of this study.

Johnson, however, found that there was a greater dropout rate among local students. Only 36 percent of the local students completed twelve quarters at Utah State University, whereas 48 percent of the non-local students did. In the present study, including only superior students, the trend is reversed. The out-of-state students have a greater dropout rate. Of the superior students from

Utah and Idaho, 49.5 percent graduated. The dropout rate increases with the distance of the student's permanent home from the university.

As this study represents only one-fifth of the total freshman classes, it may be assumed from the large number of Logan students included in the superior group that a very high percentage of Logan High School graduates remain in Logan to attend college.

Since over 63 percent of the superior students from Logan graduated from Utah State University, while less than 50 percent of any other group graduated, it appears that distance from college has some influence upon rate of dropout. It is also evident from the two tables on geographical distribution that the rate of dropout is directly proportional to distance from the school. In one case this generalization seems incorrect, because Utah students from outside Cache Valley have a greater dropout rate than do Idaho students. However, since Logan is almost on the southern border of Idaho and most of the Idaho students come from cities as close or closer than most Utah towns outside of Cache Valley, Idaho could well have the smaller rate of dropout without contradicting this observation.

Did superior students tend to stay in the schools in which they originally registered or to transfer to other schools within the college? If they transferred, from what and to what school did they transfer?

Table 13 is presented to show how many students registered in each school and graduated from that school with no change of major, the number who changed from the school registered in as freshmen, and the school to which they changed.

Table 13. The number of major changes made by superior students and the schools to which they changed

| School          | No change |    | One change |    | Two changes         |   |     |   |
|-----------------|-----------|----|------------|----|---------------------|---|-----|---|
|                 |           |    |            |    | 1st                 |   | 2nd |   |
|                 | M         | F  | M          | F  | M                   | F | M   | F |
| Agriculture     | 24        | 0  |            |    |                     |   |     |   |
| to Forestry     | .         | .  | 1          |    |                     |   |     |   |
| to Arts & Sci.  | .         | .  | 2          | 1  |                     |   |     |   |
| to Commerce     | .         | .  |            |    |                     |   |     |   |
| to Education    | .         | .  | 1          | .  | .                   | . |     | 1 |
| to Engineering  | .         | .  | 1          | .  | 1                   | . |     |   |
| Forestry        | 13        | 0  |            |    |                     |   |     |   |
| to Agriculture  | .         | .  | 4          |    |                     |   |     |   |
| to Arts & Sci.  | .         | .  | 8          |    |                     |   |     |   |
| to Commerce     | .         | .  | 3          |    |                     |   |     |   |
| to Education    | .         | .  |            |    |                     |   |     |   |
| to Engineering  | .         | .  | 1          |    |                     |   |     |   |
| Arts & Sciences | 33        | 7  |            |    |                     |   |     |   |
| to Agriculture  | .         | .  | 3          |    |                     |   |     |   |
| to Forestry     | .         | .  |            |    |                     |   |     |   |
| to Commerce     | .         | .  | 9          | .  | .                   | 1 |     |   |
| to Education    | .         | .  | 5          | 7  | .                   | . |     | 1 |
| to Engineering  | .         | .  |            |    |                     |   |     |   |
| to Home Econ.   | .         | .  |            | 4  |                     |   |     |   |
| Commerce        | 21        | 4  |            |    |                     |   |     |   |
| to Agriculture  | .         | .  |            |    |                     |   |     |   |
| to Forestry     | .         | .  |            |    |                     |   |     |   |
| to Arts & Sci.  | .         | .  |            | 1  |                     |   |     |   |
| to Education    | .         | .  | 1          | 4  |                     |   |     |   |
| to Engineering  | .         | .  |            |    |                     |   |     |   |
| to Home Econ.   | .         | .  |            |    |                     |   |     |   |
| Education       | 13        | 5  |            |    |                     |   |     |   |
| to Agriculture  | .         | .  |            |    |                     |   |     |   |
| to Forestry     | .         | .  |            |    |                     |   |     |   |
| to Arts & Sci.  | .         | .  | 1          | 2  | 1                   |   |     |   |
| to Engineering  | .         | .  | 1          |    |                     |   |     |   |
| to Home Econ.   | .         | .  |            | 1  |                     |   |     |   |
| to Commerce     | .         | .  |            | 1  | .                   | . |     | 1 |
| Engineering     | 39        | 0  |            |    |                     |   |     |   |
| to Agriculture  | .         | .  | 3          |    |                     |   |     |   |
| to Forestry     | .         | .  |            |    |                     |   |     |   |
| to Arts & Sci.  | .         | .  | 6          |    |                     |   |     |   |
| to Commerce     | .         | .  | 1          |    |                     |   |     |   |
| to Education    | .         | .  |            |    |                     |   |     |   |
| Home Economics  | 0         | 7  |            |    |                     |   |     |   |
| to Arts & Sci.  | .         | .  |            | 1  |                     |   |     |   |
| to Commerce     | .         | .  |            |    |                     |   |     |   |
| to Education    | .         | .  |            | 4  |                     |   |     |   |
| TOTAL           | 143       | 23 | 51         | 26 | 6 changes, 3 people |   |     |   |

