

**THE RELATIONSHIP OF HIGH SCHOOL GRADE
POINT AVERAGE, HIGH SCHOOL CLASS RANK,
ACT TEST SCORES, AND I.Q. TEST SCORES TO
ACADEMIC SUCCESS OF FRESHMEN IN COLLEGE**

BY

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SCORES, AND I.Q. TEST SCORES TO ACADEMIC
SUCCESS OF FRESHMEN IN COLLEGE

A Research Paper
Presented to
the Graduate Council of
Austin Peay State University

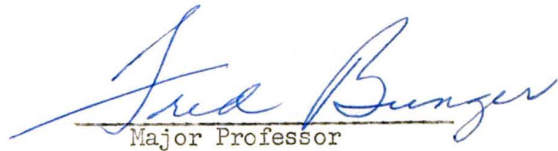
In Partial Fulfillment
of the Requirements for the Degree
Master of Arts
in Education

by
Benjamin Joseph Daves R-63

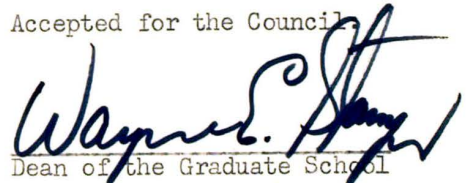
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To the Graduate Council:

I am submitting herewith a Research Paper written by Benjamin Joseph Daves entitled "The Relationship of High School Grade Point Average, High School Class Rank, ACT Test Scores, and I.Q. Test Scores to Academic Success of Freshmen in College." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Arts in Education, with majors in Health and Physical Education and Administration and Supervision.


Major Professor

Accepted for the Council


Dean of the Graduate School

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CHAPTER I

NATURE OF THE STUDY

In our modern technological society, higher education has become increasingly necessary. To meet the needs of those students planning to attend college, administrators, guidance counselors, and faculty members need to take a serious look at high school records to determine their value in predicting success in college. A method should then be devised to use this information in assisting students as they continue their education.

The importance of the student's obtaining a realistic understanding of college requirements must be accepted by the reader before this study will be of value to him.

I. THE PROBLEM

Statement of the problem. The purpose of this study was to relate the scholastic achievement of certain freshmen at Austin Peay State University with their high school class rank, ACT scores, high school grade point averages, and I.Q. scores.

Importance of the study. The importance of counseling high school students for a future that will be rewarding to them and their society must be recognized by educators. Educators must determine a basis for counseling their students. This study was concerned with drawing some conclusions that could provide this basis for counseling students who aspire to attain a college education.

It was felt the study would provide criteria for considering the relationship between certain variables--grade point average, ACT scores, I.Q. score, and class rank--and college success.

Delimitations of the study. The subjects used in the sample were ninety-nine graduates of Clarksville High School, Clarksville, Tennessee, forty-nine male and fifty female, of the 1967 class of 480 students. These students became freshmen at Austin Peay State University, Clarksville, Tennessee, during the 1967-68 school year.

Limitations of the study. The number of subjects in the sample was limited to ninety-nine by the following criteria:

1. Those graduates who had taken the Stanford-Binet Intelligence Scale during their junior year in high school.
2. Those students who had an ACT score recorded on their permanent record card.
3. Those freshmen who had completed a minimum of thirty-six quarter hours of college courses.

The sample was limited to students of the freshman class of Austin Peay State University in 1967-1968. Austin Peay State University is a regional state university primarily concerned with meeting the educational needs of the people of its surrounding area.

No method was devised to determine the effect of motivation on the sample's degree of achievement at the high school or university levels.

It was determined that sociability could not be used as a valid

factor because there was no method of distinguishing voluntary and compulsory membership in organizations and because of a lack of consistency in recording participation in activities.

Assumptions. The author assumed the recorded data taken from the permanent record cards of the students were valid and correctly recorded by the high school administrative staff.

It was assumed that the ninety-nine students selected for the study were a valid sample of the Clarksville High School graduates who attended Austin Peay State University.

Perhaps the primary assumption of this study was that the reader would be able to use the results of this study to form a basis for developing a systematic method of providing high school students with pre-university counseling which would aid in their succeeding in a college or university.

II. DEFINITIONS OF TERMS USED

Achievement. Achievement was that which had been accomplished through educational performance measured in the form of grade point average of his cumulative grades during the student's freshman year of college. Achievement was further delineated into levels for the purpose of this study. They were as follows:

1. Level I: a grade point average within the 3.5 to 4.0 range on a four point system.
2. Level II: a grade point average within the 3.0 to 3.4 range.

3. Level III: a grade point average within the 2.5 to 2.9 range.
4. Level IV: a grade point average within the 2.0 to 2.4 range.
5. Level V: a grade point average of 1.9 and below.

American College Test (ACT). A national college admissions test that is generally considered a valid measurement of a student's academic potential for college.

Class rank. The numerical rating of students in relation to their peers, based on grade point average.

Grade point average (GPA). The numerical equivalent of a student's cumulative letter grades on the high school and university levels. The grades were assigned the following weights: A=4; B=3; C=2; D=1; and, F=0.

Intelligence quotient (I.Q.). The numerical measurement that indicated the student's intelligence level and which was recorded on the student's permanent records. In each case, the scores were a result of the Stanford-Binet Intelligence Scale administered to the subjects while they were juniors, 1966-67.

III. METHOD OF PROCEDURE

Method of collection. The data used in this study were obtained from Clarksville High School, Clarksville, Tennessee. High school grade point average, class rank, ACT test results and I.Q. scores were taken

from the permanent record cards of the 1967 graduating class. The college grade point averages were secured from student grade reports which had been sent to Clarksville High School.

Each college grade report had the number of hours attempted, hours completed, and a cumulative grade point average. Only those students who had completed thirty-six quarter hours at Austin Peay State University in 1967-68 were included in this study.

Treatment of the data. The students were divided into five levels determined by their cumulative grade point average obtained during their freshman year in college. For each of the levels, the range, median, and mean were calculated for the four variables (ACT scores, GPA, I.Q. and class rank) studied.

Following the presentation of the data in table form, a brief discussion of relationships between college GPA and the high school variables ensued.

IV. ORGANIZATION OF THE STUDY

The first chapter was designed to introduce the reader to the nature of the study, the problem and its importance, delimitations, limitations, assumptions, and the definitions of terms used. The second chapter was concerned with a comprehensive discussion of the pertinent literature related to the problem. Chapter III was a presentation and analysis of the data. The summary and tentative conclusions which resulted from the study were discussed in Chapter IV.

CHAPTER II

REVIEW OF RELATED LITERATURE

I. INTRODUCTION

College achievement as related to high school grade point average, class rank, I.Q. scores, and ACT test scores was the subject of this study. The most recent literature concerning these variables was organized in this chapter under the topic headings Achievement and High School Grade Point Average, Achievement and Class Rank, Achievement and I.Q. Test Results, and Achievement and American College Testing Program Scores.

II. ACHIEVEMENT AND HIGH SCHOOL GRADE POINT AVERAGE

Richards, Holland, and Lutz studied the "Prediction of Student Accomplishment in College" in an attempt to determine the effect of social success in high school on college achievement. The most notable result concerning academic criteria was that "...the most consistently high predictor is high school grades...." However, the study also stated that a method using a combination of high school grades and ACT test scores is an even better source of prediction.¹

In his book, College Student Profiles, concerning the American

¹J. M. Richards, Jr., John L. Holland, and Sandra W. Lutz, "Prediction of Student Accomplishment in College," Journal of Educational Psychology, 58:343-355, December, 1967.

College Testing Program, Munday points out the high correlation between ACT scores and high school and college achievement. The use of GPA to determine achievement in high school and college showed that the official writer for the American College Testing Program recognized the significance of high school grades as a valid predictor.²

Holland and Nichols found in a study concerning academic and extra-curricular achievement in college "that achievement in high school is the best predictor of college success, or past performance predicts future performance." The study further concluded that their results revealed that they can predict achievement with the best combinations of a variety of academic and sociological tests better than the variety of more elaborate and expensive predictors.³

Austin Peay State University established as one of its criteria for admission during the fall quarter a minimum grade point average of 2.25 (4 point range), or its equivalent, for all students. The administration certainly felt GPA is a factor in predicting achievement.⁴

²Leo A. Munday, College Student Profiles (Iowa City, Iowa: The American College Testing Program, Inc., 1965), pp. 2-6.

³J. L. Holland and R. C. Nichols, "Prediction of Academic and Extracurricular Achievement," Journal of Educational Psychology, 55:55-65, February, 1964.

⁴Bulletin of Austin Peay State University, Vol. 38, No. 1 (April, 1968), p. 29.

III. ACHIEVEMENT AND CLASS RANK

Humphreys studied the relationship between class rank and ACT test results as predictors of achievement at the University of Illinois. The study concluded that class rank was a better predictor of success during the freshman year in college. However, the ACT test was the best predictor of success as the students continued through eight semesters of college.⁵

The Austin Peay State University Bulletin states that "admission will not usually be granted to an out-of-state applicant unless such applicant ranks in the upper one-half of his class...." Thus class rank is a factor to be faced to gain acceptance, and consequently, failure or success.⁶

IV. ACHIEVEMENT AND I.Q. TEST RESULTS

Cicirelli studied the "Form of the Relationship Between Creativity, I.Q., and Academic Achievement" among younger students than those for which this study is designed; however, the results are significant for this study. Although he found little correlation between creativity and intelligence, Cicirelli stated that achievement in language and mathematics corresponded with I.Q. scores.

There is a definite relation between achievement potential and

⁵L. G. Humphreys, "Fleeting Nature of the Prediction of College Academic Success," Journal of Educational Psychology, 59:375-380, October, 1968.

⁶Bulletin of Austin Peay State University, loc. cit.

achievement, but such factors as family structure, cultural environment, and teaching methods may affect achievement, states Cicirelli.⁷

V. ACHIEVEMENT AND ACT TEST SCORES

Munday studied the reliability of ACT test results and high school GPA as predictors of college grades. The study concluded that both ACT scores and high school grades are valid predictors. The study also found that by combining ACT scores and GPA, the validity in predicting academic potential is increased.⁸

Funches, in "Correlations Between Secondary School Transcript Average and Grade Point Averages and Between ACT scores and Grade Point Averages of Freshmen at Jackson State College," found that there was a positive correlation between the ACT scores and high school transcript averages and first term grades on the freshman level. The degree of correlation was much higher and considered more reliable using the ACT scores, however.⁹

An ACT score of fifteen (in-state applicants) or seventeen (out-of-state applicants) is a part of the requirements for admission to

⁷Victor G. Cicirelli, "Form of Relationship Between Creativity, I.Q., and Academic Achievement," Journal of Educational Psychology, 56:303-308, June, 1965.

⁸Leo Munday, "Predicting College Grades Using ACT Data," Educational and Psychological Measurement, 27:401-406, Summer, 1967.

⁹DeLars Funches, "Correlations Between Secondary Transcript Averages, and Grade Point Averages and Between ACT Scores and Grade Point Averages of Freshmen at Jackson State College," College and University, 43:52-54, Fall, 1967.

Austin Peay State University. For the in-state applicant, this is in lieu of meeting a minimum grade point average requirement designated by the institution.¹⁰

VI. SUMMARY

This review of the related literature may best be summarized by citing a study conducted by Plapp, Psathas, and Caputo. In this study concerning predicting the performance of nursing students during their first year, they investigated the reliability of intelligence test results, a scholastic aptitude test (ACT and SAT), high school rank, and a self rating of high school performance. The results of the study showed that "...there was no significant advantage to using combined predictors, and that no individual predictor has a general superiority over any other."¹¹

There is a definite lack of agreement as to the best method of predicting success expressed in the studies reviewed. However, the acceptance of the ACT test seems to be recognized, as well as high school GPA, as the most valid methods of prediction.