On the data card kept for each superior student the number of changes he had made in his major during the four years was recorded. Only one change for each year was recorded for any one student in the study. The school in which the student registered each fall quarter was used to determine his status for that year. In order to analyze this information the cards were arranged according to the school in which the students registered as freshmen. Table 13 shows (1) the number of students who registered in each school and graduated from that school with no change of major, (2) the number who registered in each school as freshmen and then changed majors, and (3) the school to which they changed.

It was found that very few students changed majors more than once. It is possible that some changed several times each year, but since only one change per year was recorded on the data card, these additional changes were not included. The group falling under the heading "two changes" should therefore be considered to have made two or more changes. In instances where more than two changes were recorded, only the first and the last were recorded in Table 13. This table gives the school to which each student transferred, and from which he transferred. If he changed twice it shows the school to which he changed the first time and the school to which he changed the second.

Only three students changed majors more than once; one from Agriculture to Education to Engineering; one from Arts and Sciences to Engineering to Education; and one from Education to Arts and Sciences to Commerce.

Tables 14 and 15 include a further analysis of the holding power of each school. Table 14 shows the percentage of students who registered as freshmen in a particular school and did not change majors, the percentage who made one change and the percentage who made two.

Table 14. Graduated superior students who initially registered in each school with percentage from each school who changed majors

| School           | Percent<br>no change | Percent<br>one change | Percent<br>two changes |
|------------------|----------------------|-----------------------|------------------------|
| Commerce         | 80.7                 | 19.3                  | 0.0                    |
| Engineering      | 79.6                 | 20.4                  | 0.0                    |
| Agriculture      | 77.5                 | 19.3                  | 3.2                    |
| Education        | 72.0                 | 24.0                  | 4.0                    |
| Home Econ.       | 58.4                 | 41.7                  | 0.0                    |
| Arts & Sci.      | 56.6                 | 42.0                  | 1.4                    |
| Forestry         | 44.8                 | 55.2                  | 0.0                    |
| PERCENT OF TOTAL | 67.7                 | 31.1                  | 1.2                    |

This table may be read as follows: Of the superior students who initially registered in the School of Agriculture and then continued in college to graduation, 77.5 percent remained in the School of Agriculture. Of the 22.5 percent who changed from the School of Agriculture to some other school and then graduated, 19.3 percent made one change and 3.2 percent made two or more changes.

From the data reported in Table 14, the superior students who initially registered in the Schools of Agriculture, Commerce, Education and Engineering tended to change majors significantly less

than the students of the other schools of the college. Over 70 percent of those choosing these fields of study continued without any change. Over 80 percent of those in Commerce made no change. According to this sample of students, Commerce and Engineering were more effective in retaining superior students who eventually graduated than were the other five schools.

Into which schools did the graduating superior students transfer?

Table 15 presents a comparison of the percentage of graduates who began college in each school with the percentage who graduated in each school.

Table 15. Percentage of superior students which initially registered in each school and the percentage which graduated in each

| School      | Percent registered<br>in each sch. as freshmen | Percent graduated<br>from each school |
|-------------|--|---------------------------------------|
| Arts & Sci. | 28.4   | 25.2                                  |
| Engineering | 19.8   | 17.1                                  |
| Commerce    | 12.6   | 16.2                                  |
| Agriculture | 12.6   | 13.9                                  |
| Forestry    | 11.7   | 5.7                                   |
| Education   | 10.1   | 17.1                                  |
| Home Econ.  | 4.8  | 4.8                                   |

Table 15 is to be read as follows: Of the superior students who were graduated, 12.6 percent initially registered in the School of Agriculture and 13.9 percent were graduated in Agriculture.