¹⁰Bulletin of Austin Peay State University, loc. cit.

¹¹Jon M. Plapp, George Psathas, and David V. Caputo, "Intellective Predictors of Success," Educational and Psychological Measurement, 25:565-577, Summer, 1965.

CHAPTER III

PRESENTATION AND ANALYSIS OF THE DATA

I. INTRODUCTION

The purpose of this chapter was to present the data concerning certain characteristics of selected high school students in relation to their academic achievement in college. In accordance with the delimitations of this study, the subjects were ninety-nine graduates, forty-nine male and fifty female, of a class of 480 from Clarksville High School, Clarksville, Tennessee, in 1967. All of the students involved in this study attended Austin Peay State University as freshmen in the school year, 1967-68, and completed at least thirty-six quarter hours of study.

The students were distributed into five levels of academic achievement based on grade point average in college. This chapter was designed to present these levels and discuss the relationships with (1) GPA attained in high school, (2) class rank in high school graduating class, (3) ACT scores obtained during senior year in high school, and, (4) I.Q. scores recorded during their junior year in high school.

II. LEVEL I

The highest official honor for academic achievement at Austin Peay State University is the "Dean's List."¹² Six of the ten students in

¹²Bulletin of Austin Peay State University, op. cit., p. 34.

Level I met the grade point requirements for this honor. It can be seen from Table I that the mean (3.7) and median (3.8) college GPA scores, ranging from 3.5 to 3.9, were above that requirement (3.65).

TABLE I

COLLEGE GPA OF 3.5-4.0 AND HIGH SCHOOL CHARACTERISTICS (LEVEL I)

	COLLEGE GPA	HIGH SCHOOL GPA	CLASS RANK	ACT SCORE	I.Q. SCORE
<u>COMBINED (10 STUDENTS)</u>					
RANGE	3.5-3.9	3.0-3.9	4-83	18-28	105-131
MEAN	3.7	3.6	27.5	23.5	119.9
MEDIAN	3.8	3.5	15.5	23	120
<u>MALES (4 STUDENTS)</u>					
RANGE	3.5-3.8	3.0-3.8	14-83	20-26	111-129
MEAN	3.7	3.4	49	23	117.5
MEDIAN	3.7	3.3	49.5	23	115
<u>FEMALES (6 STUDENTS)</u>					
RANGE	3.5-3.9	3.5-3.9	4-29	18-28	105-131
MEAN	3.7	3.8	13	23.8	121.5
MEDIAN	3.8	3.8	13	24	125

High school GPA ranged from 3.0 to 3.9, with a mean of 3.6 and a median of 3.5. However, the GPA for males at the high school level (with a mean of 3.4 and median of 3.3) was significantly lower than at the college level, while the female GPA's were practically identical at the high school and the college levels.

Class rank in high school ranged from fourth to eighty-third in the class, with a mean of twenty-seven and one-half, and a median of fifteen and one-half. The reason for such a wide range between mean and

median was due to three class ranks of eighty-three, fifty-nine, and forty. These three class ranks were characteristic of males (mean of forty-nine and median of forty-nine and one-half), while the females had a mean and median class rank of thirteen, with no rank above twenty-nine. The student whose class rank was eighty-third was in the upper seventeen percent of his class.

ACT scores ranged from eighteen to twenty-eight, with a mean of twenty-three and one-half and a median of twenty-three. The females' means and medians were from eight-tenths of one point to one point higher respectively than males'.

The I.Q. scores for Level I ranged from 105 to 131 with a mean of 119.9 and a median of 120. The mean scores for males and females varied by four points (117.5 and 121.5, respectively), and the median scores (115 and 125 respectively) varied by ten points (115 and 125 respectively).

The overall distribution of the I.Q. scores, as seen in Appendicies A, revealed that one score fell in the 100 to 109 range, four in the 120 to 129 range, and one in the 130 to 139 range. Further investigation indicated the distribution was skewed toward the upper limits of the range, with only one score below 110.

III. LEVEL II

Level II, shown in Table II, was concerned with the characteristics of the high school students who maintained a college GPA within the 3.0 to 3.4 range. Their college GPA range had a mean and median

of 3.2. The means and medians for the male and female divisions at the college level were 3.2 in each case.

TABLE II

COLLEGE GPA OF 3.0-3.4 AND HIGH SCHOOL CHARACTERISTICS (LEVEL II)

	COLLEGE GPA	HIGH SCHOOL GPA	CLASS RANK	ACT SCORE	I.Q. SCORE
<u>COMBINED (12 STUDENTS)</u>					
RANGE	3.0-3.4	1.9-3.9	10-355	16-25	103-128
MEAN	3.2	2.8	139.9	21.4	117.9
MEDIAN	3.2	2.8	147	21.5	118
<u>MALES (7 STUDENTS)</u>					
RANGE	3.0-3.4	1.9-3.7	19-355	16-25	103-128
MEAN	3.2	2.7	161	22.3	118.9
MEDIAN	3.2	2.7	146	23	121
<u>FEMALES (5 STUDENTS)</u>					
RANGE	3.1-3.4	2.5-3.9	10-184	18-22	107-126
MEAN	3.2	3.0	110.4	20.2	116.6
MEDIAN	3.2	2.8	128	21	116

As the college and high school GPA ranges, means, and medians were compared, a wide variation was noted. The range at the high school level was 1.9 to 3.9 (with a mean and median of 2.8 overall), 1.9 to 3.7 at the male level (with a mean and median of 2.7), and ranged from 2.5 to 3.9 (with a mean 3.0 and a median of 2.8) at the female level. Of the twelve subjects listed at Level II (seen in Appendicies A), three had a high school GPA of 3.0.