Which schools increased in students from the entering superior group and which decreased? Agriculture, Commerce, Education, and

Home Economics acquired more of this superior group from registration to graduation. Forestry, Arts and Sciences, and Engineering lost more than they gained. The greatest difference in percentage beginning in a school and the percentage graduating from that school is found in Forestry and Education. Forestry lost over 50 percent of the superior students in its entering group, while Education increased in number about 60 percent. One reason is probably that Forestry and Engineering have a rather set curriculum and deviation from it is difficult. People transferring into these fields almost have to begin school over again.

Education offers a wide range of study with a diversified curriculum. This is probably the main reason that almost 60 percent of the superior students who graduated with a degree in Education changed from some other school. Education makes it possible to specialize in one's chosen department in a school other than Education while preparing to teach that particular subject. Usually not too great a change in curriculum is involved when a student changes into the School of Education.

Since the freshmen of 1947-48 and 1948-49 would normally complete their four years and graduate in 1951 and 1952 respectively, a comparison was made between the graduated superior students and the graduation classes of 1951 and 1952. From the graduation lists for these two years it was found that a total of 1,748 students were graduated. The number graduated from each school of the college and the percentage of the total were calculated. This information about the total membership of the two classes is compared with similar information about the superior group in Table 16.



Table 16. The number and percentage of graduated superior students and the number and percentage of 1951 and 1952 graduates in each school

| School       | Superior students<br>who graduated |              | Total graduates<br>of 1951 and 1952 |              |
|--------------|------------------------------------|--------------|-------------------------------------|--------------|
|              | No.                                | Percent      | No.                                 | Percent      |
| Arts & Sci.  | 62                                 | 25.2         | 240                                 | 13.8         |
| Education    | 42                                 | 17.1         | 491                                 | 28.2         |
| Engineering  | 42                                 | 17.1         | 287                                 | 16.4         |
| Commerce     | 40                                 | 16.2         | 267                                 | 15.2         |
| Agriculture  | 34                                 | 13.9         | 277                                 | 15.8         |
| Forestry     | 14                                 | 5.7          | 100                                 | 5.7          |
| Home Econ.   | 12                                 | 4.8          | 86                                  | 4.9          |
| <b>TOTAL</b> | <b>246</b>                         | <b>100.0</b> | <b>1,748</b>                        | <b>100.0</b> |

It should be taken into consideration that this group of 1,748 graduates includes an unknown number of transfer students from other colleges and universities, rather than including only those who graduated of the original freshman classes from which the superior group was chosen.

It is evident from table 16 that there is a marked difference in the Schools of Arts and Sciences and Education. This comparison shows that even though the School of Arts and Sciences produced only about one-seventh of the total graduates, over one-fourth of the superior students in the entering freshman class of four years previous who graduated were Arts and Science majors. At the same time, 28.2 percent of all the graduates of 1951 and 1952 were Education majors, and only 17.1 percent of the superior students in the entering freshman classes of four years previous who graduated were in the School of Education. The other schools of the college

graduated about the same percentage of overall class membership as they did of the superior students.

In which schools did the superior students graduate? How did the percentage of superior students graduating from each school differ from the percentage of the total graduates from each school? Also, how did the percentage of superior freshmen differ from the percentage of superior graduates, and the total freshmen differ from the total graduates in the percentage registered in each school of the college? Table 17 was prepared to present this information.