High school class ranks for Level II students ranged from tenth to 355 in their class, with a mean of 139.9 and a median of 147. The range

of difference in mean and median was primarily due to three low scores (which were ten, nineteen, and sixty-three) and two high scores (201 and 355).

The male class rank mean (161) was much higher than the female mean (110.4) because of the location of one low and both higher class ranks within the range. The median rankings showed this also, but with a difference of much less. Nine of the twelve class ranks were in the upper one-third or higher of their high school class.

The ACT and I.Q. variables showed some unusual circumstances. Of the variables concerning ACT and I.Q. scores, males had higher means and medians than the females. Six of the seven males had equal or higher ACT test results than the highest female score (see Appendicies A).

I.Q. scores fell within a range of 103 to 128 (with a mean of 117.9 and a median of 118). Nine of the I.Q. scores were above 116, the female median; six of the nine were males. This attributed to the higher mean and median I.Q. scores for males.

IV. LEVEL III

Level III, as seen in Table III, was concerned with the high school characteristics of students who had established a college GPA for the range 2.5 to 2.9. The college GPA for Level III had mean and median scores of 2.7. The college mean (2.7) and median (2.8) scores for males were slightly higher than for females, who had mean and median GPA's of 2.6.

The mean and median high school GPA's of the combined, males, and females categories were higher than college GPA's in every case. The

combined range of high school GPA was 1.9 to 3.9, with a mean and median of 2.9. Seventeen of the twenty-five subjects had a high school GPA higher than their college GPA. The male mean, and the female mean and median, of high school GPA's were 2.9, while the male median was 3.1. This indicates a consistency of from two-tenths to three-tenths of one point higher GPA at the high school level than on the college level.

TABLE III

COLLEGE GPA OF 2.5-2.9 AND HIGH SCHOOL CHARACTERISTICS (LEVEL III)

	COLLEGE GPA	HIGH SCHOOL GPA	CLASS RANK	ACT SCORE	I.Q. SCORE
<u>COMBINED (25 STUDENTS)</u>					
RANGE	2.5-2.9	1.9-3.9	9-361	12-29	86-137
MEAN	2.7	2.9	120	20.4	115.9
MEDIAN	2.7	2.9	95	20	117
<u>MALES (12 STUDENTS)</u>					
RANGE	2.5-2.9	1.9-3.9	9-361	13-29	86-137
MEAN	2.7	2.9	117.5	22.3	115.7
MEDIAN	2.8	3.1	84	22	118
<u>FEMALES (6 STUDENTS)</u>					
RANGE	2.5-2.8	2.0-3.6	20-317	12-27	98-137
MEAN	2.6	2.9	122.3	18.7	116.1
MEDIAN	2.6	2.9	104	18	117

Class rank ranged from ninth to 361 (with a mean of 120 and a median of ninety-five). Mean, in this case, seemed to be a better method of calculation because fifteen of the twenty-five students, eight male and seven female, ranked in the upper fourth of their class. As is seen in Appendicies A, mean and median class ranks were lower for males

than for females due to the larger number of females beyond the upper fourth of the class.

ACT scores ranged from twelve to twenty-nine (with a mean of twenty and four-tenths and a median of twenty). Male mean (twenty-two and three-tenths) and median (twenty-two) scores were higher than the female mean (eighteen and seven-tenths) and median (eighteen). The reason for this was that eight of the twelve scores recorded for males were twenty or above and only six of thirteen scores were twenty or above for females.

The I.Q. scores for Level III ranged from eighty-six to 137, with a mean of 115.9 and a median of 117. The male and female mean scores and median scores were consistent with the combined mean and median.

V. LEVEL IV

The characteristics of high school students who achieved a GPA of 2.0 to 2.4 was the concern of Level IV. As seen from Table IV, the college GPA range of Level IV had a mean and median of 2.3 in the combined, male, and female categories.

The high school GPA ranged from 2.1 to 3.7, with a mean and median of 2.9. The mean and median high school GPA scores for males and females were consistent with the combined high school mean and median GPA, except for a one-tenth of a point difference in the female mean. Ten of the students had a high school GPA of 3.0 or better and nineteen had a high school GPA of 2.5 or better.

Class rank in high school had a range of fifteen to 306 (with a

mean and median of 128.6 and ninety-eight respectively). The reason for such a difference in mean and median was due to the location of twelve of twenty-three of the subjects in the upper fourth of their high school class.

Male and female high school class rank means were relatively consistent. However, the difference in median class rank was due to a more consistent distribution of females in the class rank continuum.

TABLE IV

COLLEGE GPA OF 2.0-2.4 AND HIGH SCHOOL CHARACTERISTICS (LEVEL IV)

	COLLEGE GPA	HIGH SCHOOL GPA	CLASS RANK	ACT SCORE	I.Q. SCORE
<u>COMBINED (23 STUDENTS)</u>					
RANGE	2.0-2.4	2.1-3.7	15-306	11-26	93-137
MEAN	2.3	2.9	128.6	18.5	114.1
MEDIAN	2.3	2.9	98	18	114
<u>MALES (12 STUDENTS)</u>					
RANGE	2.1-2.4	2.1-3.7	15-306	14-26	93-137
MEAN	2.3	2.9	129.2	20.8	119.8
MEDIAN	2.3	2.9	105	21	121.5
<u>FEMALES (11 STUDENTS)</u>					
RANGE	2.0-2.4	2.1-3.6	25-302	11-23	95-120
MEAN	2.3	2.8	127.9	16.1	107.8
MEDIAN	2.3	2.9	98	15	109

ACT scores ranged from eleven to twenty-six (with a mean of eighteen and one-half and a median of eighteen). The male mean and median (twenty and eight-tenths and twenty-one respectively) ACT scores were considerably higher than the female mean and median

(sixteen and one-tenth and fifteen respectively). The reason for such a wide variation in ACT mean and median was because the males had nine of twelve scores of eighteen or above, while the females had three of eleven scores of eighteen or above.

As seen in Appendicies A, the I.Q. scores followed a pattern similar to the ACT scores. The male I.Q. scores were much higher than the female scores, causing a broad variation in the mean (male 119.8, female 107.8) and median (male 121.5, female 109) scores within a range of ninety-three to 137.

VI. LEVEL V

Level V, shown in Table V, was concerned with the high school characteristics of students who maintained a college GPA within the .0 to 1.9 range. The actual college GPA range in this division was 1.1 to 1.9, with a mean score of 1.7 and a median score of 1.8. The combined college mean and median scores were consistent with the male and female categories (means 1.7 and 1.8, and medians 1.8 and 1.8, respectively).

The high school GPA variable was consistently higher than the college GPA. Within the range of 1.8 to 3.2, the mean and median for high school GPA was 2.4. However, the male high school GPA mean and median were two-tenths of a point lower than the female high school GPA mean and median. For the combined groups, only two students had a high school GPA of 3.0 or better.

Class rank in high school ranged from fifty-four to 382 (with a

mean and median of 219.7 and 226 respectively). This placed them in the upper half of their class. However, only six of the twenty-nine students in this level were in the upper third of their class.

TABLE V

COLLEGE GPA OF .0-1.9 AND HIGH SCHOOL CHARACTERISTICS (LEVEL V)

	COLLEGE GPA	HIGH SCHOOL GPA	CLASS RANK	ACT SCORE	I.Q. SCORE
<u>COMBINED (29 STUDENTS)</u>					
RANGE	1.1-1.9	1.8-3.2	54-382	9-24	94-137
MEAN	1.7	2.4	219.7	16.8	109.8
MEDIAN	1.8	2.4	226	16	109
<u>MALES (14 STUDENTS)</u>					
RANGE	1.1-1.9	1.8-3.2	54-382	15-24	99-121
MEAN	1.7	2.3	231.9	17.8	110.1
MEDIAN	1.8	2.3	239	16.5	112
<u>FEMALES (15 STUDENTS)</u>					
RANGE	1.5-1.9	2.0-3.0	81-315	9-23	94-137
MEAN	1.8	2.5	208.4	15.9	109.5
MEDIAN	1.8	2.5	196	16	107

The male and female high school class rank range, mean, and median varied considerably. As seen in Appendicies A, the males had considerably lower class rankings overall.

ACT test scores ranged from nine to twenty-four (with a mean of sixteen and eight-tenths and a median of sixteen). Of the students in Level V, only six had a score of twenty or higher, while fifteen had scores of sixteen, the Level V ACT median, or lower. The males had higher ACT scores (seventeen and eight-tenths and sixteen and one-half,

respectively) than did the females (fifteen and nine-tenths and sixteen, respectively). Only two females had scores of twenty or better.

The I.Q. scores for Level V ranged from ninety-four to 137 (with a mean of 109.8 and a median of 109). The male I.Q. scores had a mean of 110.1 and median of 112, while the female I.Q. mean was 109.5 and the median was 107. Of the twenty-nine cases in Level V, four had an I.Q. score of 120 or higher.

VII. COMPARISON OF HIGH SCHOOL CHARACTERISTICS

Table VI was designed to be used for the comparison of the various college levels of achievement and high school characteristics to determine any consistencies that had arisen statistically.

High school GPA was relatively consistent with college at Level I. However, as college GPA scores at lower levels were compared with high school GPA scores at lower levels, the high school GPA scores were higher than college GPA scores. High school GPA was inconsistent in relation to college GPA.

Class rank was also inconsistent as mean and median scores were compared. As seen in Table VI, a higher mean and median class rank at Level II than at Levels III and IV indicated this inconsistency.

ACT mean and median scores indicated a consistent regression from Level I through Level V. The difference between levels showed a normal difference in scores from two to one and one-half in the median column. In the mean column, the difference is no greater than two, or no less than one.

I.Q. mean and median scores showed a regression similar to that of the ACT scores. The I.Q. score regression was true from Level I through Level IV, with an approximate difference of two. However, Level V had a difference of five from Level IV.

TABLE VI

COMPARISON OF ALL LEVELS AND HIGH SCHOOL CHARACTERISTICS

LEVEL	COLLEGE GPA	HIGH SCHOOL GPA	CLASS RANK	ACT SCORE	I.Q. SCORE
<u>RANGE</u>					
I.	3.5-3.9	3.0-3.9	4- 83	18-28	105-131
II.	3.0-3.4	1.9-3.9	10-355	16-25	103-128
III.	2.5-2.9	1.9-3.9	9-361	12-29	86-137
IV.	2.0-2.4	2.1-3.7	15-306	11-26	93-137
V.	1.1-1.9	1.8-3.2	54-382	9-24	94-137
<u>MEAN</u>					
I.	3.7	3.6	27.5	23.5	119.9
II.	3.2	2.8	139.9	21.4	117.9
III.	2.7	2.9	120	20.4	115.9
IV.	2.3	2.9	128.6	18.5	114.1
V.	1.7	2.4	219.7	16.8	109.8
<u>MEDIAN</u>					
I.	3.8	3.5	15.5	23	120
II.	3.2	2.8	147	21.5	118
III.	2.7	2.7	95	20	117
IV.	2.3	2.9	98	18	114
V.	1.8	2.4	226	16	109

CHAPTER IV

SUMMARY AND CONCLUSIONS

In an attempt to help guidance counselors, administrative and faculty members determine criteria for counseling prospective college students, this study was devised to relate some variables available at the high school level to academic achievement in college. The study was confined to students who had graduated from Clarksville High School, Clarksville, Tennessee, in 1967, had taken the American College Test their senior year, had an I.Q. score from the Stanford-Binet Intelligence Scale taken their junior year, had attended Austin Peay State University as freshmen during the 1967-68 school year, and had completed thirty-six quarter hours of study during their freshman year.