Table 17. Comparison of superior students with total freshmen of 1947-48 and 1948-49 and with total graduates of 1951 and 1952.

| School         | School registered in |                        | School graduated from |                         |
|----------------|----------------------|------------------------|-----------------------|-------------------------|
|                | % of total freshmen  | % of superior freshmen | % of total graduates  | % of superior graduates |
| Arts & Sci.    | 23.4                 | 29.2                   | 13.8                  | 25.2                    |
| Agriculture    | 17.4                 | 11.6                   | 13.9                  | 13.9                    |
| Engineering    | 16.7                 | 17.2                   | 16.4                  | 17.1                    |
| Commerce       | 14.8                 | 14.2                   | 15.2                  | 16.2                    |
| Education      | 12.3                 | 10.0                   | 28.2                  | 17.1                    |
| Forestry       | 8.4                  | 10.8                   | 5.7                   | 5.7                     |
| Home Economics | 7.2                  | 7.0                    | 4.9                   | 4.8                     |

It was found that the only pronounced difference is again between Arts and Sciences and Education. In the freshman classes of 1947-48 and 1948-49 it is seen that 23.4 percent of the students registered in the School of Arts and Sciences. Of the superior group, as freshmen, 29.2 percent registered in that school. Of the total

graduating classes, 13.8 percent were in Arts and Sciences, and of the superior group who graduated, 25.2 percent were in that school.

In the total freshman classes, only 12.3 percent registered in the School of Education and only 10 percent of the superior group chose that field. In the total graduating classes 28.2 percent were education majors, and of the superiors who graduated there were 17.1 percent in Education.

These figures indicate that the School of Arts and Sciences lost both superior and average students to other schools at a greater rate than it enrolled those changing majors from other fields. However, it lost the average students at a much greater rate than it lost the superior students. On the other hand, the School of Education gained both average and superior students who changed majors from other fields much more readily than it lost students by change of major. However, Education gained many more average students percentage-wise than it did superior students.

The reasons why students change major are undetermined. Since these are superior students, it is unreasonable to believe that many of them changed major because of inability to succeed. Rather, there may have been undesirable phases or limitations in certain areas of their studies that caused the students to seek new majors.

Since Forestry, Arts and Sciences, and Home Economics are the schools from which these superior students most readily transferred, it would be wise for officials in these schools to investigate the causes, or find those areas in each school's curriculum where students lose interest. Of course many factors not included in this study enter in, such as job opportunities after graduation, personal satisfaction, monetary compensation, security, etc.

How did the superior students rank academically in their graduating class?

The grade point averages of the members of the superior group were compared with the grade point averages of the classes with which they were graduated. This comparison was made to determine whether the students who were selected as superior freshmen were academically successful during their four years of college. Table 18 shows the number and percentage of superior freshmen who finished in each quarter of their graduating class.

Table 18. Number and percentage of superior freshmen students in each quarter of their graduating class, according to grade point average

| Quartile rank | Male | Female | Total | Percent |
|---------------|------|--------|-------|---------|
| 1st           | 81   | 34     | 115   | 47.0    |
| 2nd           | 50   | 15     | 65    | 26.2    |
| 3rd           | 36   | 1      | 37    | 15.0    |
| 4th           | 29   | 0      | 29    | 11.8    |

It should be noted that this group's entrance test scores were compared with those of all freshmen, about 60 percent of whom dropped out of school before graduation. The quartile rating is compared with only those students who graduated, who are probably also a superior group. For this reason, the results are not as might be expected. The top 20 percent of the class is not now being compared to the whole freshman class, but to the 40 percent of the class who graduated. Therefore, it might be said that the top 20 percent who began are, at graduation, being compared to a very

capable group to discover how well they maintained their superiority. Since 47 percent of them were in the upper quarter of their graduating class, and about 75 percent were in the upper half, it would indicate that the guidance tests were reasonably reliable predictors of college success. The fact that 25 percent of the students were in the lower half of the graduating class according to college grades might be explained to some degree by the difference in academic performance on tests and by the effect of personality and interest upon college grades. From studying table 18 it is evident that the group selected for this study were definitely superior students, and did, to a high degree, maintain their superiority through college.

In what years did the members of this superior group graduate from Utah State University?

Table 19. The year of graduation of the 1947 and 1948 superior freshmen

| Year of graduation | 1947-48 freshmen | Percent of grads | 1948-49 freshmen | Percent of grads | Total |         |
|--------------------|------------------|------------------|------------------|------------------|-------|---------|
|                    |                  |                  |                  |                  | No.   | Percent |
| 1950               | 11               | 7.5              | 0                | 0.0              | 11    | 4.5     |
| 1951               | 79               | 53.6             | 8                | 8.1              | 87    | 35.5    |
| 1952               | 18               | 12.2             | 53               | 53.5             | 71    | 28.8    |
| 1953               | 14               | 9.6              | 15               | 15.1             | 29    | 11.8    |
| 1954               | 15               | 10.3             | 12               | 12.1             | 27    | 10.9    |
| 1955               | 2                | 1.4              | 7                | 7.1              | 9     | 3.7     |
| 1956               | 4                | 2.7              | 2                | 2.0              | 6     | 2.4     |
| 1957               | 4                | 2.7              | 2                | 2.0              | 6     | 2.4     |
| TOTAL              | 147              | 100.0            | 99               | 100.0            | 246   | 100.0   |

This table shows the number of students and the percentage of graduates from this superior group who graduated each year beginning with the graduation in the spring of 1950 and ending with the graduation in the spring of 1957. It was possible for eleven who started in 1947 to graduate in 1950 and eight who started in 1948 to graduate in 1951 because some of them had one or two quarters' credit from other colleges and some of them continued school through the summer months. The study shows the number and percentage of each class graduating each year from 1950 through 1957.

Nine years after 1947 freshmen first registered in college, and eight years after the 1948 freshmen began, six members of the superior group were just graduating. Possible interruptions which have been previously mentioned will explain most of the late graduations, but it is nevertheless interesting to note that only 53 percent of those in the superior group who graduated did so in the normal year for their class.

## FINDINGS AND CONCLUSIONS

It was found that only 19.14 percent of the freshmen entering Utah State University in 1947 and 1948 had a percentile rating of sixty-seven or above in a majority of their entrance tests. Also, according to the results of these tests, the overall ratio of superior students was equal between male and female students, indicating that neither sex was superior to the other.

In percentile points, the mean of the superior group in terms of range from highest to lowest scores made on the different entrance tests was 25.9. The  $Q_1$  was 13.9 and the  $Q_3$  was 43.1.

There is not sufficient evidence presented in this study to formulate a conclusion as to the difference in the choice of major fields of study between superior and average freshman students. There appears to be very little difference from the evidence presented.

Of the students who initially registered in Engineering, over 93 percent ranked high in mathematics on the guidance tests. Of those who enrolled in Agriculture and Forestry a large percentage did well on the natural science test. Over 94 percent of the Home Economics majors ranked high in English. This indicates that particular test scores or combinations of scores did tend to predict the school in which the superior students registered.

Of the superior group selected, 52.6 percent dropped out of school before graduation. Although the dropout rate for superior students was 10 percent less than for the average students of this

school who were included in Johnson's study (9), it was about equal to the national average for all students (11).

Superior students from outside the local area had a higher percentage of dropouts than local students. The percentage of dropouts seemed to increase as the distance of permanent residence from the college increased.

It was found that 67.7 percent of the graduates of the superior group did not change their major field of study during their four years at Utah State University. Only 1.2 percent changed majors more than once.

The hypothesis that some schools attract more than their proportional share of superior students is not sufficiently supported by this study to warrant any well-founded conclusions. As freshmen, the ratio of superior students to average was about the same for each school of the college. During the four years required for graduation the School of Arts and Sciences lost a larger percentage of its average students than other schools, and retained a larger percentage of its superior students. The School of Education proportionately gained more students by change of major than any other school of the college. A greater percentage of the total group of students changed to Education than did superior students. The other five schools of the college retained approximately the same proportion of superior students as they did of the total group.

It may be concluded from the data presented in this study, that a large percentage of Utah State University students will have two or three-year interruptions in their college careers. Only 53 percent of the group studied who graduated did so at the end of four years. Six of the 1947-48 and 1948-49 freshmen graduated in June of 1957.



### SOME INFERENCES AND IMPLICATIONS

During the period of time covered by this study the enrollment at Utah State University appears to have been abnormal. The first year with which the study is concerned, 1947, was a year of very high enrollment. From 1947 to 1952 there was a sharp decrease in total number of students. The reason for the decrease may be partially explained by the large number of veterans involved. The outbreak of the Korean War also came during this period. From 1952 to 1957 there was a sharp increase in total enrollment. What effect this abnormal enrollment pattern had upon the findings of this study is undetermined. It may explain to some degree the fact that about 10 percent more 1948 superior freshmen dropped out of school than did the 1947 superior freshmen.