The students were divided into five levels of achievement based on GPA during their freshman year of college. The four high school variables--GPA, class rank, ACT scores, and I.Q. scores--were distributed into ranges. Means and medians were calculated for each variable and at each level to aid in determining relationships between the variables and college achievement.

As the statistical information was considered, descriptions of each level became apparent. As a result of this study, limited to the Clarksville High School graduates who attended Austin Peay State University during the 1967-68 school year, the following was true of each level.

Level I. Level I students had a high school GPA no lower than 3.0. Male students had a mean of 3.4 and females had a mean of 3.8. These students had a mean class rank of twenty-seven and one-half, which put

them in the top six percent. However, one male student ranked as low as eighty-third in his class which put him in the upper seventeen percent of his class.

An ACT score of twenty-three and five-tenths was average. A score of eighteen was the lowest received with eight of the ten students scoring twenty-three or higher. An I.Q. score of 119.9 was the average score for this group of students.

The typical Level I student was characterized by: (1) a high school GPA between 3.4 and 3.8; (2) a high school graduating class rank of twenty-seven and one-half; (3) an ACT score between eighteen and twenty-eight; and, (4) an I.Q. score of 120.

Level II. Level II had a wide range in high school GPA. Nine of the twelve students had a grade point average in high school lower than the college mean GPA score. These students had a mean class rank of 139.9 which put them in the top twenty-nine percent. However, four of the twelve students ranked below the upper third of their class.

An ACT score of twenty-one and four-tenths was average. A score of sixteen was the lowest received with nine of the twelve students scoring twenty-one or higher. An I.Q. score of 117.9 was the average score for this group of students.

The typical Level II student was characterized by: (1) a high school GPA between 1.9 and 3.9; (2) a high school graduating class rank of 139.9; (3) an ACT score between sixteen and twenty-five; and, (4) an I.Q. score of 118.

Level III. Level III students had a wide range in high school GPA. Seventeen of the twenty-five students had a high school GPA higher than the college mean GPA. These students had a mean class rank of 120 which put them in the top twenty-five percent. However, one male student ranked 361 in his class which put him slightly above the seventy-fifth percent of his class.

An ACT score of twenty and four-tenths was average. A score of twelve was the lowest received with fourteen of the twenty-five students scoring twenty or higher. An I.Q. score of 115.9 was the average score for this group of students.

The typical Level III student was characterized by: (1) a high school GPA between 1.9 and 3.9; (2) a high school graduating class rank of 120; (3) an ACT score between twelve and twenty-nine; and, (4) an I.Q. score of 115.9.

Level IV. Level IV students had a high school GPA no lower than 2.1. However, ten of the twenty-three students had a 3.0 or higher high school GPA. These students had a mean class rank of 128.6 which put them in the top twenty-seven percent. However, seven of the twenty-three students ranked below the upper third of their class.

An ACT score of eighteen and five-tenths was average. A score of eleven was the lowest with eleven of the twenty-three students scoring twenty or higher.

An I.Q. score of 114.1 was the average score for this group of students.

The typical Level IV student was characterized by: (1) a high

school GPA between 2.1 and 3.7; (2) a high school graduating class rank of 128.6; (3) an ACT score between eleven and twenty-six; and, (4) an I.Q. score of 114.1.

Level V. Level V students had a high school GPA no higher than 3.2. Only two students had a high school GPA of 3.0 or higher. The Level V students had a mean class rank of 219.7 which put them in the top forty-six percent.

An ACT score of sixteen and eight-tenths was average. A score of twenty-four was the highest with five of the twenty-nine students scoring twenty or higher. An I.Q. score of 109.8 was the average score for this group of students.

The typical Level V student was characterized by: (1) a high school GPA between 1.8 and 3.2; (2) a high school graduating class rank of 219.7; (3) an ACT score between nine and twenty-four; and, (4) an I.Q. score of 109.8.

Comparison of high school characteristics. The high school GPA mean and median scores showed little consistency with college GPA mean and median scores. Class rank mean and median scores showed little consistency with college GPA levels of achievement.

A consistent regression in ACT mean and median scores became apparent from Level I through Level V.

A consistent regression in I.Q. mean and median scores from Level I through Level IV became apparent. However, the variance more than doubled from Level IV to Level V.

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APPENDIX A

COMPLETE ACHIEVEMENT LEVEL TABLES

LEVEL I

	COLLEGE GPA	HIGH SCHOOL GPA	CLASS RANK	ACT SCORE	I.Q. SCORE
<u>COMBINED</u>					
	3.9	3.8	12	24	123
	3.9	3.7	17	23	114
	3.8	3.4	40	20	117
	3.8	3.9	5	23	131
	3.8	3.2	59	23	111
	3.7	3.8	13	27	129
	3.6	3.5	29	18	105
	3.5	3.0	83	26	129
	3.5	3.8	14	23	113
	3.5	3.9	4	28	127
TOTAL	37.0	36.0	276	235	1199
MEAN	3.7	3.6	27.6	23.5	119.9
MEDIAN	3.8	3.5	15.5	23	120
RANGE	3.5-3.9	3.5-3.9	4-83	18-28	105-131

MALES

	3.8	3.4	40	20	117
	3.8	3.2	59	23	111
	3.5	3.8	14	23	113
	3.5	3.0	83	26	129
TOTAL	14.6	13.4	196	92	470
MEAN	3.7	3.4	49	23	117.5
MEDIAN	3.7	3.3	49.5	23	115
RANGE	3.5-3.8	3.0-3.8	14-83	20-26	111-129

FEMALES

	3.9	3.8	12	24	123
	3.9	3.7	17	23	114
	3.8	3.9	5	23	131
	3.7	3.8	13	27	129
	3.6	3.5	29	18	105
	3.5	3.9	4	28	127
TOTAL	22.4	22.6	80	143	729
MEAN	3.7	3.8	13	23.8	121.5
MEDIAN	3.8	3.8	13	24	125
RANGE	3.5-3.9	3.5-3.9	4-29	18-28	105-131