An assumption made by many people is that superior students should remain in college until graduation. This generalization may not be altogether true. It is possible that many of those students who dropped out of school did so because they felt that they had received from their college experience all that was necessary in preparation for their chosen place in society. Since it appears from this study that about 50 percent of the superior students drop out of school, it would be valuable to the student, to the state, and to the nation for a study to be made in an effort to discover to what degree the college has satisfied the needs of those who discontinue school before graduation.

A detailed study should be made of students who transfer from junior colleges and other colleges and universities into Utah State University. Questions which arise from this present study in relation to transfer students are: What percentage of those who graduate from Utah State University are transfers from other schools? What is their academic standing by grade point average at graduation? What percentage of the transfer students graduate in each of the colleges of the university? The answers to these questions in conjunction with the data reported in this study would present a more realistic estimation of the "drawing power" of the university and its several colleges.

Because there are no definite standards with which to compare the findings of this thesis, it is impossible to establish the relative "holding power" of the university with reference to superior students. However, since about 50 percent of the students who were followed in this study discontinued their education before they were graduated, it appears that further study would be advisable. It is suggested that these studies be made of the individual colleges of the university to determine why superior students drop out and to formulate methods of encouraging more of them to continue with their education.

## APPENDIX I

Below is a replica of the card kept for each superior student,  
on which data for this study were recorded.

|                    |                  |                   |                 |
|--------------------|------------------|-------------------|-----------------|
| Name _____         | Age _____        | Sex _____         | Qt. & Yr. _____ |
| Address _____      |                  | High School _____ |                 |
| Test _____         | Percentile _____ | Date taken _____  | Dept. _____     |
| USAFI              |                  |                   |                 |
| Eng.               |                  |                   | Fr. _____       |
| USAFI              |                  |                   |                 |
| Nat. Sci.          |                  |                   | Soph. _____     |
| USAC               |                  |                   |                 |
| Math               |                  |                   | Jr. _____       |
| Other              |                  |                   | Sr. _____       |
| B. S. School _____ |                  | Dept. _____       | Q Rank _____    |
| M. S. School _____ |                  | Dept. _____       | Q Rank _____    |

## LITERATURE CITED

1. American Council on Education. "Report Issued on Student Dropout" Higher Education and National Affairs. Vol. VII No. 13. April 15, 1958.
2. Blaser, LeRoy Alfred. A Study of Certain Factors Relating to Enrollment and Retention of Freshman Students at Utah State Agricultural College. (Doctoral Dissertation) Berkeley, California: University of California, 1957.
3. Berdie, Ralph and Sutter, Nancy. "Predicting Success of Engineering Students" Journal of Educational Psychology. 41:184, 1950.
4. Crawford, A. B. and Burnham, P. S. "Trial at Yale University of the U. S. A. F. I. General Developmental Tests" Educational and Psychological Measurements. 4:261-270, 1944.
5. Dyer, H. S. "Evidence on the Validity of the Armed Forces Institute Tests of General Educational Development (college level)" Educational and Psychological Measurements. 5:321-334. 1945.
6. Egbert, R. L. An Evaluation of the Guidance Tests Given at U. S. A. C. (M. S. Thesis) Logan, Utah: Utah State Agricultural College, 1948.
7. Haas, Leonard. "Four Year Studies at Eau Clair State Teacher's College" Journal of Educational Research. 42:54, Sept. 1948.
8. Johnson, Granville B., Jr. "A Proposed Technique for the Analysis of Dropouts at a State College" Journal of Educational Research. 47:381. Jan. 1954
9. Johnson, Walter C. High School Grades and College Aptitude Tests as Indices to College Achievement and Continuation at Utah State Agricultural College. (M. S. Thesis) Logan, Utah: Utah State Agricultural College, 1951.
10. O Bray, A. Vernon. Registration Trends at the Utah State Agricultural College. (M. S. Thesis) Logan, Utah: Utah State Agricultural College, 1940.
11. Shuman, R. Baird. "College Dropouts: An Overview" Journal of Educational Sociology. 29:347-350. April, 1956.

12. Smith, Francis F. "The Use of Previous Record in Estimating College Success" Journal of Experimental Education. 16:167. 1946.
13. Utah State Agricultural College catalogs for the years 1947 to 1956.