LEVEL II

	COLLEGE GPA	HIGH SCHOOL GPA	CLASS RANK	ACT SCORE	I.Q. SCORE
<u>COMBINED</u>					
	3.4	3.9	10	22	120
	3.4	2.8	120	21	121
	3.4	2.7	138	24	111
	3.3	3.7	19	25	116
	3.3	2.5	184	21	107
	3.2	2.6	167	19	126
	3.2	2.9	148	23	125
	3.1	3.2	63	21	116
	3.1	2.8	128	18	114
	3.0	2.7	146	23	128
	3.0	2.4	201	24	128
	3.0	1.9	355	16	103

TOTAL	38.4	34.1	1679	257	1415
MEAN	3.2	2.8	139.9	21.4	117.9
MEDIAN	3.2	2.8	147	21.5	118
RANGE	3.0-3.4	1.9-3.9	10-355	16-25	103-128

MALES

	3.4	2.8	120	21	121
	3.4	2.7	138	24	111
	3.3	3.7	19	25	116
	3.2	2.9	148	23	125
	3.0	2.7	146	23	128
	3.0	2.4	201	24	128
	3.0	1.9	355	16	103

TOTAL	22.3	19.1	1127	156	832
MEAN	3.2	2.7	161	22.3	118.9
MEDIAN	3.2	2.7	146	23	121
RANGE	3.0-3.4	1.9-3.7	19-355	16-25	103-128

FEMALES

	3.4	3.9	10	22	120
	3.3	2.5	184	21	107
	3.2	2.6	167	19	126
	3.1	3.2	63	21	116
	3.1	2.8	128	18	114

TOTAL	16.1	15	552	101	583
MEAN	3.2	3.0	110.4	20.2	116.6
MEDIAN	3.2	2.8	128	21	116
RANGE	3.1-3.4	2.5-3.9	10-184	18-22	107-126

LEVEL III

COLLEGE GPA	HIGH SCHOOL GPA	CLASS RANK	ACT SCORE	I.Q. SCORE
<u>COMBINED</u>				
2.9	3.9	9	29	121
2.9	3.3	43	26	137
2.9	2.9	93	25	115
2.9	2.8	132	19	86
2.8	2.9	111	24	120
2.8	2.9	104	16	124
2.8	1.9	361	19	121
2.8	3.0	86	18	120
2.7	3.1	75	25	125
2.7	3.2	64	26	106
2.7	2.6	155	16	117
2.7	2.5	194	22	137
2.7	2.9	95	27	132
2.6	3.1	70	19	120
2.6	3.0	84	20	117
2.6	2.6	155	20	111
2.6	2.0	317	15	100
2.6	3.6	31	20	112
2.6	3.5	42	22	116
2.6	3.5	33	17	109
2.5	2.6	159	12	98
2.5	2.8	132	16	106
2.5	2.6	170	22	114
2.5	3.6	20	22	123
2.5	2.2	255	13	110
TOTAL	67.0	73.0	3000	510
MEAN	2.7	2.9	120	20.4
MEDIAN	2.7	2.9	95	20
RANGE	2.5-2.9	1.9-3.9	9-361	12-29

MALES

2.9	3.9	9	29	121
2.9	3.3	43	26	137
2.9	2.9	93	25	115
2.9	2.8	132	19	86
2.8	2.9	111	24	120
2.8	1.9	361	19	121
2.7	3.1	75	25	125
2.7	3.2	64	26	106
2.6	3.1	70	19	120
2.6	2.6	155	20	111

LEVEL III (continued)

COLLEGE GPA	HIGH SCHOOL GPA	CLASS RANK	ACT SCORE	I.Q. SCORE
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MALES (continued)

	2.6	3.5	42	22	116
	2.5	2.2	255	13	110
TOTAL	32.9	35.4	1410	267	1388
MEAN	2.7	2.9	117.5	22.3	115.7
MEDIAN	2.8	3.1	84	22	118
RANGE	2.5-2.9	1.9-3.9	9-361	13-29	86-137

FEMALES

	2.8	2.9	104	16	124
	2.8	3.0	86	18	120
	2.7	2.6	155	16	117
	2.7	2.5	194	22	137
	2.7	2.9	95	27	132
	2.6	3.0	84	20	111
	2.6	2.0	317	15	100
	2.6	3.6	31	20	112
	2.6	3.5	33	17	109
	2.5	2.6	159	12	98
	2.5	2.8	132	16	106
	2.5	2.6	170	22	114
	2.5	3.6	20	22	123
TOTAL	34.1	37.6	1590	243	1509
MEAN	2.6	2.9	122.3	18.7	116.1
MEDIAN	2.6	2.9	104	18	117
RANGE	2.5-2.8	2.0-3.6	20-317	12-27	98-137

LEVEL IV

COLLEGE GPA	HIGH SCHOOL GPA	CLASS RANK	ACT SCORE	I.Q. SCORE
<u>COMBINED</u>				
2.4	2.2	258	15	117
2.4	3.7	15	24	127
2.4	3.6	23	16	120
2.4	3.2	57	25	123
2.4	3.6	25	23	119
2.4	3.0	87	18	109
2.4	3.2	61	13	98
2.4	3.1	74	25	137
2.3	2.7	151	15	109
2.3	2.9	96	21	120
2.3	2.1	302	23	114
2.3	3.3	48	18	104
2.3	2.8	123	21	108
2.2	2.9	98	11	99
2.2	2.5	182	21	134
2.2	2.8	129	15	105
2.2	2.1	290	14	93
2.1	2.1	306	23	134
2.1	3.0	87	26	137
2.1	3.1	77	11	101
2.1	2.5	181	20	112
2.1	2.6	164	16	108
2.0	2.8	123	12	95
TOTAL	52.0	65.8	2957	426
MEAN	2.3	2.9	128.6	18.5
MEDIAN	2.3	2.9	98	18
RANGE	2.0-2.4	2.1-3.7	15-306	11-26

MALES

2.4	3.7	15	24	127
2.4	3.6	23	16	120
2.4	3.2	57	25	123
2.4	3.1	74	25	137
2.3	3.3	48	18	104
2.3	2.8	123	21	108
2.2	2.5	182	21	134
2.2	2.1	290	14	93
2.1	2.1	306	23	134
2.1	3.0	87	26	137
2.1	2.5	181	20	112

LEVEL IV (continued)

	COLLEGE GPA	HIGH SCHOOL GPA	CLASS RANK	ACT SCORE	I.Q. SCORE
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MALES (continued)

	2.1	2.6	164	16	108
TOTAL	27.0	34.5	1550	249	1437
MEAN	2.3	2.9	129.2	20.8	119.8
MEDIAN	2.3	2.9	105	21	121.5
RANGE	2.1-2.4	2.1-3.7	15-306	14-26	93-137

FEMALES

	2.4	2.2	258	15	117
	2.4	3.6	25	23	119
	2.4	3.0	87	18	109
	2.4	3.2	61	13	98
	2.3	2.7	151	15	109
	2.3	2.9	96	21	120
	2.3	2.1	302	23	114
	2.2	2.9	98	11	99
	2.2	2.8	129	15	105
	2.1	3.1	77	11	101
	2.0	2.8	123	12	95
TOTAL	25.0	31.3	1407	177	1186
MEAN	2.3	2.8	127.9	16.1	107.8
MEDIAN	2.3	2.9	98	15	109
RANGE	2.0-2.4	2.1-3.6	25-302	11-23	95-120

LEVEL V

COLLEGE GPA	HIGH SCHOOL GPA	CLASS RANK	ACT SCORE	I.Q. SCORE
<u>COMBINED</u>				
1.9	1.8	378	15	109
1.9	2.6	155	18	106
1.9	2.6	173	16	107
1.9	2.3	230	21	111
1.9	2.5	196	13	99
1.9	2.1	298	9	96
1.9	2.5	188	16	103
1.9	3.2	54	22	121
1.8	2.3	227	16	104
1.8	2.0	315	18	121
1.8	2.2	263	16	99
1.8	2.3	226	18	105
1.8	2.6	175	18	119
1.8	2.2	263	15	107
1.8	2.5	186	13	94
1.8	2.6	160	24	111
1.8	2.5	190	15	103
1.7	1.8	382	17	117
1.7	2.4	203	13	109
1.7	3.0	81	23	137
1.7	2.3	239	14	118
1.7	2.3	250	15	107
1.7	2.3	248	21	113
1.7	1.9	337	16	115
1.7	2.4	221	15	98
1.6	2.3	230	17	105
1.5	2.9	103	20	127
1.1	2.3	248	18	114
1.1	2.7	153	15	113
TOTAL	50.3	69.4	487	3184
MEAN	1.7	2.4	16.8	109.8
MEDIAN	1.8	2.4	16	109
RANGE	1.1-1.9	1.8-3.2	9-24	94-137

MALES

1.9	1.8	378	15	109
1.9	2.3	230	21	111
1.9	3.2	54	22	121
1.8	2.3	227	16	104
1.8	2.2	263	16	99
1.8	2.3	226	18	105

LEVEL V (continued)

COLLEGE GPA	HIGH SCHOOL GPA	CLASS RANK	ACT SCORE	I.Q. SCORE
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MALES (continued)

	1.8	2.6	160	24	111
	1.8	2.5	190	15	103
	1.7	1.8	382	17	117
	1.7	2.3	250	15	107
	1.7	2.3	248	21	113
	1.7	1.9	337	16	115
	1.1	2.3	249	18	114
	1.1	2.7	153	15	113
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TOTAL	23.7	32.5	3246	249	1542
MEAN	1.7	2.3	231.9	17.8	110.1
MEDIAN	1.8	2.3	239	16.5	112
RANGE	1.1-1.9	1.8-3.2	54-382	15-24	99-121

FEMALES

1.9	2.6	155	18	106	
1.9	2.6	173	16	107	
1.9	2.5	196	13	99	
1.9	2.1	298	9	96	
1.9	2.5	188	16	103	
1.8	2.0	315	18	121	
1.8	2.6	175	18	119	
1.8	2.2	263	15	107	
1.8	2.5	186	13	94	
1.7	2.4	203	13	109	
1.7	3.0	81	23	137	
1.7	2.3	239	14	118	
1.7	2.4	221	15	98	
1.6	2.3	230	17	105	
1.5	2.9	103	20	127	
<hr/>					
TOTAL	26.6	36.9	3126	238	1642
MEAN	1.8	2.5	208.4	15.9	109.5
MEDIAN	1.8	2.5	196	16	107
RANGE	1.5-1.9	2.0-3.0	81-315	9-23	94-137

APPENDIX B

FORMAL APPROVAL OF STUDY LETTERS

April 8, 1969

William H. Sanford, Director
Clarksville Montgomery
School System
1209 Madison Street
Clarksville, Tennessee 37040

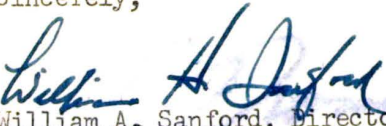
Mr. Benjamin J. Daves
Box 6717
Austin Peay State University
Clarksville, Tennessee 37040

Dear Mr. Daves:

You have my approval to use the cumulative records at Clarksville High School to obtain information for a research paper entitled "A Comparison Between Scholastic Achievement in University and High School Class Rank, ACT Scores, Grade Point Average, and I.Q. Scores".

This approval is given with the stipulation that you will not use the names of any students, staff members, or administrative personnel.

Sincerely,


William A. Sanford, Director
Board of Education

af

April 8, 1969

Howard L. Thompson, Principal
Clarksville High School
Richview Road
Clarksville, Tennessee 37040

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AUSTIN PEAY
STATE UNIVERSITY